Cambridgeshire County Council
Proposed New Cambridge Science Park Railway Station And Transport Interchange At Chesterton Sidings, Cambridge

Environmental Impact Assessment Scoping Report
October 2012
## Contents Page

1. Introduction ........................................... 3

2. Site and Development ............................... 5

3. Environmental Impact Assessment ............... 6

4. Technical Chapters ..................................... 8

## Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.1</td>
<td>Site Plan</td>
<td>65</td>
</tr>
<tr>
<td>Figure 1.2</td>
<td>Location Plan</td>
<td>66</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>The Applicant’s Assessment Process</td>
<td>67</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Approximate Site Location and Watercourses</td>
<td>68</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>Noise Survey Locations</td>
<td>69</td>
</tr>
</tbody>
</table>

## Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Screening Opinion and Response</td>
<td>70</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Extended Phase 1 Habitat Survey</td>
<td>71</td>
</tr>
</tbody>
</table>
1. **Introduction**

1.1 Cambridgeshire County Council (‘CCoC’) is proposing to develop a new railway station and public transport interchange (“the Development”) on land forming part of the existing Chesterton Sidings in north Cambridge (‘the Site’).

1.2 The Site is approximately 12 hectares in size and includes land lying within the administrative boundaries of both Cambridge City Council (‘CCiC’) and South Cambridgeshire District Council (‘SCDC’). The determining authority will be the City Fringes Joint Development Control Committee (‘JDDC’), on which members of CCoC, CCiC, and SCDC are represented.

1.3 It is intended to be a joint project with Network Rail (‘NR’) under the Governance for Railway Investment Projects (‘GRIP’) process. It is anticipated that a detailed application will be submitted to CCoC, as the Local Planning Authority (‘LPA’), under Regulation 3 of the Town and Country Planning General Regulations 1992, seeking planning permission for so much of the Development as is not authorised by the planning permission conferred in connection with the Cambridgeshire Guided Busway (CGB) Order 2005 or by way of Part 11 permitted development rights in respect of Network Rail’s statutorily authorised railway.

1.4 It has been determined by the LPA through the Environmental Impact Assessment (EIA) Screening decision that an application for planning permission for the proposed Development should be through the process of Environmental Impact Assessment (‘EIA’) in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (‘the EIA Regulations’), and that an Environmental Statement (‘ES’) must accompany an application for planning permission.

1.5 This EIA Scoping Report sets out the applicant’s proposed scope of their assessment and anticipated content of the ES. In accordance with Regulation 13 of the EIA Regulations this Scoping Report includes:

- a plan sufficient to identify the land that is the subject of the Development (Figures 1.1 and 1.2)
- a description of the nature and purpose of the Development
- a description of the possible effects on the environment as a result of the Development.

1.6 This document forms part of a request for a formal scoping opinion from the LPA.

1.7 Carter Jonas has been appointed to coordinate the EIA and prepare an ES to accompany the planning application to be made in respect of the Development.
Environmental Statement

1.8 The applicant proposes to include the whole Development in its ES, particularly through assessment of cumulative and in combination effects.

1.9 The applicant’s assessment of the environmental effects of the Development will be informed by reports prepared by specialists which will also include any necessary mitigation measures (to minimise or eradicate any adverse environmental effects) within the design and method of operation of the proposed development. The results of these professional inputs will be drawn together within the applicant’s Environmental Statement submitted in support of the other details of the Development.

1.10 In considering the planning merits of the proposals prior to determining the application the LPA will consult other stakeholders and review the work carried out by the applicant and presented in the ES.

1.11 The EIA Regulations allow applicants, under the provisions of Regulation 5(1), to request a Screening Opinion from the LPA. A Screening Opinion Report was submitted by the Major Infrastructure Delivery Team at CCoC on the 2 May 2012, and a response was received from the County Development, Minerals and Waste Planning Manager at CCoC on 14 May 2012. This confirmed that whilst the proposal did not fall within a Schedule 1 Project, the size of the Development exceeds the thresholds for intermodal terminals (as given in Schedule 2 of the EIA Regulations and Circular 02/99), above which an EIA would normally be required. The Screening Opinion Report and Response are attached in Appendix A.

Purpose of this Report

1.12 The first stage of the applicant’s environmental assessment process is a Scoping Study. Scoping is regarded as a critical component of the EIA process, and aims to:

- identify potentially significant effects
- focus the subsequent applicant’s assessment on the key environmental impacts
- develop the methodologies to be applied to determine, assess and mitigate impacts of the Development

1.13 This report includes plans showing the Site and Development and provides a brief description of the nature and purpose of the Development and possible effects on the environment. This report also identifies the range of topics and issues to be addressed by the ES and outlines the proposed approach and methodology for assessing each of these topics. This report is structured as follows:
Section 2 briefly describes the Site, its context and the background to the Development

Section 3 describes the approach to the Scoping and preparation of the applicant’s studies of the potential environmental effects

Section 4 describes the main environmental topics to be considered, reviewing the work done to date, the key issues and the work to be undertaken. For each topic, this is organised in terms of the baseline conditions, potential impacts and proposed assessment methodology and mitigation measures.

2. Site And Development

2.1 The proposal is to develop a new railway station and public transport interchange on land forming part of the existing Chesterton Sidings in the northern fringe of Cambridge. The Site is approximately 12 hectares and comprises of railway sidings, land for the storage of aggregates and large areas of derelict land overgrown with vegetation.

2.2 To the north of the Site is an industrial area on Cowley Road and former engineering railway depot sidings, on part of which is an active aggregates rail terminal and road stone coating plant. Between the industrial area and the A14 lies Cambridge Waste Water Treatment Works (‘CWWTW’). The eastern boundary is formed by the West Anglian Main Line railway, providing direct services to London and Stansted Airport, Ely, Peterborough, Kings Lynn, Norwich and Birmingham. Beyond there are some residential developments and industrial uses accessed from Fen Road, Chesterton. To the west of the Site is the Cambridge Business Park, and to the south is Nuffield Road allotments and the wider residential area of Chesterton. Cambridge Science Park lies 750m to the west with vehicular and cycle access to Milton Road.

2.3 The Development is expected to include the items listed below, following demolition and clearance of existing features and capping of redundant sidings:

Railway Station
- 450m² building (passenger waiting facilities; toilets, staffed ticket office; retail; amenity space; rail staff accommodation and facilities)

- two main line platforms; bay platform

- Pedestrian/cycle bridge linking station building and platforms over the main line (lift and stair access).
Operational times 05.30 to 01.00 every day

**Interchange Facility**

- Landscaped 450 space car park; 1000 space cycle parking
- New pedestrian and cycle links to surrounding area including Discovery Way, Pippin Drive, Ribston Way, Long Reach Road and through Bramblefields Local Nature Reserve, Nuffield Road industrial estate. No links are currently intended to be provided east of station/railway to existing development located along Fen Road
- Extension of a bus lane and cycle route from the Cambridgeshire Guided Busway into the Site along the alignment of the former St Ives Branch Line
- Highway access from Cowley Road/Milton Road (new junction to station; limited works to Cowley Road/Milton Road junction). It is anticipated that the necessary upgrade works to existing junctions and road will be minor.
- Multi-modal choice of train, bus, cycle pedestrian and car routes

2.4 The interchange facility will provide access onto the wider public transport and highway network. It will enable travellers to switch between all modes with access for pedestrians and cyclists, bus users, car drivers and passengers, and rail users. The interchange will be linked into the existing Busway, including the pedestrian and cycle provided by the maintenance track. The existing Busway (including the part of disused railway that extends to the edge of the Site) has deemed planning approval under the Cambridgeshire Guided Busway Order 2005.

### 3. Environmental Impact Assessment

**Statutory Requirements**

3.1 The EIA will be carried out in accordance with the legal requirements of the EIA Regulations, which implements EC Directive 85/337/EEC and its amendment 97/11/EC.

3.2 An ES will be prepared in accordance with the EIA Regulations and having regard to DETR Circular 02/99 *Environmental Impact Assessment* (1999) and DETR *Environmental Impact Assessment: A Guide to Procedures* (2000). This will include assessment of all environmental topics where significant effects on the environment are likely.
**EIA Scoping**

3.3 Schedule 4 of the EIA Regulations provides guidance as to the scope of an EIA and specifies the information that should be included in an ES. These requirements form the starting point for setting the scope of the applicant’s assessment and the ES will include this information, together with additional relevant information where appropriate. An outline of this iterative process is shown in Figure 3.1.

3.4 The scope of the ES will be determined through consultation between the Major Infrastructure Delivery Team at CCoC (‘the Applicant’), their team of consultants, and the Local Planning Authority in consultation with statutory/non-statutory stakeholders to the planning process. The scope of the ES will be determined through a formal scoping decision made by the Local Planning Authority under Regulation 13 of the Town and Country Planning EIA Regulations 2011.

3.5 In parallel, baseline studies of the Site have been or are planned to be undertaken in order to understand the current situation and its condition.

**Assessing Impacts**

3.6 Impacts from the construction and operational stages of the Development will be identified during the applicant’s assessment process for the ES. Construction extends from the commencement of Site works to the date immediately prior to occupation of the Development. Operation extends from immediately after occupation of the Development for the remainder of its life. Impacts will be considered in terms of their nature, the physical extent of their influence, and the magnitude of their effects, on the following basis:

- Direct or indirect
- Temporary, short, medium or long term
- Reversible or irreversible
- Beneficial or adverse
- Cumulative

3.7 The area over which impacts could occur could be wider than the area of land directly influenced by the proposed development. It is inappropriate to define a single study area for the assessment, since the spatial scope varies depending on the topic under consideration. For some topics the study area is confined to a relatively small area around the Site. For others, such as
visual impact, the study area can be much wider extending to cover all areas from which the development may be seen. The study areas should therefore allow for the assessment of indirect as well as direct effects, including off-Site works such as soil disposal, construction compounds and routes for construction traffic.

3.8 It is recognised that some environmental design measures would take time to become established and effective. The assessment should therefore consider impacts in Year 1 (Opening Year) and in Year 10 (Design Year), where appropriate. It is also recognised that some effects would be of a permanent nature whereas others would be temporary.

3.9 Where likely significant adverse effects are identified during the assessment, measures will be proposed, where practicable, to avoid, reduce or remedy the adverse environmental effects as far as possible. For instance mitigation measures may include a Construction Environmental Management Plan (CEMP), setting requirements for contractors employed in construction of the works in respect of managing their impacts.

3.10 Measures to enhance beneficial environmental effects will also be proposed where appropriate.

3.11 Cumulative effects arise from the combination of the proposed development and other developments not yet constructed or currently under construction in the vicinity, acting together to generate elevated levels of effects. The impacts from a single development may not be significant on their own but when combined with other impacts spatially connected to a Site these effects could become significant. A review of consented and planned developments in the vicinity of the Site will be undertaken in consultation with the LPA.

3.12 Residual effects are those effects that would remain after mitigation and enhancement measures have been fully implemented. Impacts will be defined in terms of resources and receptors. Resources are defined as biophysical features or items of ‘environmental capital’ (such as elements of ecological, landscape or heritage value, watercourses, dwellings, places of employment, and community facilities). Receptors are human beings, either individually or collectively, and the socio-economic systems on which they depend.

3.13 Methodologies and significance criteria will vary from topic to topic and the proposed methodologies are set out in Section 4.

3.14 Determining the severity of an effect and establishing whether or not it is significant are important steps in the formal EIA process, and are needed to satisfy statutory reporting requirements. In general the severity of an impact reflects the importance or value of the
affected resource or receptor, its sensitivity to change, and the magnitude of the predicted impact. Table 3.1 presents the assessment matrix that will be used to determine impact severity.

Table 3.1 Assessing Impact Severity

<table>
<thead>
<tr>
<th>Importance of resource or receptor</th>
<th>Very High</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Negligible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Magnitude of potential impact</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High</td>
<td>Very Large</td>
<td>Large</td>
<td>Large</td>
<td>Moderate</td>
<td>Neutral</td>
</tr>
<tr>
<td>High</td>
<td>Large</td>
<td>Large</td>
<td>Moderate</td>
<td>Slight</td>
<td>Neutral</td>
</tr>
<tr>
<td>Medium</td>
<td>Large</td>
<td>Moderate</td>
<td>Slight</td>
<td>Negligible</td>
<td>Neutral</td>
</tr>
<tr>
<td>Low</td>
<td>Moderate</td>
<td>Slight</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Neutral</td>
</tr>
<tr>
<td>Negligible</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
</tbody>
</table>

**Nb:** Scoring can be either Beneficial or Adverse

3.15 From the impacts identified, an assessment will be made as to which of these are significant in terms of the application and subsequent decision making process for the Development. The criteria for determining significance will vary topic from topic but the general principle will be that higher magnitude impacts on important resources will be regarded as significant. Lower magnitude impacts on less important resources will not generally be regarded as significant.

**ES Structure**

3.16 The main element of the applicant’s assessment work will comprise a series of specialist environmental studies undertaken by the project team. Each specialist will prepare their respective ES chapter, with detailed technical information included as appendices to the ES where this is appropriate.

It is proposed that the ES will comprise the following chapters:

- Introduction; Assessment Methodology
- Design Evaluation
- Development Description
- Development Programme and Construction
- **Air Quality** (technical)
- **Ecology** (technical)
- Flood Risk and Drainage (technical)
- Ground Conditions (technical)
- Heritage (technical)
- Landscape and Visual Impact (technical)
- **Noise and Vibration** (technical)
- **Transport and Access** (technical)
- Conclusions
- A Non-Technical Summary will also be prepared as a separate document

Those in **bold** show the principal chapters for assessment on the basis that they were highlighted in the Screening Opinion as offering potential for most impact significance.

3.17 Each technical chapter will use the following format, unless otherwise stated:

- Introduction
- Specific Assessment Methodology
- Significance Criteria
- Baseline Conditions
- Potential Impacts
- Mitigation Measures
- Residual Impacts
Conclusions

4. Technical Chapters

Air Quality

4.1 This chapter of the EIA scoping report considers the potential for significant effects in relation to air quality due to the construction and operation of the new Cambridge Science Park Station Interchange Development at the Site.

4.2 Firstly, baseline air quality conditions in the vicinity of the development site and wider area are reviewed. Having set the context, potential air quality impacts (i.e. changes in levels or concentrations of pollutants) are then considered for construction and operational phases. For impacts with potentially significant effects (i.e. where the impact may cause or alleviate environmental harm) the proposed assessment methodology is outlined. Finally, mitigation requirements for adverse impacts with potentially significant effects are considered.

Baseline Conditions

4.3 This section provides a brief review of air quality conditions within the study area. The topic of ‘air quality’ is considered in terms of: public health, ecologically designated sites of national or international importance, and amenity in public and private locations.

Study Area

4.4 The study area for air quality includes the Site, the area around it and the main transport corridors that may be affected by the Development. The area around the Site has been limited to a 1 km radius for consideration of emission sources that could constrain development. The area around transport corridors has been limited to 200 m either side of routes that may be affected; beyond 200 m any impacts are likely to be imperceptible.

Local Air Quality (Public Health)

4.5 Local air quality is defined by concentrations of substances in ambient air that are considered to cause environmental harm in-terms of public health. The Government has defined criteria for these substances (termed ‘pollutants’) over which harm may occur, and put in place a regime for managing local air quality.

4.6 Under Part IV of the Environment Act 1995, local authorities have responsibility for local air quality management (LAQM). The LAQM regime is specified in the Government’s UK Air Quality Strategy¹ (AQS) and associated guidance documents². Government AQS objectives for

¹ Defra website: [http://www.defra.gov.uk/environment/quality/air/air-quality/air-quality-publications/]
local air pollutant concentrations are given in statutory regulations\(^3\); these apply to local authorities and are not mandatory. AQS objectives are summarised in Table 4.1.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Criteria</th>
<th>Compliance Date for AQS Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen dioxide ($\text{NO}_2$)</td>
<td>Hourly average concentration should not exceed 200 $\mu\text{g/m}^3$ more than 18 times a year</td>
<td>31 December 2005</td>
</tr>
<tr>
<td></td>
<td>Annual mean concentration should not exceed 40 $\mu\text{g/m}^3$</td>
<td>31 December 2005</td>
</tr>
<tr>
<td>Particulates ($\text{PM}_{10}$)</td>
<td>24-hour mean concentration should not exceed 50 $\mu\text{g/m}^3$ more than 35 times a year</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>Annual mean concentration should not exceed 40 $\mu\text{g/m}^3$</td>
<td>31 December 2004</td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Maximum daily running 8-hour mean should not exceed 10 $\mu\text{g/m}^3$</td>
<td>31 December 2003</td>
</tr>
<tr>
<td>1,3-butadiene ($\text{C}_4\text{H}_6$)</td>
<td>Running annual mean concentration should not exceed 2.25 $\mu\text{g/m}^3$</td>
<td>31 December 2003</td>
</tr>
<tr>
<td>Benzene ($\text{C}_6\text{H}_6$)</td>
<td>Running annual mean concentration should not exceed 16.25 $\mu\text{g/m}^3$</td>
<td>31 December 2003</td>
</tr>
<tr>
<td></td>
<td>Annual mean concentration should not exceed 5 $\mu\text{g/m}^3$</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Sulphur dioxide ($\text{SO}_2$)</td>
<td>1-hour mean of 350 $\mu\text{g/m}^3$ should not be exceeded more than 24 times a year</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>24-hour mean of 125 $\mu\text{g/m}^3$ should not be exceeded more than 3 times a year</td>
<td>31 December 2004</td>
</tr>
<tr>
<td></td>
<td>15-minute mean of 266 $\mu\text{g/m}^3$ should not be exceeded more than 35 times a year</td>
<td>31 December 2005</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>Annual mean concentration should not exceed 0.25 $\mu\text{g/m}^3$</td>
<td>31 December 2008</td>
</tr>
</tbody>
</table>

4.7 In accordance with the AQS, a local authority is required to periodically review and assess air quality in its area to determine whether or not local air pollutant concentrations are likely to comply with AQS objectives. Where a local authority anticipates exceedance of one or more objective it is required to declare an Air Quality Management Area (AQMA) and develop an action plan to improve local air quality. The two pollutants of most concern (i.e. with which there


\(^3\) The Air Quality (England) Regulations 2000 (SI 928) and The Air Quality (England) (Amendment) Regulations 2002 (SI 3043)
are problems) are NO$_2$ and PM$_{10}$, with concentrations of other AQS local air pollutants in compliance in most locations across the UK.

4.8 The existing local air quality in the vicinity of the Development has been determined from the following sources:

- CCIC and SCDC LAQM reports (including air quality monitoring) and regulated industrial installations emitting to air
- Department for Environment, Food and Rural Affairs (Defra) data regarding background pollutant concentrations
- Environment Agency (EA) information on major regulated industrial installations emitting to air
- Department for Transport (DfT) data regarding road traffic on major roads
- CCoC Traffic Monitoring reports regarding local traffic
- Defra supported MAGIC web-based interactive map giving information on ecological designated sites of national and international importance
- County Council Traffic Monitoring Reports

4.9 To determine whether or not AQS objectives are met a local authority will undertake routine monitoring of ambient pollutant concentrations and - where appropriate - modelling to estimate concentrations in the future and at relevant locations that may not be covered by monitoring.

4.10 SCDC and CCiC operate a number of air quality monitoring sites. SCDC has three continuous monitoring sites (CMS), all measuring NO$_2$, PM$_{2.5}$ and PM$_{10}$, and 25 NO$_2$ diffusion tube locations. CCiC has five roadside CMS, all measuring NO$_2$ and three measuring PM$_{10}$. It also has 47 NO$_2$ diffusion tubes locations, most located at roadside or kerbside, with three indicating urban background concentrations. There are no monitoring sites within 1 km of the Site.

4.11 The nearest and potentially most relevant monitoring sites include a CCIC NO$_2$ diffusion tube at roadside on Milton Road (A1309) to the south of the junction with Cowley Road, and SCDC sites measuring NO$_2$ within 200 m of the A14 to the west. Concentrations of annual mean NO$_2$ at these sites have been below the 40 µg/m$^3$ AQS objective threshold in recent years (since 2007).

---

4.12 Both SCDC and CCiC have determined the need for AQMAs in parts of their areas to address annual mean concentrations of PM10, and NO₂ that are in excess of the 40 µg/m³ AQS objective threshold at locations with relevant public exposure. The development site does not lie within an AQMA; the nearest and potentially most relevant AQMAs are the CCiC Cambridge AQMA covering Cambridge city centre, which is to the southwest and the SCDC A14 corridor AQMA to the west.

4.13 There are no industrial installations with emissions to air that are regulated by the Environment Agency under the Environmental Permitting (England and Wales) Regulations 2010 within 1 km of the Site. There is one minor installation emitting to air involving roadstone coating that is regulated by SCDC at the aggregates terminal to the north of the development site within the railway sidings area. Emissions from this location are controlled in accordance with the Environmental Permit for the installation to ensure that local air quality is maintained; this industrial installation should not pose a constraint on the Development.

4.14 It can be concluded that the vicinity of the Site has in recent years enjoyed relatively good local air quality conditions with no known exceedances of AQS objectives at locations with relevant public exposure. There are no industrial installations emitting to air in the area that should constrain the Development.

Air Quality (Ecology)

4.15 Air quality can affect vegetation and ecosystems where such sites contain species that are sensitive to air pollution. Statutory criteria to protect sensitive ecosystems include the mandatory EU Critical Level for annual mean NOₓ of 30 µg/m³ for the protection of sensitive vegetation and Critical Loads for annual mean total nitrogen deposition (N-deposition) relating to sensitive ecosystems giving rise to statutory designations (i.e. protected by law). In assessment terms, only those sites with statutory designation of national or international importance are usually considered. Relevant site designations include Ramsar, Special Protection Areas, Special Areas of Conservation and Sites of Special Scientific Interest.

4.16 There are no relevant ecological sites within 1 km of the Site. The nearest designated site to the major road network is Wilbraham Fens SSSI, which is within 200 m of the A14 to the east of the Site.

Air quality (amenity)

4.17 Emissions to air giving rise to noticeable impacts that can cause annoyance due to loss of amenity, for example surface soiling of windows or unpleasant odours, are unlikely to be routine in most areas. Potential sources can include demolition and construction works (temporary) and industrial activities (permanent) but these only usually have notable impacts where emissions are not adequately limited.
4.18 Current permanent potential sources of dust and odour in the vicinity include an active aggregates rail terminal and roadstone coating plant in the railway sidings area (dust) and Cambridge Waste Water Treatment Works to the north (odour).

Potential Effects and Proposed Assessment Methodology

Construction Phase

4.19 Construction phase impacts will include changes in concentrations of local air pollutants due to emissions from construction related activities on site (including site clearance and demolition) and associated traffic travelling to and from the site on the public road network. The pollutants of concern are NO\textsubscript{2} and PM\textsubscript{10}.

4.20 Construction traffic impacts are unlikely to result in a significant adverse effect in terms of local air quality unless substantial traffic and/or congestion were to arise. At present, the impact of construction on road traffic conditions is not known and will be considered as part of the air quality assessment for EIA.

4.21 Construction activities will also generate dust, which can adversely affect local air quality in terms of ambient PM\textsubscript{10} concentrations and amenity due to deposited dust in the surrounding area, if not properly controlled.

4.22 To assess potential construction traffic impacts on local air quality, Environmental Protection UK guidance on ‘Development Control: Planning for Air Quality (2010 Update)’, April 2010 will be followed. The first step will be to apply scoping criteria to road traffic to determine if expected changes have the potential to be significant in terms of adverse local air quality impact. CCiC and SCDC will be consulted on the outcome of this process as appropriate; however, given the nature and scale of development it is unlikely that further consideration would be necessary.

4.23 Institute of Air Quality Management (IAQM) ‘Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance’ (January 2012) will be followed to assess construction dust impacts.

Operational Phase

4.24 Operational phase impacts will include changes in local air quality associated with changes in road traffic emissions with the Development. The pollutants of concern are NO\textsubscript{2} and PM\textsubscript{10}.

4.25 Whilst transport model data for the Development are currently unavailable, the Development is likely to relieve passenger demand at the existing Cambridge railway station, which is located within the Cambridge AQMA. This should mean fewer associated trips by road, particularly a reduction in trips associated with people travelling to and from the north, through
the AQMA. Local air quality in central Cambridge could therefore benefit slightly due to the
reduction in trips and any resultant relief of routine traffic congestion.

4.26 In the vicinity of the Site itself road traffic is likely increase, particularly along Cowley
Road as the main access route. It is expected that ambient concentrations of NO₂ and PM₁₀ will
increase as a result within 200 m either side of Cowley Road and in the vicinity of the junction
with Milton Road.

4.27 Car parking will be provided for 450 vehicles, a proportion of which will be parked for
several hours allowing engines and exhaust systems to cool. Excess emissions from cars starting
from cold may therefore be expected, which will increase concentrations within 200 m of the car
park.

4.28 The new station will also be connected to a new spur of the Cambridgeshire Guided
Busway, which will follow the route of the former St Ives branch line, These public transport
services may also locally add to ambient concentrations of NO₂ and PM₁₀ However the buses
used will be Euro V or Bio diesel standard and have very low emissions

4.29 Local air quality will not be affected by electric train services stopping at the new
Cambridge Science Park station.

4.30 It is very unlikely that the Development would have a significant effect in terms of air
quality and ecological receptors and these can therefore be scoped out of the EIA assessment.

4.31 To assess potential operational traffic impacts on local air quality, Environmental
Protection UK guidance on ‘Development Control: Planning for Air Quality (2010 Update)’, April
2010 will be followed. The first step will be to apply scoping criteria to road traffic to determine
if expected changes have the potential to be significant in terms of adverse local air quality
impact at locations with relevant exposure. CCiC and SCDC will be consulted on the outcome of
this process as appropriate.

4.32 If quantification of operational road traffic impacts on air quality is deemed appropriate,
this would be done by dispersion modelling using ADMS Roads⁹ using traffic data from transport
modelling for the Development. Vehicle emission factors and background pollutant mapping
would be used as published by Defra¹⁰ at the time of undertaking the assessment. Modelling
would include three main scenarios, including: a base year to permit verification against any
available relevant monitoring data, do-minimum (including committed development but without
Development) and do-something (including committed development plus the Development).
The assessment would include a sensitivity test for annual mean NO₂ in the Development
opening year using the recent guidance published by Defra on projecting NO₂ concentrations.

---

⁹ Software by Cambridge Environmental Research Consultants, http://cerc.co.uk/
¹⁰ Details can be found on Defra website http://laqm.defra.gov.uk/review-and-assessment/tools/tools.html
CCiC and SCDC would be consulted prior to undertaking any modelling to confirm methodology and assumptions.

**Mitigation of Effects**

*Construction Phase Mitigation*
4.33 Mitigation is likely to be required to control dust emissions from construction activities and sites. The assessment will consider appropriate controls to minimise the risk of a significant effect in terms of local air quality and amenity.

*Operational Phase Mitigation*
4.34 The need for any specific mitigation for local air quality due to operation of the Development will be determined by the assessment.

**Ecology**

*Main sources of data used in preparing the scoping report*
4.35 A range of ecological data sources were reviewed to inform the preparation of this scoping report. Pre-existing data were obtained from the Cambridgeshire Bat Group, Bedfordshire, Cambridgeshire and Northampton Wildlife Trust, National Biodiversity Network (NBN) Gateway, Multi-Agency Geographical Information Coverage (MAGIC), County Ecologist and Cambridge and Peterborough Environmental Records Centre (CPERC) and local authority development plans.

4.36 The scope of the assessment was defined using the results of a desk study to obtain pre-existing biological data, Local Biodiversity Action Plans (LBAPs), an Extended Phase 1 Habitat Survey, species-specific ecological surveys of the Chesterton Sidings and Site conducted in 2012 and a review of previous consultation responses detailed in screening opinion reports and communications.

**Baseline Conditions**

*Off-Site Receptors*
4.37 There are no Sites of international or national ecological importance (i.e Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar Sites or Sites of Special Scientific Interest (SSSI) within 2km of the Development Site at Chesterton Sidings.

4.38 There are two statutory designated local nature reserve Sites (LNR’s) within 2km of the Site. These are Bramblefields LNR located on the western boundary of the Chesterton Sidings development Site and Logan’s Meadow located some 1.4 km to the south west. These LNR’s are
recognised as being important Sites at a county level. Eleven non-statutory Sites occur within 2km of the Site. None of the Sites occurred within the actual Site. The nearest non-statutory designated Site (River Cam County Wildlife Site) is located over 300m away from the eastern boundary of the Chesterton Sidings Site.

4.39 A literature search carried out in April 2012 highlighted the presence of protected species within 1km of the Site. These include records of reptiles, bats, breeding birds, Water Vole and Great Crested Newt.

On-Site Receptors

4.40 The habitats present within the study area comprise predominantly dense/continuous scrub, ephemeral/short perennial, areas of bare ground and some poor semi-improved neutral grassland. Habitats at the boundary of the study area include two ponds, scattered trees and scrub, species poor hedgerows with trees, some tall ruderal habitat and a ditch with running water.

4.41 The following legally protected flora and fauna have been recorded within the boundary of the Site reptiles, breeding birds, and Jersey Cudweed.

4.42 An extended Phase 1 habitat survey carried out in April 2012 indicated the potential for various protected species such as Great Crested Newts, reptiles, breeding birds, bats and Water Voles to be present within the Site. In addition, the habitat was considered suitable to support notable assemblages of invertebrates and scarce plants.

4.43 The presence of some protected species such as reptiles and breeding birds, together with the potential for other protected species such as Great Crested Newts and bats indicated that the Site is considered to be of some biodiversity value.

4.44 It is considered that the Site contained a standard and average selection of species and habitats that would likely be expected of any Site of comparable size and bio-geographical location and therefore of district importance.

4.45 A variety of species-specific surveys are being carried out to provide up-to-date information on the current status of species within the Site. This information will provide data to enable an ecological impact assessment to be carried out, identify suitable mitigation measures to minimise any potential adverse effects, to inform the planning process and ensure legal compliance pertaining to wildlife is maintained during the construction and operation of the Development.
Factors influencing the baseline

4.46 In the absence of development, the habitats and species present within the boundary of the Site are likely to remain in the same condition for the foreseeable future. However in the longer term, the ecological succession through the further encroachment of dense continuous birch sp. and willow sp. scrub is likely result in a reduction in the biodiversity value of the Site, as the trees mature and shade out the clearings that currently exist at the Site, which provide the varied array of habitats present at the Site.

Identification of the next steps in the assessment process

4.47 This section sets out information relevant to the scope of the ecological assessment. This section only deals with: species that are legally protected, for which the development could result in contravention of the law; species that have populations on the Site that are of county value or greater importance and that could be significantly affected by the development; and habitats that are of distinct value or greater importance and that could be significantly affected by the Development.

Potential effects requiring further consideration

4.48 The potential effects that need to be investigated further as part of the work required to prepare the ES are listed below together with an outline of the work that is required:

4.49 Effects of construction work on invertebrates populations of district or greater level nature conservation value. It is not expected that there will be any large or otherwise notable populations of invertebrates present on the Site, although, until further survey work has been carried out, this remains a possibility. Hence, there could be significant effects on invertebrates. If important populations are present, the predicted effects should be assessed.

4.50 Effects of construction work on plant communities of district value importance or higher that occur on the Site. It is not expected that there will be any large or otherwise notable communities of plants present on the Site, although, until further survey work has been carried out, this remains a possibility. Hence, there could be significant effects on plants. If important communities are present, the predicted effects should be assessed.

Potential effects not requiring further consideration

4.51 For the reasons stated below, the following potential effects do not need to be assessed further:

- Effects on reptiles resulting from construction activity causing death or injury to reptiles and/or permanent land-take causing a reduction in the size of population: The
population of individual species of reptiles present at the Site is not considered or expected to be of county value or greater importance. However, there is still a requirement to adopt appropriate mitigation to ensure compliance with the legislation that relates to these species. To adhere to the legal requirements as much of the reptile population as is possible should be retained in-situ. Otherwise, a translocation of animals to a suitable receptor Site should be undertaken.

- Effects during construction and operation on off-Site statutory and non-statutory nature conservation Sites resulting from changes in noise and dust deposition: These do not need to be assessed as the changes will be expected to be minimal, reflecting the nature of the works and the noise and dust control measures that will form part of the Construction Environmental Management Plan (CEMP) or its equivalent.

- Effects during construction and operation on protected animal species, such as Great Crested Newt, Water Vole and Bats resulting from disturbance, habitat loss: The recent (2012) species specific surveys indicate that Great Crested Newts, Water Voles and bat roosts are absent within the Site, Chesterton Sidings and the adjacent area of influence.

- Effects during construction on the protected plant species the Jersey Cudweed: The recent (2012) species-specific survey strongly indicated there is no Jersey Cudweed within the Site. Further surveys will be necessary to determine its presence or otherwise.

- Effects during construction on animals and plants in watercourses resulting from contamination caused by soil disturbance or the accidental spillage of chemicals: Standard pollution prevention methods will form part of the CEMP, minimising the risk of adverse effects, which will not therefore need to be assessed.

- Construction activity causing disturbance of/ damage to nests/eggs/ young breeding birds which could contravene legal requirements: No populations of district or greater level of value are known or expected to occur on the Site. However, there is a need to comply with the legal requirements relating to breeding birds. To this end, vegetation clearance will, where possible, be undertaken between October-February inclusive (i.e. outside the main bird breeding season); any clearance required between March-September inclusive will be preceded by survey work by an ornithologist to identify any active nests, works would be delayed until the young have fledged.

**Proposed Assessment Methodology**

4.52 The ecological impact assessment will be carried out based on the guidelines provided by the Institute of Ecology and Environmental Management (IEEM 2006).

4.53 The assessment will involve the following tasks:
• identifying an ecological baseline for the Site and the ecological receptors that could potentially be affected by the Development.

• determining the value of the ecological receptors that could potentially be affected by the Development.

• carrying out an impact assessment on those valued ecological receptors that could potentially be affected by the Development taking account of various parameters including the:
  ➢ magnitude;
  ➢ extent;
  ➢ duration;
  ➢ reversibility;
  ➢ timing and frequency;
  ➢ positive or negative outcome of the effect.
  ➢ identifying suitable mitigation, compensation and enhancement measures

4.54 The assessment of effects of the Development on the Ecology and Nature Conservation at the Chesterton Sidings development Site will be based on a combination of:
• a review of the extended Phase 1 habitat survey;
• species-specific surveys currently being carried out during 2012;
• the nature of the changes that will potentially result from the development proposals; and
• review of existing published information.

4.55 The Extended Phase 1 Habitat Survey carried out in April 2012, attached in Appendix B, comprised a study area of the Chesterton Sidings development boundary and where possible (limited by access restrictions) a 500m buffer zone around the Chesterton Sidings Site. In addition, a desk based literature search was carried out to gather ecological data from the last 10 years for an area up to 2km from the Site.

4.56 The value or potential value of the ecological resource or feature will be determined within the following geographical context:

• International;

• UK;
• National (i.e. England);
• Regional (i.e. East Anglia);
• County (i.e. Cambridgeshire);
• District (i.e. South Cambridgeshire, Cambridge City);
• Local or Parish (i.e. Chesterton); and
• within zone of influence only (Site plus 500m boundary).

4.57 The following criteria will be considered to identify ecological resources or features likely to be of biodiversity importance at the Chesterton Sidings Site:

• animal or plant species, subspecies or varieties that are rare or uncommon, either internationally, nationally or more locally;
• ecosystems and their component parts, which provide the habitats required by the above species, populations and/or assemblages;
• endemic species or locally distinct sub-populations of a species;
• habitat diversity, connectivity and/or synergistic associations (e.g. networks of hedges and areas of species-poor pasture that might provide important feeding habitat for rare species such as the greater horseshoe bat);
• notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
• plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types - these will include examples of naturally species-poor communities;
• species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change;
• species-rich assemblages of plants or animals; and
- typical faunal assemblages that are characteristic of homogenous habitats.

4.58 The value of areas of habitat and plant communities found at the Site will be compared against published selection criteria where available. For example, Annex III of the EC Habitats Directive sets out the criteria for selecting Sites eligible for identification as Sites of Community importance and designation as SAC. The Guidelines for the selection of biological SSSIs set out criteria for habitats or plant communities to be designated as being of national importance. In Cambridgeshire, the Cambridgeshire and Peterborough County Wildlife Site Selection Guidelines is used for the selection of Local Sites.

4.59 In assigning value to a species, factors such as its distribution, status, population trends and rarity will be considered based on available historical records. The valuation of populations will make use of relevant published evaluation criteria such as the Cambridgeshire and Peterborough County Wildlife Site Selection Guidelines and reference material including the Breeding Birds of Cambridgeshire.

4.60 For the purpose of defining the focus of the assessment, only species deemed to be of at least ‘county’ nature conservation importance, and Sites/habitats deemed to be of at least ‘district’ nature conservation importance (collectively referred to as ‘valued ecological receptors’), will be considered to be of sufficient value that effects on them could be significant. In the context of biodiversity conservation, only those receptors will be taken forward for more detailed assessment. Some additional species will be subject to assessment on the basis of their legal protection and the requirement for the works to be undertaken in compliance with this legislation.

4.61 Where possible the magnitude of an effect will be determined on a quantitative basis. For example: a likely increase in the number of metres of new native hedgerow added to the Site. However, it may not be possible to provide a quantitative assessment of magnitude for all effects. In these circumstances a qualitative approach to the assessment will be undertaken which takes into consideration parameters such as the extent, duration and reversibility of an effect to provide an accurate understanding of the likely outcome on the valued ecological receptor.

4.62 The likelihood that a change/activity will occur as predicted and the degree of confidence in the assessment of the effects on ecological structure and function will be based on professional judgement. The confidence levels of these judgements will then be based on the following four-point scale of probability:

- Certain/near-Certain: probability estimated at 95% chance or higher.
- Probable: probability estimated above 50% but below 95%.
- Unlikely: probability estimated above 5% but less than 50%.
- Extremely Unlikely: probability estimated at less than 5%.

4.63 In the assessment a significant impact, in ecological terms (whether negative or positive), is defined as an impact on the integrity of a defined Site or ecosystem and/or the conservation status of habitats or species within a given geographical area. In the case of the ecological impact assessment, the geographical area for a species will be considered at a county level, while for habitats the geographical area will be considered to be at a district level.

**Mitigation of Effects**

4.64 As part of the ecological impact assessment presented in the Environmental Statement the effects of potential adverse impact on valued ecological receptors, recognised as being present at the Site, shall be identified.

4.65 Based on the findings of ecological impact assessment a series of mitigation and enhancement measures will be described. It is expected that these will be included in the Development, and CEMP or its equivalent, to ensure the Development avoids significant negative effects, maintains legal compliance relating to wildlife and delivers ecological enhancement where possible. It will be important to ensure that there is no net loss in biodiversity value.

**Flood Risk and Drainage**

- The methodology of assessment of the water environment will be based on method in webTAG unit 3.3.11 (Department for Transport, 2003) and volume 11 section 3 part 10 of the Design Manual for Roads and Bridges (Department for Transport, 2009).
- These methods use a three stage procedure to identify importance of receptors, magnitude of impact of the Development and an overall significance of effects.
- For consideration of flood risk reference will be made to the National Planning Policy Framework Technical Guidance (Department for Communities and Local Government, 2012).
- There will be use of the sequential test to determine if the location of development is satisfactory with regard to flood risk.
- In this scoping statement consideration will be made of importance of receptors and the effects of the Development. The effects of the Development will be made by professional judgement as not all of the magnitudes of impacts of the Development are known.
Baseline conditions

4.66 The first part of assessing the significance of effects of the Development, outlined in section 2, on the water environment is to consider the importance of the receptors. There are a wide range of receptors in the water environment including water resources and flood risk.

4.67 Sources of information include the Environment Agency website, Natural England website and MAGIC website.

Surface waters

4.68 There are no open surface waters within the immediate site boundary of the Development. However, there are three adjacent watercourses shown in Table 4.2 and Figure 4.1 with their importance related to water quality as defined by Water Framework Directive assessments. As neither the First Public Drain nor drain 1 have been assessed to Water Framework Directive assessment standard they are given a low importance.

The following watercourses are adjacent to the Site

Table 4.2

<table>
<thead>
<tr>
<th>Name</th>
<th>Closest proximity to Development</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Cam</td>
<td>&lt;100m</td>
<td>Medium</td>
</tr>
<tr>
<td>First Public Drain</td>
<td>&lt;10m</td>
<td>Low</td>
</tr>
<tr>
<td>Drain 1</td>
<td>&lt;10m</td>
<td>Low</td>
</tr>
</tbody>
</table>

4.69 The First Public Drain is culverted under the Site.

Groundwater

4.70 The Site is located on Secondary A aquifer superficial deposits. These deposits are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

4.71 There is a very small component of primary aquifer bedrock geology across the Site with more typically Secondary A aquifer bedrock geology. These deposits are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
4.72  The groundwater vulnerability suggests it is a minor aquifer with intermediate or low vulnerability.

4.73  The importance of groundwater quality is low.

**Abstractions**

4.74  The Site is not located within a Source Protection Zone.

4.75  No discharges have been identified.

4.76  The importance of abstractions from ground is low.

**Water resources**

4.77  There are requirements for consideration of potable and foul water supply and removal as part of the Development, to support the proposed facilities on Site.

4.78  The importance for water resources as part of the Development is likely to be low as the demand is minimal.

**Conservation sites**

4.79  While there are no designated conservation sites within 500m of the Site. There are sites of county and local importance.

4.80  The impact of the Development on the Bramblefields Local Nature Reserve is unlikely to be adversely significant.

**Flood risk**

4.812 It is outlined within the National Planning Policy Framework Technical Guidance (Department for Communities and Local Government, 2012) that flood risk from all sources must be addressed within the Flood Risk Assessment to ensure that potential flood risk has been considered during the development design and proposed works. Therefore this section outlines all the potential sources of flood risk to the site and the implications these risks have on development. It is also necessary to outline any records of previous flooding events as these may identify areas vulnerable to flooding.
4.82 The mapping provided within the Level 1 Strategic Flood Risk Assessment 2010 (a document prepared on behalf of both SCDC and CCIC) indicates areas that have experienced historical flooding from a range of sources including fluvial and surface water. The Strategic Flood Risk Assessment (SFRA) mapping indicates that neither the Site, nor adjacent areas have experienced significant flooding.

**Fluvial flood risk**

4.83 Fluvial flooding occurs when the capacity of a watercourse is exceeded.

4.84 There are two drainage routes for surface water as shown on Figure 4.1. The Public drain to the west and Drain 1 flowing to the north. The River Cam which is sensitive to flooding is less than 100 metres away from the eastern side of the site boundary and main line railway.

4.85 The Environment Agency flood maps which are freely available from the Environment Agency website are the initial source to determine fluvial flood risk to the site. Figure 1 shows that there is no risk to the proposed site for the 1% or 0.1% Annual Exceedence Probability (AEP).

4.86 The importance of fluvial flooding is low.

**Pluvial flood risk**

4.87 Surface water flooding occurs when rainfall intensities exceed the infiltration capacity of the ground or existing surface water drainage systems such that water collects on the surface. Developed land, specifically with large areas of impermeable surfacing, can be vulnerable to surface water flooding where an adequate drainage system is not present.

4.88 The SFRA (SCDC and CCIC, 2010) give a general indication that this site has an intermediate risk of surface water flooding.

4.89 It is expected that the proposed development will increase impermeable area and therefore without mitigation would increase pluvial flood risk from the Site.

4.90 The importance of pluvial flooding is medium.

**Groundwater flood risk**

4.91 Groundwater flooding normally occurs where the water table meets the ground surface in low lying areas which are underlain by permeable rock known as aquifers. This tends to follow
long periods of sustained rainfall, but can also be caused as a result of local obstructions to groundwater flow (e.g. following the placement of engineering structures or buildings with foundations) or by the rebound of groundwater levels after a decrease in abstraction or dewatering.

4.92 It is important to recognise that the risk of groundwater flooding is typically highly variable and heavily dependent on local geological, topographical and weather conditions. Groundwater flooding is hard to predict and challenging to mitigate.

4.93 The Environment Agency mapping has been used to determine the potential groundwater flood risk to the development. The Site is underlain by a Secondary A Aquifer which is classed as permeable layers capable of supporting water supplies at a local scale. The mapping also indicates that the superficial geology underlying the site is classed as permeable geology. This indicates that the site is situated above a minor aquifer. The information suggests that Development, particularly that above the existing ground level, is at a low risk from groundwater flooding.

4.94 British Geological Survey (BGS) level information from borehole TL46SE126 at Chesterton Junction suggests a water level strike 3.3m below ground (BGS, 2012).

4.95 The SFRA (SCDC and CCiC, 2012) provides no further information on the risk of groundwater flooding to the Site, other than that there are no records of groundwater flooding either within the Site or in adjacent areas.

4.96 Any development below the existing ground level has the potential to interrupt groundwater flow movements and cause an increased risk of flooding elsewhere. There is the potential with this development that piling may encounter ground water.

4.97 It is concluded that the development will be at a low risk from groundwater flooding and that the development should not result in an increased risk elsewhere.

4.98 The importance of groundwater flooding is low.

Potential Effects

4.99 There are potential effects of the Development on the water environment during construction and operation that are outlined below.

4.100 A sequential test has been undertaken for flood risk and will be provided with the planning application submission. This shows the Development location is acceptable.
Construction

4.101 At the time of assessment there is no information available on the method of construction. Therefore this assessment of potential construction risks is based on professional judgement and knowledge of the potential receptors.

Surface waters

4.102 Construction or modification of access roads running adjacent to the First Public Drain and Drain 1 are likely to be at greatest risk from discharges of sediment.

4.103 The magnitude of impact of sediment would be minor adverse.

Groundwater

4.104 It is possible that as drainage to ground is preferred a perched water table may be encountered during construction.

4.105 Drainage of water generated during construction would ideally utilise the drainage system proposed for operation discharging to ground. It is likely that there could be pollutants in this routine run-off.

4.106 The magnitude of impact on groundwater quality would be minor adverse.

Abstractions

4.107 The Development will not have an impact on any Source Protection Zone as there are none present.

4.108 Any discharges to ground are typically more difficult to remediate than to surface waters.

4.109 The magnitude of impact on groundwater abstractions would be negligible.

Water resources

4.110 Water supply and welfare amenities will be required during construction.

4.111 The magnitude of impact on water resources would be minor adverse.
Fluvial flood risk

4.112 None of the development will be built on the floodplain. It is proposed no material will be stored upon the floodplain during construction.

4.113 The magnitude of impact on fluvial flood risk would be negligible.

Pluvial flood risk

4.114 It is likely that there may be temporary compounds or working areas with impermeable surfaces that could increase flood risk by preventing drainage of water to the ground increasing surface water run rate and volumes.

4.115 The magnitude of impact on pluvial flood risk would be moderate adverse.

Groundwater flood risk

4.116 The preference of the planning authority is that discharge from impermeable areas goes to ground. Where possible during construction discharge from the site compounds or working areas should ideally be directed to ground.

4.117 The magnitude of impact would be negligible based on historical flood risk, however further investigations are required for the full assessment.

Operation

4.118 Once the station is constructed and in use, there is the potential for operational effects on the water environment.

Surface waters

4.119 Since the preference for discharge of water from the Development is to ground there should be no operational effects on surface water quality.

4.120 The magnitude of impact would be negligible.
**Groundwater**

4.121 The preferred method of discharge will be to ground which reflects the existing drainage on the site but which may contain pollutants from routine run-off.

4.122 The magnitude of impact on groundwater quality would be negligible.

**Abstractions**

4.123 At the time of the assessment it has been confirmed groundwater discharges will not affect public abstractions in a Source Protection Zone as there are none within 500m of the Site.

4.124 The magnitude of impact on abstractions from groundwater would be negligible.

**Water resources**

4.125 There will be an ongoing requirement to discharge foul water and supply clean water to the Site for the purpose of welfare facilities.

4.126 The magnitude of impact on water resources would be minor adverse.

**Fluvial flood risk**

4.127 The station will be located in flood zone 1, not at risk from fluvial flooding.

4.128 The magnitude of impact on fluvial flood risk will be negligible.

**Pluvial flood risk**

4.129 Due to an increase in impermeable area, there would be an increased risk of pluvial flooding.

4.130 The magnitude of impact on pluvial flood risk will be moderate adverse

**Groundwater flood risk**
4.131 The preferred method of discharge will be to groundwater which reflects the existing discharge on the Site.

4.132 The magnitude of impact on groundwater flood risk would be negligible, based on no historical record of significant flooding.

**Cumulative impacts**

4.133 No cumulative effects have been identified at this stage of the assessment process either during construction or operation for the water environment.

**Mitigation of Effects**

4.134 The potential effects of the Development are likely to cause an adverse impact to the water environment without mitigation. Mitigation of effects will be considered for both construction and operation.

4.135 Throughout both construction and operation, consultation with relevant bodies including the Environment Agency will help direct proposed mitigation and reduce the impact of potential effects on the water environment.

4.136 The significance of effects of the Development on the water environment after mitigation is considered below.

**Construction**

4.137 It is assumed that best practice guidance will be used to aid prevention of pollution. This will include the Environment Agency’s Pollution Prevention Guidance notes (Environment Agency, 2012).

4.138 The proposed operational drainage system should be used through construction and if possible constructed first.

**Surface waters**

4.139 No discharge is expected to surface waters and therefore no further mitigation is required.

The significance of effect of the Development on surface water quality is proposed to be **neutral**.
Groundwater

4.140 If any perched groundwater is encountered during construction the Environment Agency should be consulted to determine if a dewatering licence is required.

4.141 The provision of sustainable drainage systems, ideally those that will be used during operation, will ensure sediment and soluble pollutants are treated before discharge to groundwater.

4.142 The significance of effect of the Development on groundwater quality following mitigation is proposed to be neutral.

Abstractions

4.143 There is no presence of Source Protection Zone (SPZ) within 500m of the Development. Therefore no further mitigation is required.

4.144 The significance of effect of the Development on known SPZ abstractions is proposed to be neutral.

Water resources

4.145 It is proposed that during construction water supplies are provided by bowser and welfare facilities are isolated from main supply.

4.146 The significance of effect of the Development on water resources following mitigation is proposed to be neutral.

Fluvial flood risk

4.147 The construction site will be in flood zone 1 and all materials will be stored in a location in flood zone 1.

4.148 The significance of effect of the Development fluvial flood risk is proposed to be neutral.

Pluvial flood risk
4.149 The proposal would involve creating areas of hard standing which will create an increased amount of run-off. Run-off will require attenuation by storage and sustainable drainage methods. These methods should meet local and national standards.

4.150 The significance of effect of the Development on pluvial flood risk following mitigation is proposed to be neutral.

**Groundwater flood risk**

4.151 There is a preference for discharge to ground through discussion with Environment Agency, Cambridgeshire County Council and Cambridge City Council.

4.152 Ground investigations have been proposed to identify where and to what extent increased surface water can be discharged to ground.

4.153 The ground investigations will also determine the existing groundwater level.

4.154 The significance of effect of the Development on groundwater flood risk following mitigation is proposed to be neutral.

**Operation**

4.156 During operation it is assumed best practice maintenance of the sustainable drainage proposed at this site will be undertaken.

4.157 Prior to construction agreement will be made as to who will maintain the sustainable drainage proposed.

**Surface waters**

4.158 No discharge is expected to surface waters and therefore no further mitigation is required.

4.159 The significance of effect of the Development on surface water quality is proposed to be neutral.

**Groundwater**

4.160 Sustainable drainage systems following best practice guidance are proposed which will provide water quality treatment before discharge to the ground.
4.161 The significance of effect of the Development on groundwater quality after mitigation is proposed to be neutral.

Abstractions

4.162 There is no presence of Source Protection Zone within 500m of the Development. It is proposed that sustainable drainage systems should mitigate water discharged to ground.

4.163 The significance of effect of the Development on abstractions following mitigation is proposed to be neutral.

Water resources

4.164 It is proposed that the pre-development application should determine any mitigation, such as strengthening of water mains that would be required to provide capacity for water usage.

4.165 The significance of effect of the Development on water resources after mitigation is proposed to be neutral.

Fluvial flood risk

4.166 The operational site will be in flood zone 1 and no discharge is proposed to surface waters.

4.167 The significance of effect of the Development fluvial flood risk is proposed to be neutral.

Pluvial flood risk

4.168 The proposal would involve creating increased areas of hard standing which will increase run-off. Run-off will require attenuation by storage and sustainable drainage methods.

4.169 The significance of effect of the Development on pluvial flood risk after mitigation is proposed to be neutral.

Groundwater flood risk

4.170 Sustainable drainage systems following best practice guidance are proposed which will provide attenuation before discharge to the ground.
4.171 Ground investigations will help direct where and what volume of water can be discharged to ground.

4.172 The significance of effect of the Development on groundwater flood risk after mitigation is proposed to be neutral.

**Ground Conditions**

4.173 This section considers the potential effects with regards to land contamination on the construction and operation of the Development.

**Baseline Conditions**

*Geology, Hydrogeology and Hydrology*

4.174 The BGS Map Sheet No. 188\(^{11}\) shows superficial deposits underlying the Site comprise River Terrace Deposits, resting on bedrock of the Gault Formation (mudstone) and the Lower Chalk. Alluvium associated with the River Cam is located 225m to the south and east of the Site.

4.175 There is a British Geological Society (BGS) Recorded Mineral Site located on Site\(^{12}\). This is an aggregates depot (understood to receive materials by rail) and the commodity is listed as crushed rock.

4.176 The River Terrace Deposits are classified as a Secondary A Aquifer and the overlying soils are of high and intermediate leaching potential\(^{2}\). The Gault Formation is classified as Unproductive Strata. The Site does not lie within a Source Protection Zone (SPZ)\(^{2}\).

4.177 There are a number of surface water features on Site and within 250m of the Site. The First Public Drain is located alongside the Cowley Road which forms part of the Site.

4.178 Two further ponds are located approximately 20m to the east of the eastern Site boundary and 125m to the north east of the existing sidings. The River Cam lies 225m to the south of the Site.

4.179 The Site does not lie in an area at risk of flooding but the immediate surrounding area is at risk from flooding and extreme flooding from rivers.

---

\(^{11}\) British Geological Survey Map Sheet Number 188, Cambridge

\(^{12}\) Landmark Envirocheck Report 39120158_1_1, 2012
Existing Potential Contamination

4.180 Numerous existing potential sources of contamination from current or historical land use within 250m of the Development have been identified using the Envirocheck report\textsuperscript{2}; those located on Site or within 50m of the Site are discussed below.

4.181 The current railway sidings/aggregates depot and associated infrastructure on Site, present since the early 1900s, are considered to be the principal source of potential contamination on the Site. Spillages and leakages of fuels, oils and solvents could have occurred during the historical and present day use of the sidings.

4.182 Much of the area to the immediate north and northwest of the Site is occupied by light industrial units and sewage treatment works. The are a number light industrial units within 250m of the Site and some of those present within 50m of the Site, located in the light industrial area, are potential sources from which contamination may have migrated on to the Site are listed below:

- garage services;
- car body repairers;
- scientific instrument manufacturers;
- concrete and mortar suppliers;
- food product manufacturer;
- x-ray services; and
- Cleanaway waste disposal accepting aqueous effluent waste, asbestos wastes, interceptor pit wastes, oily waste, special wastes (this is a registered waste transfer, treatment and disposal Site).

4.183 Historical maps report suggest that there were drains, sand and gravel pits, and wells formerly present on Site or immediately adjacent to the Site which may have been infilled with waste materials. These could be a source of contamination and ground gas, depending on the material used for infilling.
Receptors

4.184 The Site itself is developed with railway sidings and an aggregates depot and is surrounded by residential and industrial properties. Therefore, potential on-Site human receptors to potential contamination are considered to include employees who use the existing infrastructure and members of the public or trespassers who may be able to access the Site. Potential off-Site human receptors to potential contamination are considered to include occupants of adjacent residential properties and staff accessing and working in the adjacent commercial and industrial properties.

4.185 Controlled water receptors to potential contamination could possibly include groundwater in the Secondary A Aquifer, and surface water bodies on Site (First Public Drain and small pond) and within 250m of the Site (River Cam and two further ponds).

4.186 Property (Buildings/Infrastructure) receptors to potential contamination include services and infrastructure already present on Site, and adjacent residential, commercial and industrial properties.

Potential Effects and Proposed Assessment Methodology

Potential Impacts

4.187 Preliminary Conceptual Site Models (CSM) have been developed for the baseline, construction and operational phases of the Development, to provide an understanding of the potential effects with regards to land contamination.

Baseline Preliminary Conceptual Site Model

4.188 Elements of the preliminary baseline phase CSM have been described above. Contamination in the form of organic and inorganic contaminants may exist on and adjacent to the Site in soil, groundwater or as vapours/ground gas. Potential on-Site human receptors include employees who use the existing infrastructure and members of the public or trespassers who may be able to access the Site. Potential off-Site human receptors to potential contamination are considered to include occupants of adjacent residential properties and staff accessing and working in the adjacent commercial and industrial properties.

4.189 Controlled water receptors to potential contamination include groundwater in the Secondary A Aquifer and surface watercourses on Site and within 250m of the Site, namely the First Public Drain, ponds and the River Cam.
4.190  Property (Buildings/Infrastructure) receptors to potential contamination include services and infrastructure already present on Site, and adjacent residential, commercial and industrial properties.

**Construction Preliminary Conceptual Site Model**

4.191  Proposed construction works introduce construction workers as additional human receptors. Controlled waters are considered likely to remain the same as the baseline. This phase of works on Site will require excavation of material, construction of buildings and structures and either re-use of excavated material on-Site or disposal off-Site to an appropriately licensed facility.

4.192  The construction phase of the works is likely to involve the establishment of Site compounds on Site for the storage of plant and equipment and placement of temporary welfare and office units. It is anticipated that temporary structures will be solely above ground.

4.193  The construction phase has the potential to introduce new sources of contamination from the potentially polluting materials used, mobilise potential existing contamination and create new pathways to receptors. Potential changes to the baseline include but are not limited to:

- potential for mobilising contaminants by excavation and stockpiling material. This would increase the risk to controlled water receptors through leaching and run-off. Earthworks could provide opportunity for run-off to contain suspended solids if not managed properly;

- potential for creation of new pathways to groundwater by drilling;

- potential for newly constructed below ground structures to create preferential pathways for the migration of existing contamination;

- potential for exposure of human receptors by generation of potentially contaminated dust released by the construction works;

- potential for exposure of construction workers to existing potential contamination due to direct contact with these materials;

- potential for release of potentially polluting substances used during the construction phase, for example, spillages of oil or fuel from equipment particularly in construction compounds; and
potential that waste generated is classified as hazardous, requiring removal from Site. According to Schedule 3 of the EIA Regulations, the characteristics of development must be considered having regard, in particular, to the production of waste.

Operational Preliminary Conceptual Site Model

4.194 On completion of the construction phase, the land will be in use as a railway station and transport interchange facility. There will be a spill risk associated with the Site activities.

4.195 The new building, platforms, other structures and below ground services could create additional potential pathways for the migration of potential contamination which were not present at the baseline.

4.196 Construction workers will no longer be present and operational phase human receptors will be the same as the baseline with the addition of members of the public using the facilities.

4.197 Controlled waters receptors (groundwater and surface water) will be the same as the baseline.

4.198 Property receptors will include the new infrastructure but other property receptors will remain the same as the baseline. The temporary structures in the construction compounds would no longer be present.

4.199 Construction phase equipment and the associated spill risk will no longer be present. Material that is suitable for use will, where possible, have been re-used and waste material removed. There is potential to result in a slight improvement because mitigation during construction should have reduced potential contamination present by removal (or rendering it suitable), therefore the potential risk from contamination should decrease.

Scoping

4.200 A number of potential sources of contamination have been identified which lie on Site or within 50m of the Site and could be directly impacted by the works. There is potential for contamination from the current railway sidings to be present on Site in soil, groundwater and as vapours and for potential contamination from off-Site sources to have migrated to Site. Further assessment including a ground investigation will be undertaken as part of the EIA to inform the land contamination impact assessment. Table 4.4 summarises those items which are considered necessary to take forward to EIA stage.
4.201 The issue of materials will be addressed separately in the Materials chapter of this report.

**Table 4.4 – Summary of Scoping and Justifications**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Issue</th>
<th>Scoping Assessment</th>
<th>Scoping Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controled Waters</td>
<td>Exposure of groundwater (Secondary, Principal Aquifers) and surface waters to potential contamination</td>
<td>Scoped In</td>
<td>Given the long history of the Site as railway infrastructure, there is potential for remobilisation of existing contaminants during construction which could then leach and migrate into controlled water receptors. Impacts during construction should be managed by mitigation detailed in the CEMP for the Development, but further assessment is required.</td>
</tr>
<tr>
<td>Humans</td>
<td>Exposure of Site workers and visitors, and adjacent Site occupants, workers and visitors to potential contamination</td>
<td>Scoped In</td>
<td>Given the long history of the Site as railway infrastructure, there is potential for remobilisation of existing contaminants during construction to which humans could be exposed directly or following migration. Impacts during construction should be managed by mitigation detailed in the CEMP for the Development, but further assessment is required.</td>
</tr>
<tr>
<td>Property</td>
<td>Exposure of infrastructure and services on Site, and adjacent residential, commercial and industrial properties to potential contamination</td>
<td>Scoped In</td>
<td>There is the potential for an impact on property receptors from existing potential contamination, therefore further assessment is required.</td>
</tr>
</tbody>
</table>
Proposed Assessment Methodology

4.202 The Government’s objectives with respect to land contamination are set out in the Department for Environment Food and Rural Affairs (Defra) Contaminated Land Statutory Guidance 2012\(^\text{13}\) as:

- to identify and remove unacceptable risks to human health and the environment;
- to seek to ensure that contaminated land is made suitable for its current use; and
- to ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

4.203 The current condition of the land is yet to be determined and the land use will change from railway sidings as a result of the Development. Through the proposed works there is the potential for the following:

- loss of geology as a natural resource;
- disturbance of existing contamination and the introduction of new pathways;
- introduction of polluting substances during construction; and
- generation of excavated material which will require managing sustainably and in accordance with current waste management legislation.

4.204 The approach to assessing the potential impacts of the Development is undertaken by assessing the changes in the baseline, construction and operation phases in two stages described below.

*Stage 1: Risk Assessment*

4.205 Land contamination risk assessment is based on guidance in Contaminated Land Report (CLR) 11\(^\text{14}\) published by Defra and the Environment Agency in 2004 and the Government’s good

\(^{13}\) Department for Environment Food and Rural Affairs, 2012: Environmental Protection Act, 1990, Contaminated Land Statutory Guidance

practice guide to environmental impact assessment\textsuperscript{15}. These documents provide a technical framework for identifying and remediating contamination through the application of a risk management process.

4.206 CLR11 requires development of a conceptual Site model (CSM) to represent the characteristics of the Site and identify any potential contaminant linkages. A CSM describes the relationship between contamination which may be present from past and current activities on a Site (and any off-Site activities which may affect a Site) and receptors which could be exposed to that contamination. As part of the CSM development, three elements, the source of contamination and associated contaminants, receptors to that contamination and the pathways between the two are considered separately initially. These are then assessed further to determine whether all three elements are present or are likely to be present and if so, described as a potential contaminant linkage (PCL). There may also be risk assessment, either qualitative or quantitative, should relevant data be available.

4.207 Potential risks are determined and assessed based on the likelihood and consequence using the principles given in the National House Building Council (NHBC) and Environment Agency report R&D66\textsuperscript{16}. This provides guidance on development and application of the consequence and probability matrix to risk assessment and broad definitions of consequence.

4.208 Definitions of probability, consequence and the classified risks adopted will be provided in the ES

4.209 Three CSMs and risk assessments will be developed: a baseline model based on the current ground conditions and then predictions made for a construction stage and operational stage models.

\textit{Stage 2: Impact Assessment}

4.210 The impact assessment is undertaken by comparing the baseline phase with the construction phase and assessing the change of risk and the baseline phase with the operation phase to assess the change of risk. This CSM comparison approach allows the changes in the land contamination status during construction or during operation of the Site to be identified.

\textsuperscript{15} Department for Communities and Local Government, 2006: Environmental Impact Assessment – A Guide to Good Practice and Procedures

Mitigation of Effects

4.211 The proposed Development will be designed to ensure construction works do not pose an unacceptable risk to human health or the environment. Intrusive ground investigations will be undertaken on the Site to inform design of the Development, health and safety risk assessments, waste classification and potential re-use of materials. Such investigations will also be tailored to provide information on potential existing contamination.

4.212 Appropriate mitigation measures will be identified as part of this assessment. These could include:

- further desk study and ground investigation to determine or delineate areas of potentially contaminated ground enabling incorporation of appropriate design measures to ensure minimal disturbance and/or identification of contaminated material which requires treatment or removal;
- design of geotechnical engineering features to ensure that preferential contaminant migration pathways are not created; and
- classification of waste, undertaken to inform reuse or disposal of materials. This will be undertaken in accordance with current UK and European legislation regarding management of wastes. The potential effects will be reduced by adoption of mitigation measures including development of a Waste Management Plan in accordance with waste management legislation.

4.213 The potential exists for land contamination to impact on the identified receptors as a result of the Development. The ground investigation will allow for assessment of these potential impacts. Good Site practices will be followed during construction, which may include (but not be limited to):

- management of potential risks to construction workers through health and safety legislation, such as the Health and Safety at Work Act (Reference) and Control of Substances Hazardous to Health (COSHH) Regulations\(^\text{17}\). The principals set out in the pertinent H&S legislation require the Employer to either eliminate or minimise to an acceptable level the risks associated with exposure to hazardous substances;
- appropriately manage construction works to ensure surface water run-off is controlled;

\(^{17}\) Control of Substances Hazardous to Health Regulations 2002 (as amended), SI 2002/2677
- implementation of appropriate dust control measures;
- the appropriate storage of fuel in accordance with Environment Agency Pollution Prevention Guidance (PPG) notes PPG2\(^{18}\) and PPG6\(^{19}\), and
- development of a methodology to address what remedial actions will be undertaken and how such actions will be validated and recorded if unsuspected contamination is encountered during the works.

4.214 The measures listed above are a small selection of those adopted as standard as part of Site practices on all development Sites and will be detailed in a Construction Environmental Management Plan.

**Heritage**

4.215 The topic of cultural heritage includes archaeology, built heritage and the wider historic landscape. The assessment will consider the likely significant effects of both construction and operational impacts arising from the Development upon the identified cultural heritage assets.

**Baseline Conditions**

4.216 CCoC retains a database (Historic Environmental Record, HER) of all recorded archaeological Sites, listed buildings, findspots, and archaeological events (evaluations, excavations etc) within the county as well as other designations such as Conservation Areas and Scheduled Monuments. The HER is not however a record of all surviving elements of the environment. The Cambridgeshire HER (CHER) was consulted in March 2012.

4.217 There are two known Sites recorded on the CHER within the Site - an Anglo-Saxon burial and a prehistoric cremation burial - both discovered during quarrying between the 19th and 20th centuries. The latter also contained Roman pottery although this is most likely a result of later disturbance of the burial. However, the record of the Iron Age burial discovery cannot be confidently verified and its original sitting may well be outside of the limits of the Site.

4.218 Quarrying of the river terrace gravels in the area has brought to light Palaeolithic hand axes and the possibility of such items occurring on the Site cannot be ruled out although they are likely to be deeply buried. In situ worked flints from the Upper Palaeolithic, Mesolithic and Neolithic periods have been recorded from the alluvial flats on the side of the River Cam and

\(^{18}\) Environment Agency, 2010: Pollution Prevention Guidelines 2: Above Ground Oil Storage Tanks
\(^{19}\) Environment Agency 2010: Pollution Prevention Guidelines 6: Working at Construction and Demolition Sites
there is the possibility that similar finds may be encountered on the Site if they have not been disturbed by the railway and sidings.

4.219 The periods from which finds are most likely to be made are the Late Iron Age and Roman periods, with the possibility of cremations and settlement remains being encountered. The Site may provide the opportunity for studying the impact of the Roman invasion on rural populations of the Late Iron Age and how the transition was effected, especially the processes involved in the adoption of the ‘Aylesford Swarling’ cultural elements.

4.220 The Site is thought to have been fields from the Medieval period up until the mid 19th Century when the railway and sidings were built. Archaeological remains from the Medieval period up until the mid 19th Century are therefore not expected to be present on the Site.

4.221 There are no Scheduled Monuments with the Site or Search Area (400m radius from the Site). There are no listed buildings within the Site although there are numerous listed buildings in the population centres of Fen Ditton, Chesterton, and northern Cambridge. However, these are all at least 400m away from the Site and are not likely to be impacted by the Development.

Potential Effects and Proposed Assessment Methodology

4.222 An archaeological desk based assessment for the Site and the surrounding area has been carried out by Oxford Archaeology East (July 2012) and presented to the County Archeologist. The new passenger line will reuse the existing down loops line thus below ground investigation in this area will be partial. The ground works involved in the construction of a new station building, platform, access road, as well as the associated services, will cause damage to archaeological remains if present whether below or above ground. The creation of parking for 450 cars may have less of an impact, depending on how great a depth of soil is stripped off.

4.223 Intrusive investigations are planned to take place in order to determine the level of destruction to buried archaeological remains, if they exist.

4.224 At present the Site is covered by trees, vegetation, piles of aggregate as well as the sidings themselves, thus space for archaeological trial trenches is limited. There are only three areas that are available to excavate trial trenches at the moment – the triangular area at the north end of the Site and two areas of hard standing further south. A full trial trenching evaluation of the Site would therefore have to wait until the Site has been cleared.

4.225 A borehole survey is considered to be a good preliminary method to establish the depth of natural gravels, the thickness of made ground, areas of destruction e.g. under the sidings,
areas of ground contamination, the presence of alluvium and whether the ground is waterlogged.

4.226 Boreholes and window samples are therefore proposed to be carried out in the area of the proposed platform and station buildings. Information (including on-Site monitoring by an archaeological contractor) from these geotechnical investigations will be made available to the County Council Historic Environment Team.

Mitigation of Effects

4.227 Options for mitigation upon subsequent discovery of archaeological resources during construction would include excavation and recording as the most likely response.

Landscape and Visual Assessment

Baseline Conditions

4.228 Chesterton Sidings is on the urban edge of Cambridge, at the eastern end of the Northern Fringe which generally has the appearance of a degraded landscape with few features of value. This large area of sidings is now mostly unused and derelict.

4.229 The Chesterton Sidings is a flat area of long established railway freight and aggregate transfer sidings. It consists of an area of railway track and surrounding yard, areas of naturally colonised vegetation on extensive rail ballast surface, and three small derelict railway buildings, two still in use. The site is screened by areas of dense overgrown vegetation particularly on the southern aspect. There are approximately 30m high lighting towers to illuminate the yard which it is understood are currently unused.

4.230 The Site is well contained with commercial scale buildings and industrial uses to its north and west. There is limited visibility from Churchill House a 3 story office building within the Cambridge Business Park immediately to the West. The industrial land uses to the north, comprising of an aggregates transfer station and sewage farm, overlook the Site. It is screened from the residential areas to the south by a mature tree, naturally colonising vegetation along the site’s perimeter, Bramblefields Local Nature Reserve and Nuffield Road allotments. The existing rail line provides segregation from the properties to the east. It is considered that there are currently no short, medium or long distance views of any significant importance.

4.231 Vehicular access to the Site is along Cowley Road (a non through road) which has traffic limited to that associated with the industrial use of the area. The road corridor has unkempt dense naturally colonising vegetation on the south side with a single temporary portakabin
building. On the north side a limited amount of sparse naturally colonising vegetation interrupts views of the industrial premises the road serves.

4.232 The views into and out of the Site are not considered significant or sensitive and the Development provides opportunities to enhance the character of this area.

Proposed Assessment Methodology and Potential Effects

4.233 An initial landscape and visual assessment shall be made of the existing environment, including lighting. This will incorporate the guidance contained in the following reference publications:

- Design Manual for Roads and Bridges

4.234 The following documents and relevant Local Development Framework Document policies will also be used to assist the considerations within this section.

- CCoC Cambridgeshire Landscape Guidelines
- Cambridgeshire Quality Charter for Growth
- SCDC District Design Guide
- CCoC Cambridgeshire Design Guide
- SCDC Landscape in New Developments
- SCDC Open Space in New Developments
- CCiC Open Space and Recreation Strategy
- CCiC Cambridge Landscape Character Assessment

4.235 The visual impacts will occur mainly through the proposed development of this brownfield site and through the introduction of lighting at the building, public realm and landscaped car parking facility.
4.236 It is considered that there is the potential for negative visual impacts of the Development during construction phase with the removal of vegetation and buildings on the Site although the screening on the southern and western boundary will be retained. However, these impacts will be mitigated through the provision of a high quality station building and interchange facilities, establishment of new planting and enhancement of existing screening. It is consider likely the Development impacts will be beneficial above that of the existing Site land use.

4.237 The lighting design shall incorporate the station, platforms, car & cycle park bus stop and approach road(s). The potential effects will be assessed on examining the lighting requirements as detailed in the appropriate Chartered Institution of Building Services Engineers (CIBSE) guides and British Standards. The design will be considered in conjunction with various further guidance documents provided by the Institute of Lighting Engineers (ILE), DEFRA, national government and local planning authorities (LPA) in order to avoid obtrusive light, sky glow and light pollution.

4.238 In addition the LPA shall be consulted with regard to classification of the environmental zone and any potential restrictions on lighting.

Mitigation of Effects

4.239 The proposed Development would significantly enhance the value of local landscape and urban realm particularly from the direction of the Cambridge Business Park to the West of the site boundary. While the retention and enhancement of the existing Chesterton Sidings boundary screening to the south and west of the Site boundary would mitigate any potential visual impact of the Development from this direction. Measures would also be provided to mitigate any potential impact on residential properties particularly those limited number to the East of the Site which are bordered by the railway and do not currently have the extensive screening vegetation of those to the South.

4.240 These measures are likely to include:

- Retention of key landscape features e.g. tree screening on the southern and western Site boundary
- Enhancement of existing boundary screening
- Provision of new landscaping where appropriate e.g. car park areas.
- High quality and sensitive urban design of the Development lighting. This will include preparation of a lighting strategy for the Development in compliance with railway signal safety requirements and Network Rail policy requirements, and taking into account the documents noted earlier. Measures are likely to include
All street lights would be full cut-off and preferably with flat glass. Where indirect lighting columns are used, care should be taken to select luminaries where there is no upward spill light.

All lanterns around the perimeter of the Development positioned so that they face inwards

Columns would be kept as low as practically possible to prevent views of the lanterns from the surrounding area.

Where required, shields and anti glare screens would be used.

Where possible luminaries should be located on the ground but where not would be situated so that the majority of the light is directed downwards.

Light sources selected should be of low wattage as far as practically possible.

Controls would be included so that non essential lighting is switched off at pre selected times, while the street lighting and security lighting should be designed to switch to a lower at grade during the appropriate hours.

**Noise and Vibration**

4.241 This chapter examines the potential noise and vibration impacts of the Interchange Development on the nearest noise sensitive properties.

4.242 The noise and vibration assessment will not include any alterations to the railway sidings or freight train movements, other than those included in the Development.

**Baseline Conditions**

4.243 The predominant source of noise in the assessment area is road traffic noise, the nearest Trunk Road being the A14 to the north, which is approximately 1km from the nearest receptor. Local roads also contribute to the noise climate.

4.244 In addition to being in proximity to the road traffic noise, the Site is located to the West of the railway tracks which run from Cambridge to the North of England. These railway tracks are currently used by both passenger trains and freight trains. There are also railway sidings to the West of the tracks. Although many are disused, two of them are used by industrial premises North of the Site; including DB Schenker, La Farge and Freightliner and Frimstone and existing/continued noise levels from these operations will be assessed where applicable.

4.245 It is our understanding that up to 2-3 times a week freight trains from the industrial premises to the north of the Site shunt along one of the sidings. The train arrives late afternoon
and then shunts around three times between 18:00 and 23:30. Each shunt lasts around half an hour.

4.246 To the West and South of the Site are residential properties, and to the East there is a community of Travellers in Caravans and Park Homes, as well as other properties, and a small industrial estate.

Environmental Noise Survey

4.247 A manned noise survey was carried out at six of the nearest noise sensitive properties between the 13th and the 14th June 2012. The survey included measurements during the day, at the approximate times of the first and last trains to use the station, and at the quietest time of the night. The scope of survey works required was agreed in liaison with the relevant Environmental Health Officers, based on the survey plan shown in Figure 4.2.

4.248 The noise levels during the survey were fairly consistent throughout, with the first day of measurements consistently lower than the second, due to lower wind speeds.

4.249 The quietest daytime measurements at any of the six locations were found to be 42 dB $L_{Aeq}$ and 36 dB $L_{A90}$. The quietest night time measurements at any of the six locations were found to be 34 dB $L_{Aeq}$, with background levels as low as 31 dB $L_{A90}$. Noise levels at the caravan parks and Moss Bank were found to be higher, due to proximity to the main line railway, and to the activities in Chesterton Sidings.

4.250 In addition to the daytime survey, and in order to gain an understanding of the typical noise at the Site, measurements were taken of shunting freight trains, which were moving from the Lafarge Site on the evening of the 14th June 2012.

Potential Effects And Proposed Assessment Methodology

Methodology and Criteria

4.251 The noise and vibration assessment of the Development will comprise:

- An assessment of the noise and vibration impacts from the construction of the proposed Development, by examining the effect of construction traffic as well as the noise from the individual activities carried out during the construction work. Works include the construction of the new road, cycle path, platforms, station and busway, in accordance with BS5228;
An assessment of road traffic changes due to the new station on the local road network, and along Cowley Road, using ‘Calculation of Road Traffic Noise’ (CRTN) and guidance from Design Manual for Roads and Bridges (DMRB);

An assessment of train vehicle changes, due to passenger trains stopping at the new station, using ‘Calculation of Rail Noise’, (CRN);

An assessment of the noise and vibration impacts of the station facilities, including speaking announcements, the car park, the extension to the guided busway route and new station access along Cowley Road;

Where necessary, mitigation measures such as environmental noise barriers, or in the case of construction noise, alternative methods of working or equipment may be suggested which would reduce the noise at source.

Construction Phase Noise and Vibration Assessment

4.252 Noise from construction activities at the Site will be assessed for impact to noise sensitive receivers (NSR’s) of the Site, in agreement with the LPA. An assessment of the degree of impact will be carried out in accordance with BS5228:2009, Parts 1 and 2: Code of Practice for Noise and Vibration Control on Construction and Open Sites. NSRs within the vicinity of the Site may include, but not be limited to, hotel facilities, residential units, offices, leisure facilities, educational facilities, hospitals, etc. The typical methodology for this procedure will cover the following points:

- Locate the Noise Sensitive Receptors (NSRs) which would most likely be affected by noise and vibration activities from the demolition and construction works.

- Determine the items of Powered Mechanical Equipment (PME) for each discrete construction activity, based on available information or agreed plant inventories.

- Assign sound power levels and vibration levels to the proposed PME according to BS 5228: Part 1 and 2:2009 Noise Control on Construction and Open Sites or other credible references.

- Consider the phased nature of the development and how this may affect the noise and vibration impacts.

- Predict construction noise levels in terms of impacts at NSRs in the absence of any mitigation measures.
- Describe impact on NSR’s against the Baseline Noise Levels recorded at the Site, in terms of duration and magnitude, in line with accepted assessment guidelines.

- Where appropriate, methods of mitigation will be identified as solutions to bring impacts to within acceptable levels.

- Predict construction noise/vibration levels in terms of impacts at NSR’s with mitigation measures in place.

**Operations Phase Noise and Vibration Assessment**

4.253 The guidance documents used for assessing the potential impacts of fixed and mobile noise sources within the development, once it is operational, are described below.

**Station Noise assessment**

4.254 BS 4142:1997 describes methods for determining and assessing noise levels from fixed plant with a view to determining the likelihood of complaints. This will be used to determine the noise impact from the Station facilities, such as the PA/VA systems and/or Heating, Ventilation and Air Conditioning (HVAC) plant.

4.255 The likelihood of complaints about noise from the occupiers of nearby residential properties can be assessed using the method described in BS4142:1997.

- The standard then rates the likelihood of complaints by comparing the rating noise level with the background noise level:

- Where the rating noise level is more than 10 dB above the background level, then complaints are likely

- Where the rating noise level is more than 10 dB below the background noise level, then this is a positive indication that complaints are unlikely

- Where the rating noise level is 5 dB above the background noise level, then this is of marginal significance

**Car Park Noise assessment**

4.256 The noise from the car park can be assessed using BS8233 Sound Insulation and Noise Reduction for Buildings – Code of Practice, (1999).
4.257 This Code of Practice defines a range of internal dBA_{eq} noise levels for different types of room during their periods of use. For living rooms, a ‘good’ standard is defined as 30 dBA_{eq} and a ‘reasonable’ standard as 40 dBA_{eq}. For bedrooms, the corresponding levels are 30 dBA_{eq} and 35 dBA_{eq} respectively.

4.258 As the typical noise reduction for a closed thermally double glazed window is typically 33 dBA, these ‘good’ and ‘reasonable’ internal noise level standards equate to external levels of approximately 63 dBA_{eq} and 73 dBA_{eq} for living rooms and to approximately 63 dBA_{eq} and 68 dBA_{eq} for bedrooms.

**Railway and Busway Noise and Vibration Assessment**

4.259 The technical memorandum entitled Calculation of Railway Noise (CRN) can be used to assess the noise from the proposed changes to the railway lines and the proposed extension to the CGB Guide way.

4.260 Calculation of Railway Noise (CRN) is mainly concerned with the procedures for calculating noise from moving railway vehicles to determine entitlement for noise insulation under the ‘Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1995’. It also provides guidance on the calculation of railway noise for more general applications such as the assessment of noise impact of railways, the design and location of new tracks and land use planning in the vicinity of existing or planned railways.

4.261 In January 2007 AEA Technology produced for DEFRA an addendum to CRT, this being “Additional railway noise source terms for "Calculation of Railway Noise 1995" (ARNST)"

**Road traffic Noise and Vibration Assessment**

4.262 The road traffic noise assessment, based on the change in traffic flows on the local roads with the development, will be carried out in line with the methodology described in the Noise and Vibration chapter of the Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3, Part 7 published by the Highways Agency. In accordance with DMRB, noise predictions will be carried out using the UK calculation methodology ‘Calculation of Road Traffic Noise’ (CRTN). This methodology will be applied using 3D noise modeling software ‘Noisemap 5’.

4.263 The Department for Transport Memorandum, Calculation of Road Traffic Noise provides methods for measuring and calculating noise levels from road traffic, which are assessed over an 18 hour period from 06:00 to 24:00, using annual average weekday traffic (AAWT) flows. The basic noise level for a road segment can be calculated using the traffic flow, traffic speed and percentage heavy vehicles for a road segment.
4.264 The advice note entitled ‘Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7 HD 213/11 Noise and Vibration’ (rev 1, Nov 2011) provides guidance on the assessment of the impacts that road projects may have on levels of noise and vibration. It provides guidance on the significance of changes in road traffic noise, identifying that changes in noise smaller than 1 dBA are not perceptible in the short term. Assuming no changes to percentage composition of heavy goods vehicles or traffic speeds, an increase in traffic volume of 25% is required to alter the noise levels by 1 dBA.

4.265 In accordance with guidance contained in DMRB 11:3:7 HD 213/11, the magnitude of noise impacts in the short term (Development opening year) and in the long term (future assessment year, typically 15 years after opening) can be classified as follows;

Table 4.5 – Classification of Magnitude of Impacts

<table>
<thead>
<tr>
<th>Noise change, dB $L_{A10,18hr}$</th>
<th>Magnitude of impact in the short term</th>
<th>Magnitude of impact in the long term</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>0.1 – 0.9</td>
<td>Negligible</td>
<td>Negligible</td>
</tr>
<tr>
<td>1.0 – 2.9</td>
<td>Minor</td>
<td>Negligible</td>
</tr>
<tr>
<td>3.0 – 4.9</td>
<td>Moderate</td>
<td>Minor</td>
</tr>
<tr>
<td>5.0 – 9.9</td>
<td>Major</td>
<td>Moderate</td>
</tr>
<tr>
<td>10+</td>
<td>Major</td>
<td>Major</td>
</tr>
</tbody>
</table>

4.266 The study will incorporate data generated by the traffic impact study and the plans of the road design. Noise levels will be predicted for the proposed opening year and the future design year, both with and without the proposed improvements.

Expected Effects of the Development

Construction Phase Noise and Vibration Assessment

4.267 The noise and vibration levels from the construction of the Development will be affected by the following:

- The type of plant and number of plant used on Site;
- The number of deliveries required to the Site;
- The duration of the works, the Site working hours, and percentage on-time of the equipment;
- The distance from the construction Site to the NSRs;
- The screening measures in place; and
- The existing noise climate.

4.268 A detailed assessment of the potential construction noise and vibration impacts of the Development should be undertaken at the detailed assessment stage in accordance with BS 5228 ‘Code of practice for noise and vibration control on construction and open Sites’.

4.269 During construction, changes in traffic flows could arise as a result of heavy construction traffic or temporary diversion routes. The associated noise and vibration impacts would depend on the routes used by the construction traffic and any diversion routes.

*Operations Phase Noise and Vibration Assessment*

4.270 The changes in noise level from the operation of the Proposed Development will be associated with:

- The changes in numbers of vehicles on the road as a result of the redistribution of traffic flows on the network;
- The changes in speed and volume of passenger trains arriving at the new station;
- The number of additional vehicles in the car park;
- The frequency of vehicles using the extension to the Guided Busway;
- The activity at Station building itself.

4.271 The Development will introduce new sources of noise which may have a negative impact on some facades of the nearest noise sensitive properties.
Mitigation Of Effects

Scope for Mitigation Measures

4.272 Mitigation measures may be necessary in order to reduce the negative impact of the Development. Noise mitigation measures which could improve the noise levels around the Site could include environmental noise barriers. The specific location of the environmental noise barriers will be dependent on the noise assessment.

4.273 In addition to reducing the impact of construction noise using environmental noise barriers, the noise levels could be reduced at source through the use of alternative methods or equipment, or the impact could be reduced by limiting the use of the noisiest equipment to specific time periods.

Transport and Access

Baseline Conditions

4.274 A scoping meeting to determine the scope of a Transport Assessment (TA) to support the application was held with CCoC Highways on 2 August 2012. Following this meeting a scoping note was issued to CCoC for their review on 1st October 2012. The scope of analysis for the ES will follow the parameters set out by CCoC through scoping of the TA and in accordance with guidance set out in DETR Circular 02/99.

Site Location and Local Highway Network

4.275 The Site is approximately 12 hectares of undeveloped land located within northeast Cambridge. The Site is bounded by the Cowley Road industrial area to the north, West Anglia Main Line Railway to the east, Nuffield Road allotments to the south and Cambridge Business Park to the west. Access to the Site is from Cowley Road.

4.276 Cowley Road is a single carriageway road providing access to Cambridge Sewage Works and industrial land located to the east of Milton Road (A1309). Cowley Road is accessed from Milton Road via two signalised junctions. Cowley Road/Milton Road provides access onto and exit from Cowley Road for traffic entering from the north and exit from Cowley Road to traffic travelling south. The Cowley Road/ Milton Road/Science Park junction provides access to Cowley Road for traffic arriving from the south or the Science Park and exit from Cowley Road for traffic travelling south. No access to the Science Park from Cowley Road is available at this junction.
4.277 Milton Road provides access to the A14 via Milton Interchange to the north. The A14 is a trunk road providing access to the wider strategic road network service in East Anglia and the wider UK including links to the M11 towards London. To the south of the Site Milton Road provides access to central Cambridge including the outer ring road and provides local access to residential areas of Chesterton, Kings Hedges and Arbury. Via the outer ring road alternative access is available to A14, M11 and villages surrounding Cambridge. Milton Road is a single carriageway to the south of the Site and dual carriageway to the north of the Site.

4.278 Accident analysis of the area surrounding the Site shows no fatal accidents recorded in the last three years. Accident clusters of slight accidents are seen at the junctions of Cowley Road/Milton Road and Milton Road/Green End Road, however these are not identified as ‘cluster sites’ by CCC with the closest cluster site being located on Green End Road itself between its junctions with Green Park and Nuffield Road. A detailed analysis of the identified accidents within the study area will be included in the Transport and Access Chapter. This will include analysis along key pedestrian and cycle routes within the vicinity of the Site.

Access for Pedestrians and Cyclists

4.279 Cowley Road has footpaths along much of its length although these are restricted to one side of the road. From Cowley Road pedestrians can access Milton Road which provides connections towards Cambridge, Milton and the Science Park. A pedestrian crossing phase is available at the signals on Milton Road to allow access to the Science Park and to the Busway maintenance track, which is for use by pedestrians and cyclists. Further pedestrian crossing points, controlled and uncontrolled, are also available on Milton Road as it continues towards the City Centre. From Milton Road there is a wider network of footpaths serving residential, commercial, leisure and employment areas within the City Centre and surrounding area.

4.280 National Cycle Route 11 passes through Chesterton on Green End Road and the High Street as an on road strategic route. Route 11 continues as an on-road local route along Water Street, Fen Road and Cam Causeway, continuing off-road crossing the railway line and continuing alongside the river Cam towards Waterbech. To the west Route 11 continues off-road alongside Milton Road towards Milton. From Chesterton High Street Route 11 continues into Cambridge City Centre and beyond with links to Trumpington and Shelford. From Route 11 a large number of local and strategic cycle routes can be accessed within Cambridge City Centre. These routes provide connections to most areas of the City and out into the wider village network surrounding the City.

4.281 Cycle and walk mode shares for Cambridge tend to be much higher than the national averages for these modes of travel and it is important to consider this when assessing the
potential effects of the proposed Development. People are not only more likely to walk and cycle but are also likely to walk and cycle greater distances than expected and this must be considered when determining walking and cycling catchments relevant to the Site.

**Access for Public Transport Users**

4.282 Bus Routes C2, 9 and 99 currently run along Milton Road close to its junction with Cowley Road. Route C2 serves Milton Park & Ride site but includes a stop within the Science Park. Route 9 runs from Chatteris to Cambridge at a frequency of 6 buses per day. Route C2 is a Citi bus route running from the Science Park to Addenbrookes Hospital and including numerous stops in and around the City Centre, Chesterton, Romsey and Cherry Hinton areas. This service runs at a frequency of one bus every 20 minutes.

4.283 The Site is located opposite a Guided Busway route which includes a section of guideway between Milton Road and St Ives. This route provides services from Huntingdon to Trumpington Park and Ride (via the Science Park, Cambridge Rail Station and Addenbrookes Hospital). The route accesses Milton Road to the south of the Science Park and continues on-road on Milton Road towards the City Centre. The closest stop on this route at the current time is on the guideway itself at the Science Park. However the Development includes for the extension of this route into the Site along the alignment of the former St Ives Branch line. This will allow access to the Development from the Guided Busway routes.

**Potential Effects and Proposed Assessment Methodology**

4.284 In accordance with the ES potential impacts will be identified and assessed using the following qualitative criteria:

- **Very Large:** the Development will significantly affect conditions for existing and proposed transport users and/or will significantly affect the highway network over a wide area;

- **Large:** the Development will affect conditions for existing and proposed transport users and/or will affect the highway network over a wide area;

- **Moderate:** the Development will affect conditions for some existing and proposed transport users and/or will affect the highway network over the local area;

- **Slight:** the Development will affect conditions for some existing and proposed transport users and/or will affect the highway network but will only affect a very small area; and
Negligible: no change in conditions for existing or proposed transport users, nor impacts on the highway network in the area.

4.285 Scoring will be either Beneficial or Adverse. Scoring during the construction phase will be considered temporary whilst scoring during the operational phase is likely to be considered permanent or long term.

**Impacts on the Highway Network**

- Cambridge Sub Regional Model (CSRM)

4.286 The number of multi-modal trips predicted to be generated by the Development will be assessed using the Cambridge Sub Regional Model (CSRM) which is a land use and transport model of the Cambridge Sub Region. The current version of the model was developed to support the Cambridge Transport Innovation Fund submission and A14 Early Contractor Involvement Development and it continues to be used by Cambridgeshire County Council and the local authorities to look at planning and transport issues. The model comprises the four districts of Cambridge City, South Cambridgeshire, East Cambridgeshire and Huntingdonshire. The model has a validated base year of 2006 and runs through time in five year steps to generate forecasts for 2011, 2016, 2021, 2026 and 2031. The model was developed in line with DfT’s modelling guidance set out in WebTAG.

4.287 There are four linked modules that make up CSRM: a land use model; a transport demand model; a highway assignment model; and a public transport assignment model. The highway assignment model operates for a single hour in the AM and PM Peak hours and includes a simulation of the junction delays as a result of congestion. The public transport (bus) services occupying road space are included within the highway model to reflect the space required and delays they cause. Freight is not modelled explicitly by CSRM. Goods vehicle movements are included in the highway assignment model with the numbers and growth in trips being derived externally to CSRM, using information from the East of England Regional Model and growth forecasts in line with DfT guidance.

4.288 The CSRM model forecasts to be used within the TA and ES are with the Cambridge Station Interchange (CSI) included (referred to as Do Something or DS) and without CSI included (referred to as Do Minimum or DM). The model forecasts are for a forecast year 2026, which is expected to be 10 years after opening in accordance with the requirements of the TA as agreed with CCiC.

- Construction
4.289 It is predicted that the number of vehicles generated by the site during construction will not exceed the number generated by the operational Development and as a result no strategic highway impact assessment will be undertaken. If however the number of construction vehicles during a particular phase of construction is predicted to be higher than during operation an assessment will be undertaken by including the relevant construction trips within the highway assignment model as described for the operational phase below.

4.290 The routing of construction vehicles and timing of arrivals and departures will have impacts in terms of highway safety and capacity on junctions surrounding the site. This will be assessed using appropriate junction assessment software.

4.291 A Code of Construction document will accompany the planning application outlining measures to mitigate the impact of Construction. A summary of these measures will be included within the ES. It is predicted that construction of the site can be mitigated with appropriate controls on vehicle routings.

- Operation

4.292 The CSRM highway assignment model will be used to compare traffic flows within Cambridge with and without the Development. This information will be used to determine junctions where traffic flows are expected to increase by more than 10 percent. Further detailed junction modelling using appropriate software will be undertaken for these junctions to determine the impact of the proposed Development on the highway network.

4.293 It is expected that Milton Road/Cowley Road and Milton Road/Kings Hedges Road will be included in the assessment as a minimum.

4.294 It is not expected that the Development will result in significant impacts on any of the junctions surrounding the Site. However if significant impacts are identified these will be mitigated through appropriate measures to improve the capacity or safety of the junction as relevant.

4.295 During the operational phase it is important to note that although the Development may attract new trips from surrounding areas it is predicted to remove a number of existing highway trips from the existing Cambridge Rail Station and may relieve existing traffic congestion in the area surrounding the station, particularly for trips to and from businesses located on the nearby Business and Science Parks. This will be reviewed using information from the highway assignment model which may identify increases in capacity at junctions surrounding the station as a result of the Development.
Impacts on the Pedestrian and Cycle Networks

4.296 Information taken from the CSRM on mode of travel and from National Rail Travel Survey Data for Cambridge Station will be used to predict the number of trips to the site by pedestrians and cyclists. Potential catchment areas will be identified from this information and mapped on appropriate base mapping. Key routes between the Development and catchment areas can subsequently be identified. The aim of the Development is to create new routes to tie into these key routes and allow easy access for pedestrians and cyclists to the Site.

- Construction

4.297 During the construction phase impacts on pedestrians and cyclists will be restricted to existing users of Cowley Road and key junctions on the proposed construction vehicle access route. Impacts on these users are expected to be adverse and will be assessed qualitatively. Where possible measures to mitigate impacts on these users will be identified. These may include rerouting of existing footpaths and cycle routes as appropriate.

- Operation

4.298 Information taken from the CSRM on mode of travel and from National Rail Travel Survey Data for Cambridge Station will be used to predict the number of trips to the site by pedestrians and cyclists. Potential catchment areas will be identified from this information and mapped on appropriate base mapping. Key routes between the Development and catchment areas can subsequently be identified. The aim of the Development is to tie into these key routes and allow easy access for pedestrians and cyclists to the Site.

4.299 The Development includes a number of new pedestrian and cycle links to surrounding areas including Discovery Way, Pippin Drive, Ribston Way, Long Reach Road and Nuffield Road Industrial Estate. Links will also be provided along the guided Busway route into the site and Cowley Road. These will be mapped onto the catchment areas to ensure that key routes are adequately catered for and identify any remaining pedestrians and cycle routes which are not accounted for by the Development. Mitigation measures will be considered for these routes as appropriate.
4.300 During the operational phase it is important to note that some existing pedestrian and cycle trips will be diverted from Cambridge Rail Station to the Development. The proportion of trips will be identified using mode of travel and NRTS data for Cambridge Station as described above. This may relieve existing cycle parking pressure at Cambridge Rail Station improving conditions for existing users of the station.

Impacts on the Public Transport Network

4.301 As for pedestrians and cyclists information taken from the CSRM on mode of travel and from NRTS data for Cambridge will be used to predict the number of trips to the site by public transport users.

- Construction

4.302 During the construction phase minimal impacts are predicted for existing public transport users. As a result it is not proposed to assess the effects on public transport users during construction as part of the ES.

- Operation

4.303 The extension of existing guided Busway services into the Development will open up a new route for public transport users to the Development attracting new users and also those located along the Busway route that currently travel to Cambridge Rail Station by bus or car. Options for serving the station by other local bus services will be assessed and discussed with the relevant operator(s) with reference to the station’s catchment and anticipated level of demand.

Mitigation of Effects

4.304 Overall the Development includes measures designed to maximise access to the site for all travel modes and thereby reduce the need for mitigation. However as discussed above further mitigation measures will be included where impacts on the highway network, pedestrians, cyclists or public transport users remain. This may include junctions improvement measures, new or improved routes for pedestrians and cyclists or enhanced public transport services. The affect of the Development will be reassessed following the identification of mitigation measures.
FIGURES AND APPENDICES
Figure 1.1 – Site Plan
Figure 1.2 – Location Plan
Figure 3.1  The Applicant’s Assessment process

- Scoping
  - Baseline
  - Consultation

- Assessment
- Mitigation
- Environmental Statement

Design Iteration
Figure 4.1  Approximate Site Location and Watercourses
Figure 4.2  Noise Survey Locations
Appendix A – Screening Opinion and Response
Appendix B – Extended Phase 1 Habitat Survey