King’s Cross Central
Environmental Statement

NON-TECHNICAL SUMMARY

May 2004

Prepared for Argent St George, London and Continental Railways and Exel by RPS

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King’s Cross Central

Environmental Statement: Non-Technical Summary

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Note: This is based on the most up-to-date base available at this stage. There have been changes to the site and its immediate surroundings due to CTRL works.
1.0 Introduction

1.1 Argent St George, London and Continental Railways and Exel plc (the Applicants) propose the comprehensive redevelopment of the former railway lands at King's Cross Central (see Figure 1). An Environmental Impact Assessment (EIA) has been undertaken of these proposals. This is a process of identifying and assessing the likely significant environmental effects of a project and identifying ways in which adverse effects can be avoided, reduced or remedied. The results of the EIA are reported in an Environmental Statement. This document provides a non technical summary of the Environmental Statement.

1.2 The EIA has been undertaken in accordance with The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 and published Good Practice for EIA.

1.3 The Environmental Statement accompanies two outline planning applications, for the Main Site and the Triangle Site (see Figure 2). There are also related applications for Listed Building and Conservation Area Consents for demolition and other works within the Main Site. The EIA aims to inform decision makers and the public about the likely effects of the proposals.

1.4 This document summarises:
   • the overall approach to the EIA;
   • a description of the King's Cross Central site;
   • the approach to alternatives taken by the Applicants;
   • the King's Cross Central proposals; and
   • the likely environmental effects, taking into account a range of ‘built in’ mitigation measures.
2.0 Approach to the Environmental Impact Assessment

The Scoping Process

2.1 Scoping is the process of identifying the range of environmental effects upon which to focus the EIA. The EIA team prepared a Consultation Draft Scoping Report in April 2003. Comments from a wide range of consultees were compiled by the London Boroughs of Camden and Islington and forwarded to the EIA team. These comments informed the terms of reference for the EIA.

EIA Methodology

2.2 This section summarises the overall EIA methodology used, focussing on baseline conditions, scheme definition and the assessment of effects.

Baseline Conditions

2.3 The ‘baseline conditions’ of the site and its surroundings in 2006/7 provides the basis against which to predict the likely effects of the proposals.

2.4 The Channel Tunnel Rail Link (CTRL) and associated works are due to be completed by 2007. The main King's Cross Central works would then follow; some site preparation and off site works could however start earlier. 2006/7 is therefore the baseline year. We cannot use the existing situation as a baseline because we know that conditions will change significantly between now and 2006/7, mainly because of the ongoing CTRL works. For each topic, therefore, the EIA describes the existing situation first, and then explains the changes that are anticipated to take place up to the 2006/7 baseline year.
Scheme Definition and Design Year

2.5 The proposed development is explained in two separate Development Specifications which are submitted with and form part of the planning applications for the Main Site and the Triangle Site. The Development Specifications define and describe the principal components of the proposed development, for example through a series of Parameter Plans. The EIA is based on these Development Specifications; it also makes a number of (clearly stated) assumptions about further aspects of the proposals. For example, the EIA takes into account a number of agreed environmental protection/mitigation measures that would be taken during construction operations (see paragraphs 2.14 and 6.3 below).

2.6 The development would evolve over many years (12-15 years or longer) according to market opportunities and other factors. The applications therefore retain some flexibility over the form and content of the proposals, albeit within various defined "parameters". For example, the Development Specifications include maximum floor space levels for each type of use and maximum building heights.

2.7 These parameters, together with other aspects of the descriptions of development, have provided the basis for a robust EIA and enabled an assessment of the projects likely environmental effects. As part of this process, each topic has identified and considered the 'worst case' development scenario i.e. the scenario within the given development parameters and stated assumptions that would lead to the worst levels of adverse effects.

2.8 The EIA assesses two stages of the proposals:

- Construction - all those works, activities and processes that would be involved in carrying out the proposed development, including excavation and other earthworks, the erection and dismantling of buildings and structures, demolition and other works.

- Operation - the developed scheme and its use.

2.9 For the purposes of the EIA, the Design Year for operational effects (ie. the year when the development is assumed to be completed) is taken to be 2020. This means that many construction effects would be long-term (more than 5 years).

Assessment of Effects

2.10 The following topics have been assessed in the EIA:

- Construction
- Transport
- Cultural Heritage and Townscape
- Socio-economics
- Archaeology
- Health
- Nature Conservation
- Noise and Vibration
- Air Quality and Climate Change
- Soils and Contamination
- Water Resources
- Urban Services
- Microclimate

2.11 In addition, the EIA addresses the potential for (construction and operational) cumulative effects to arise from King's Cross Central and other planned/proposed developments in the area. In particular, the EIA considers the implications of a King's Cross Station Enhancement project, which could result in a new western concourse for the station within the King's Cross Central application site, and within a similar development timeframe.

2.12 The EIA identifies the significance of the projects likely effects on the environment. Levels of significance have been defined as follows:

- Major significance - impacts of the development of greater than local scale;

- Moderate significance - impacts of the development that may be judged to be important at a local scale; or

- Minor significance - impacts that are of low importance in the decision making process.

2.13 A further category of 'negligible' is used to describe effects which are of such low importance that they are considered not to be material to the decision making process.

2.14 The EIA has also addressed mitigation measures to avoid, reduce and, if possible, remedy adverse effects. Many mitigation measures have been 'built in' to the scheme itself through an iterative process of consultation between the EIA and design teams. This has reduced the need for 'further mitigation'.

2.15 Nevertheless, where practical, the EIA identifies opportunities for 'further mitigation' measures that could (further) reduce the effects of the proposals and/or provide environmental enhancement. The EIA findings (summarised within this document) do not rely on these further mitigation measures, which are identified at the end of each topic assessment within Parts 4 and 5 of the Environmental Statement (Volume 1) and at the end of each Specialist Report (Parts 9 to 19; Volumes 2-4).

2.16 The EIA assesses the whole scheme i.e. assuming that the schemes for both the Main Site and the Triangle Site would go ahead. This reflects the Applicants' intention to develop the Triangle Site as part of the wider, phased, mixed use scheme. However, the Environmental Statement also explains how the predicted effects would be different in the absence of development on the Triangle Site i.e. if only the Main Site development took place (for whatever reason).
3.0 Description of the King's Cross Central Site

3.1 The Main Site lies between the Euston Road, St Pancras Station, the Midland Main Line, the alignment of the new Channel Tunnel Rail Link (CTRL), York Way and King's Cross Station. The site includes Wharf Road, Goods Way, Battlebridge Road and parts of Pancras Road and York Way. The Triangle Site is to the east of the CTRL realignment for York Way, between the Thameslink 2000 rail line and the East Coast Main Line.

3.2 The existing features of the Main Site and Triangle Site ('the site') are shown in Figure 3. This figure is based on an aerial photograph taken in November 2003. Today, the southern part of the site is used for CTRL and related construction purposes, for temporary roads and car parking and other uses. The main 'Goods Yard' buildings to the north are used for a variety of manufacturers, storage, distribution and leisure uses, plus associated car parking.

3.3 A number of environmental designations apply within the site and its surroundings:

- Much of the Main Site falls within the King's and Regent's Canal Conservation Areas. Many of the existing buildings are listed;
- The Regent's Canal is the subject of various designations, for example as Public Open Space and a non-statutory Site of Metropolitan Importance for nature conservation;
- Camley Street Natural Park is a statutory Local Nature Reserve and a non-statutory Site of Metropolitan Importance for nature conservation;
- There are two designated Sites of Borough Importance Grade 1 for nature conservation located partly within the site. However, much of their interest within King's Cross Central has been lost as a result of the CTRL works;
- There are two Archaeological Priority Areas in the locality identified in the Camden Unitary Development Plan. One is entirely outside the King's Cross Central site and it is unlikely that any proposed development works/operations would affect the other (to the west of Camley Street);
- The whole of the Boroughs of both Camden and Islington are declared as Air Quality Management Areas for nitrogen dioxide and particulates (PM10).

4.0 The Approach to Alternatives Taken by the Applicants

4.1 The nature of the development and its location means that the assessment of alternative sites is not a material or practical consideration. The site has long been identified for comprehensive redevelopment at every level of the planning system. Policies specifically for King's Cross Central within the relevant Unitary Development Plan and other documents are up to date and have been developed taking environmental and sustainability issues into account.

4.2 The ‘framework’ that underpins the proposals has evolved over the past 3-4 years and environmental issues have been taken into account at each stage. The step by step approach taken to researching and refining this framework and proposed layout is explained in four key public documents (which can be viewed on the project's website www.argentstgeorge.co.uk):
5.0 The King’s Cross Central Proposals

5.1 The Development Specifications for the Main Site and the Triangle Site are summarised below. The approach taken to the construction process is also summarised (from 5.17).

5.2 The Applicants have also submitted, in parallel, four applications for listed building consent and four applications for conservation area consent. These parallel applications seek consent to undertake demolition and other works that are necessary to deliver the comprehensive development of the site, as defined and described in the Main Site Development Specification.

Summary of the Development Specification for the Main Site

General Description of Development

5.3 For the Main Site, the proposals as set out in the planning application, are for:

- “Comprehensive, phased, mixed use development of former railway lands within the King’s Cross Opportunity Area, as set out in this Development Specification. The development comprises business and employment uses within the B1 use class; residential uses, serviced apartments and hotels; shopping, food and drink and professional services within the A1, A2 and A3 use classes; the full range of community, health, education, cultural, assembly and leisure facilities, within the D1 and D2 use classes; multi storey and other car parking; re-erection of the linked triplet of gas holder guide frames to enclose new residential and other development, on the site of the Western Goods Shed; re-erection of the guide frame for gas holder no. 8, alongside the re-erected triplet, to enclose new play facilities and open space; relocation of an existing district gas governor; works of alteration to other existing buildings and structures, to facilitate their refurbishment for specified uses; new streets and other means of access and circulation; landscaping including open space; new bridge crossings and other works along the Regent’s Canal; the re-profiling of site levels; and other supporting infrastructure works and facilities.”

5.4 Table 1 sets out the proposed overall floorspace for the Main Site for each type of use. Whatever floorspace mix is eventually provided within the various “up to” maxima applied for, the overall total floorspace limits in the second column (headed “total floorspace applied for”) would not be exceeded.

Parameter Plans

5.5 The Development Specification includes 18 Parameter Plans which address and fix various elements of the proposed development, in some cases within limits of deviation.

Development Zones

5.6 The site has been divided into 22 development zones that reflect the geographic layout of the proposed development. The development zones are shown on Figure 4 (Parameter Plan KXC 005). They include the existing buildings and structures to be retained and refurbished, for specified new uses.

<table>
<thead>
<tr>
<th>Table 1 Total Floorspace Proposed within the King’s Cross Central Main Site (Table 1 of the Main Site Development Specification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum amount of floorspace, within the total applied for, that may be developed as (sq.m):</td>
</tr>
<tr>
<td>Total Floorspace Applied for (sq.m.)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>South of Regents Canal</td>
</tr>
<tr>
<td>North of Regents Canal</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

1. D1 uses include community, health, education and cultural uses such as museums.
2. D2 (Assembly and Leisure) uses include concert halls, dance halls, nightclubs, casinos, gymnasia above and other sports/entertainment areas, including cinemas, which are also identified separately in Table 1. 31,550 sq m. represents the maximum floorspace for all D2 uses, including cinemas.
3. ‘Other’ refers to service entrances and access to London Underground Ltd (UUL) facilities.
Public Realm

5.7 In addition to the built floorspace, the proposed development includes new streets, parks, squares and other principal public realm areas. These principal public realm areas are shown in Figure 5 (Parameter Plan KXC 004).

Refurbished Building Groups and Structures

5.8 Figure 6 (Parameter Plan KXC010) identifies building groups and structures that would be subject to works of alteration, to facilitate specified new uses, as part of the proposed comprehensive development. The majority of these works are for refurbishment. Within the Granary complex, the proposed works include the removal of the existing Assembly Shed, to facilitate new buildings and land uses within its footprint. The Applicants have prepared Initial Conservation Plans for each of the building groups and structures shown in Figure 6.

Demolition and Relocation Proposals for Listed Building and Conservation Area Consent

5.9 Figure 7 (Parameter Plan KXC011) identifies those proposals for which the Applicants have submitted applications for conservation area consent and listed building consent for demolition/alteration works.
Figure 7: Parameter Plan KXC 011: Demolition and Relocation Proposals for Listed Building and Conservation Area Consent
Summary of Development Specification for the Triangle Site

General Description of Development

5.10 For the Triangle Site, the proposals as set out in the planning application, are for:

"Mixed use development of part of the former railway lands within the Camden Kings Cross Opportunity Area and an Islington Area of Opportunity, as set out in (the) Development Specification. The development comprises residential; shopping, food and drink and professional services within the A1, A2 and A3 use classes; a health and fitness centre (use class D2) incorporating medi-centre facilities, a crèche and community facilities (use class D1); amenity and open space; habitat area; recycling and other ancillary uses; parking; highway works to provide access; and other supporting infrastructure works and facilities."

5.11 The proposed development comprises three principal buildings, which would stand as separate structures at higher levels, but which would extend across the site at lower levels with a common basement level used for car parking.

5.12 Table 2 shows the maximum floorspace proposed for the Triangle Site, for each type of use proposed.

Parameter Plans

5.13 The Development Specification for the Triangle Site includes seven Parameter Plans. An additional plan has been prepared: Context 001 (see Figure 8). This shows the relationship between the Triangle Site and the principal development zones on the Main Site. This plan indicates the locations of the three main development blocks on the Triangle.

Environmental Performance

5.14 Both Development Specifications explain that all new buildings would be designed to achieve high environmental performance ratings, with an aspiration for a rating of excellent.

5.15 Within the Main Site, at least 15% of the roof area of new buildings constructed within the development would be 'green' / 'brown' roofs (or equivalent systems).

5.16 The new drainage infrastructure provided within the Main Site and Triangle Site would achieve a 10% reduction in combined (storm and foul) flows to the existing combined sewers from the Main Site and a 10% reduction in stormwater discharges to the existing sewers from the Triangle Site, compared (in each case) to the existing maximum allowable discharge.

Table 2 Floorspace Schedule for the Triangle Site (Annex A of the Triangle Site Development Specification)

<table>
<thead>
<tr>
<th>Use</th>
<th>Total Floorspace Applied for (sq.m)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>up to 18,000</td>
<td>To provide up to a maximum of 250 dwellings in Blocks A and B.</td>
</tr>
<tr>
<td>Retail</td>
<td>up to 2,500</td>
<td>Within Block B and beneath amenity space. All units to have frontage to York Way.</td>
</tr>
<tr>
<td>D1/D2 uses</td>
<td>up to 3,500</td>
<td>The application seeks permission for specific uses within Block C including a sports hall; swimming pool; other indoor sports, fitness and recreation facilities including a gymnasium; medical/health facilities; creche/day nursery facilities; and day centre/public hall facilities.</td>
</tr>
<tr>
<td>Total</td>
<td>up to 24,000</td>
<td></td>
</tr>
</tbody>
</table>
The Construction Process

5.17 The construction process is likely to include:

- Initial site preparation, including setting up construction compounds, installing site hoardings and protection measures for historic buildings.
- Construction of temporary accesses to site.
- Realignment of existing roads.
- Construction of internal road system.
- Onsite infrastructure works, including foul and storm sewers, manholes and chambers.
- Demolition of existing structures (following documentation).
- Earthworks, including removal of contaminated materials, excavation of ground and basements.
- Construction of new buildings including piling, laying foundations, connection to services and addition of superstructure.
- Refurbishment of existing buildings.
- Land profiling, landscaping and public realm works.
- Site completion, including removal of construction compounds.

5.18 Each major phase could include works and development across a number of zones across the site, including public realm works.

5.19 It is likely that the first year would focus on the enabling works and therefore any construction of buildings would initially be minimal. Thereafter, the rate of building construction would increase. Wherever practicable, works would be undertaken during normal working hours. Where this is not practicable, preference would be given to undertaking works during the evening rather than at night, and consideration would be given to additional weekend (day) working. For internal fit-out work, where there is demonstrably no disturbance, out of hours working would be proposed.

5.20 Activities likely to generate noise that would affect sensitive areas would only occur during normal working hours, other than in exceptional circumstances (e.g. works in close proximity to an operational railway that could only safely take place during night-time railway possessions).
6.0 The Likely Environmental Effects

Construction Effects

6.1 Environmental effects are inevitable during the construction of any development. They arise from activities which, for example, generate noise and vibration, emissions to air (including pollutants, odour and dust), traffic movements (particularly HGVs), and the potential for sedimentation and pollution of water resources.

6.2 Most of the proposed King's Cross Central site is currently within the site of the Channel Tunnel Rail Link (CTRL) works, which is a large scale civil engineering project. It is important to recognise that the nature of the King's Cross Central proposals are different to CTRL. While the King's Cross Central proposals do include civil and infrastructure enabling works, the vast majority of operations would comprise building works using well established construction techniques for minimising disruption in high density urban settings.

6.3 All construction work would be carried out in compliance with relevant environmental protection and health and safety legislation. Measures to control the potential effects of construction have been identified and agreed, based on current best practice. The likely construction effects have been assessed for each environmental topic, taking into account these agreed/mitigation measures. The following summarises the main findings of the assessment.

Heritage and Townscape

6.4 The extended period of construction would be likely to produce a ‘building site’ character to parts of the site for 12-15 years or longer. The construction process would affect local views through the demolition of existing buildings and the emergence of new buildings. There would be positive effects on character and views as the unused land is brought into beneficial use and occupation. The overall effect is considered to be ‘neutral’.

Archeology

6.5 Effects on archaeology are nearly always permanent. Consequently, archaeology is addressed primarily within ‘Operational Effects’, below. Any temporary effects during construction (from accidental damage or vibration) would be controlled through construction best practice and therefore no perceivable effects on archaeological resources would occur.

Transport

6.6 The predicted peak levels of construction traffic (35 vehicle movements in each direction in a typical hour) represent a very small percentage of typical hourly flows surrounding the site and would not significantly affect the highway capacity. Some public rights of way and public transport routes within the site and the immediate surroundings are likely to be disrupted during some construction works. Any disruption would be kept to a minimum, for example through alternative routing, advance warning, notification and signposting.

Socio-Economic

6.7 The construction of King's Cross Central would create opportunities for construction employment. It is predicted that the construction phase is likely to generate some 3000 full time equivalent jobs, with local employment and increased income for up to 900 local people (full time equivalent jobs). The nature of construction work means that the level of employment generated and skills needed would fluctuate over the development period. Nevertheless, the length of the King's Cross Central construction period means that there is the potential for the construction sector to become a long-term stable employment base within the local economy.

6.8 Construction activity on the site is unlikely to affect crime levels through displacement to other areas. The changing character of the area and the removal of many of the focal points for criminal activity, brought about by King's Cross Central (progressively) and other projects is likely to help reduce the attractiveness of the area for criminal activity such as drug dealing and prostitution, reducing crime and the fear of crime in King's Cross.

Health

6.9 Beneficial effects on the health of the residents, users and the surrounding population during the construction phase may arise from increased levels of employment, reduced levels of crime, and improvements in social capital.

6.10 There is potential for dust and noise effects to be experienced, both from construction activities on the site, and due to construction traffic. The potential effects would be controlled. The assessment of significance is considered to be the same as set out in the air quality and noise sections below.

6.11 Any potential increases in demand for emergency/hospital services are likely to be minimal with effective site management and implementation of appropriate Health and Safety Plans.
6.12 In the years preceding the commencement of the King's Cross Central development works, the wildlife present will have been subject to the extensive disturbance associated with major construction activities in the area. The King's Cross Central development programme would follow on and is not likely to give rise to significant additional disturbance, although the period of such disturbance would clearly be extended.

6.13 Works in the vicinity of Camley Street Natural Park may cause disturbance. The Regents Canal may be exposed to disturbance and pollution during construction of the bridges and other works within the vicinity of the canal. Measures would be taken to control these impacts.

6.14 The designated sites (see paragraph 3.3 above) of North London Link and King's Cross Goods Yard and the Railside Land in Islington are currently subject to major disturbance and disruption as a result of the CTRL works. Development of King's Cross Central would continue construction activity across the site for a further 12-15 or more years.

6.15 ‘Wasteland’ habitats may develop and be lost in parts of the King's Cross Central site as construction continues. Any such sites are likely to be subject to a relatively high degree of disturbance as a result of construction works or use of occupied areas of the site.

6.16 The common pipistrelle bat would potentially be affected due to disturbance of the canal and Camley Street Natural Park as a result of the construction works. However, given that night time working likely to cause disturbance would only occur under exceptional circumstances, significant effects on foraging bats would not be expected.

6.17 The high levels of activity associated with an active development site would be likely to deter black redstart and other breeding birds (including Red-list and Amber-list species). Areas of the site which are not being developed may be suitable depending on the nature of phased development and any interim uses.

6.18 The construction works are unlikely to have any adverse effects on amphibian populations (smooth newt, common frog and common toad).

6.19 The azure damselfly was recorded at the ponds at Camley Street Natural Park. The only risk during construction would be if pollution entered the canal and in turn reached the ponds. Measures would be taken during construction to prevent such pollution occurring.

6.20 Nationally Notable terrestrial invertebrates have been recorded on the site. ‘Wasteland’ habitats may be created and be lost in parts of the site as construction continues and these may provide areas of temporary habitat for invertebrates. Invertebrates would not be sensitive to the relatively high levels of disturbance which may affect such sites.

6.21 Potential effects on water resources have been identified, including the potential for temporary, localised flooding; sediment loading or localised contamination of the ground due to localised dewatering of perched water; the washing of sediment and other pollutants into the canal from areas of exposed earthworks materials; and dust and debris entering the canal. However, measures would be taken to control these risks/operations (for example damping down on surfaces and wheel washing to control dust and use of interceptors to control run-off). Any effects would be negligible.

6.22 There is a risk that contaminated material may become mobile during the construction works, or that contaminated dust from working areas be wind blown in the vicinity of the works. Inappropriate handling and storage of fuels and other liquid chemicals could result in spills and leaks impacting upon the perched water table and the Regent's Canal. Measures to control mobile materials, contaminated dust and the prevention and control of spills would be in place and therefore construction activities are likely to have a negligible impact.

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1 Definitions from RSPB, 1999, The State of the UK’s Birds. Red-list species are those which have undergone a 50% or more decline in UK breeding population or range over the previous 25 years, or a historical decline over the period 1800-1995, or are species of global conservation concern. Amber-list species are those that are identified for several reasons, but particularly because they have undergone a 25-49% decline in the UK over the last 25 years.
6.23 The King's Cross Central development would give rise to noise and vibration during its construction due to activities on the site and also construction traffic on the local road network.

6.24 Piling is the only construction process likely to be used that could cause high noise levels at locations outside of the site. The level of effects would be dependent on the type of piling used. Percussive or driven piling methods involve hammering piles into the ground. Augered or bored piling is quieter; the ground is removed using a screw thread and the piles are then formed.

6.25 The impact of augered piling would be negligible during daytime hours, but could cause a moderate adverse effect at night when working to the east of the Gasworks tunnels. Percussive piling alongside the Gasworks tunnels would cause a moderate adverse effect at night. There would also be a minor to moderate adverse impact during the daytime. In any such cases, appropriate controls would be agreed with the local planning authority.

6.26 Increases in road traffic noise due to construction traffic would be small, with all of the increases on roads with residential properties being not perceptible and of negligible significance. An increase of slightly more than 3 dB is predicted on Goods Way, and while there are no noise sensitive receptors on this road, there are a number of residential narrowboat moorings on the Regent's Canal close to Goods Way. The predicted increase in noise levels is considered to be a minor adverse effect at these narrowboats.

6.27 The principal effects are likely to arise from the effects of dust soiling and particulate (PM$_{10}$) concentrations from construction activities and changes in nitrogen dioxide due to emissions of vehicles during the construction phase.

6.28 Around 150 residential properties in York Way, Rufford Street and Gifford Street, residents of narrowboats on the Regent Canal, some of the new affordable housing units at the junction of Rufford Street and Gifford Street, some business premises on York Way and the Agar Grove Industrial Estate and parked cars and heritage buildings in this area could be at risk of dust soiling effects at some point during the construction period. Around 30 of the properties on York Way at risk of experiencing dust effects may also be at risk of PM$_{10}$ effects, as may residents of the narrowboats on the Regent Canal.

6.29 Dwellings or premises built and occupied as part of the new development may also suffer some occasional effects.

6.30 The measures that would be taken to control dust emissions represent best practice in terms of construction management and would minimise the impact of dust on the receptors identified. Any dust incidents would be highly dependent on the weather, and would need to be combined with an activity creating dust close to the receptor. This combination of appropriate conditions should be infrequent for an individual location. Due to the south-westerly prevailing wind, there would be a risk of more frequent effects for the residential premises identified on York Way.

6.31 The potential effects of additional construction traffic have been assessed and the results show that the increase in nitrogen dioxide and PM$_{10}$ concentrations due to construction traffic associated with the King's Cross Central development would be very small (<1%).

Fine particles (less than 10 mm in diameter, known as PM$_{10}$) are recognised as significant causes of pollution. Owing to their small size, they can be carried from sites even in light winds and may therefore have an adverse effect on the environment and on the health of local residents, as well as those working on the site. Source: BRE, 2003, Control of Dust from Construction and Demolition Activities.
Urban Services

6.32 The effects on the existing utility network from construction and infrastructure works have been assessed.

6.33 For onsite works, control measures would be in place and all activities related to the phasing and installation of on-site utilities would be co-ordinated. Works would be programmed at the appropriate times of year when utility demands are typically less.

6.34 The relocation of the district gas governor would require significant underground diversion and extension works to existing gas mains and other non-gas utilities along roads that are already congested with utilities. The impact on existing and proposed utilities is assessed as adverse and of minor significance.

6.35 During any Camden Sewer Diversion, flows along the Camden Sewer would need to be briefly interrupted although the majority of new construction would be off-line and therefore not affect existing flows. There would be an adverse effect of minor significance on the existing utility network.

6.36 In general, the diverting of existing utilities in local roads, to allow new road connections from site to tie into the existing highway network, is assessed to have a minor adverse effect on the existing utility network.

Waste

6.37 Waste would be generated during construction. Waste management practices on site would comply with the relevant legislation for storage and disposal of all construction wastes, and control measures would be in place to reduce the volume of waste where feasible. The environmental effects of waste operations and waste management practices are addressed within the relevant topic assessments summarised above.

Effects without the Triangle Site

6.38 If the development were to proceed without the Triangle Site, the scale of the construction works and number of construction vehicles would reduce, and therefore the impacts on noise and air quality and health would also reduce, but it would not be a significant change.

Effects with London Underground Ltd Phase 2 works and King’s Cross Station Enhancement

6.39 The ongoing London Underground Ltd (LUL) Phase 2 works (Northern Ticket Hall and associated infrastructure) are due to be complete by 2007 but are the subject of a current review that may affect the timing of their completion. It is possible, therefore, that the works to complete the project (scheduled to last 3 years) could still be underway in 2007, alongside the development of King’s Cross Central.

6.40 If the King’s Cross Station Enhancement proposals go ahead, there is a range of possible timescales, including the following:-

- construction could commence following completion of the LUL Phase 2 (Northern Ticket Hall etc) works with construction of the Station Enhancement expected to last a maximum of 4 years; or
- the proposals for King’s Cross Station Enhancement could be combined with the LUL Phase 2 (Northern Ticket Hall) into an integrated project, with construction of that integrated project likely to take less than the 7 years identified above for the two projects to take place one after the other.

6.41 It is considered unlikely that an integrated project would have greater overall construction effects (in terms of either magnitude or duration) than the two projects carried out in sequence, one after the other: if anything an integrated project is likely to have less construction effects in terms of magnitude and duration. The assessment of effects has therefore considered construction of King’s Cross Station Enhancement following completion of the LUL works and the potential for it to give rise to cumulative construction effects alongside King’s Cross Central. The potential ‘worst case’ would be if the peak construction activity from King’s Cross Central coincided with the peak construction activity from LUL/King’s Cross Station Enhancement.

6.42 The level of construction traffic has been assessed under these circumstances, and the assessment confirms that the additional vehicles would not significantly affect the highway capacity of York Way.

6.43 The disruption to users of public transport and pedestrians in the vicinity of the King’s Cross Central and King’s Cross Station Enhancement projects could be increased as a combined effect of several concurrent schemes. However, the control measures that would be taken in any event (for King’s Cross Central) could and would maintain satisfactory levels and standards of access.

6.44 In relation to noise, construction of Development Zones A and B could take place at the same time as the King’s Cross Station Enhancement and the LUL Phase 2 works; however, there are no noise sensitive receptors in the vicinity that could be exposed to these cumulative effects.

6.45 There are no existing residential receptors that could be affected by cumulative dust effects and the impact upon dust soiling and PM concentration due to construction activities would remain of moderate adverse significance (See Table 3).

6.46 The combined or ‘cumulative’ impact of construction traffic on air quality and noise would remain the same as for the assessment for King’s Cross Central (only).
Overall Summary of Construction Effects

6.47 Table 3 provides an overall summary of the likely effects at the construction stage, taking account of ‘built in’ mitigation measures.

6.48 The effects are generally regarded as long-term because of the extended period of the construction programme, although in reality some of the effects would be intermittent e.g. noise effects from piling.

6.49 For nature conservation, the assessment of significance has been undertaken considering the effects of construction, operations and permanent land-take together, for each part of the site and its nature conservation receptors; these assessments are set out in the ‘Operational Effects’ section below.

<table>
<thead>
<tr>
<th>Summary of Effects</th>
<th>Type</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Heritage and Townscape</td>
<td>neutral overall</td>
<td>n/a</td>
</tr>
<tr>
<td>‘Building site’ site character. Demolition and building work would also affect local views. Beneficial effects on character and views as land is progressively brought into beneficial use and occupation.</td>
<td>adverse</td>
<td>negligible</td>
</tr>
<tr>
<td>Archaeology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential accidental damage to buried archaeology and potential vibration effects would be controlled through construction best practice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction traffic levels would not significantly affect highway capacity. Disruption to rights of way and public transport routes would be controlled through construction best practice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-economic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction employment would benefit local people and others. The changing character of the area would reduce its attractiveness for criminal activity.</td>
<td>beneficial</td>
<td>minor/moderate (construction employment)</td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beneficial effects from increased levels of employment, reduced levels of crime and improvements in social capital. Adverse effects from disruption to pedestrian routes and public transport (see ‘Transport’ above)</td>
<td>beneficial</td>
<td>minor</td>
</tr>
<tr>
<td>Nature Conservation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disturbance effects to habitats and species from construction noise and lighting and pollution from spillages/emissions. Measures would be taken to control these impacts.</td>
<td>included within assessment summarised in Table 4: Summary of King’s Cross Central Operational Effects.</td>
<td></td>
</tr>
<tr>
<td>Water Resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential for localised flooding, sedimentation and pollution of ground and water courses. Measures would be taken to control these impacts.</td>
<td>adverse</td>
<td>negligible</td>
</tr>
<tr>
<td>Soils and Contamination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential for the movement of contaminated material (e.g. dust) and the spillage of pollutants. Measures would be taken to control these impacts.</td>
<td>adverse</td>
<td>negligible</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact of piling operations in the vicinity of the Gasworks tunnels. The level of effects would depend upon the timing of works and the type of piling used (e.g. augered or percussive). Augered piling would have negligible effects during day-time hours. Increases in road traffic noise from construction traffic.</td>
<td>potential for moderate adverse effects during the night (and minor-moderate adverse effects during the day) at residential properties to the east of York Way. Generally negligible. Minor adverse effects at narrowboats close to Goods Way.</td>
<td></td>
</tr>
<tr>
<td>Air Quality and Climate Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse impacts of dust and PM_{10} upon local air quality due to construction activities in an Air Quality Management Area (AQMA). Increase in nitrogen dioxide and PM_{10} concentrations due to construction traffic (&lt;1%).</td>
<td>adverse</td>
<td>moderate (because within AQMA)</td>
</tr>
<tr>
<td>Urban services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruption to the existing utility network and waste services from construction and infrastructure works, including any Camden sewer diversion.</td>
<td>adverse</td>
<td>minor (because within AQMA)</td>
</tr>
<tr>
<td>Effects without the Triangle Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatively small reduction in construction works and their environmental effects.</td>
<td>as for the Main Site and Triangle Site together (no significant change to findings above).</td>
<td></td>
</tr>
<tr>
<td>Effects with Kings Cross Station Enhancement and LUL Phase 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatively small increase in construction works and their environmental effects.</td>
<td>as for the Main Site and Triangle Site together (no significant change to findings above).</td>
<td></td>
</tr>
</tbody>
</table>
Operational Effects

6.50 The operational effects are described below, starting with heritage and townscape to give a broad introduction to the proposals and their effects. Transport is also considered early to provide a context for noise and air quality assessments. No significance is attached to the order of the topics in this section.

Cultural Heritage and Townscape

6.51 Implementation of the proposed development would lead to the complete demolition of one listed building and three unlisted heritage building/structures considered to make a positive contribution to conservation areas. The majority of listed and unlisted heritage buildings and material, particularly within the Central Character Area (the Goods Yard complex), would be refurbished and embedded within the new development. The Gasholder Triplet and Gasholder No. 8 group of guide frames would be re-established north of the canal. The proposals would achieve conservation and long-term management of the valued heritage resource. This would enhance the status and setting of these buildings, promoting their renewed contribution to the townscape and community.

6.52 The proposed network of streets and civic spaces would replace fragmented areas of vacant and under-used land with a comprehensively planned and high quality environment for residents, workers and visitors within the site. It would also create routes across the King’s Cross Opportunity Area, linking communities to the east and west of the site.

6.53 The townscape proposals would result in a net increase in urban tree planting, mainly in the new development areas. The areas around the historic railway buildings would generally have a low density of planting in order to retain their robust urban character. Historic surfaces would be restored in-situ or re-used within the Conservation Areas. Materials not re-used within the scheme could be offered for use in other projects.

6.54 It is inevitable that the overall character of the Conservation Areas would change as a result of the proposals, but their appearance would be enhanced by the quality of the proposed development.

6.55 Some local views of landmarks would be lost but others would be created as a result of the development. The overall appearance of the site would be improved and greater public access would create more opportunities to appreciate views of the heritage buildings and their settings.

6.56 Overall the net effects of the King’s Cross Central development on heritage, townscape and views are considered to be beneficial and of moderate significance.

Archaeology

6.57 The site was much dug-over for extracting brick-making soils and then was highly disturbed during the creation of the mid 19th century industrial developments. There is a paucity of known sites and finds within the site related to all pre-industrial periods. The character of the site and setting indicate that the archaeological potential related to these pre-industrial times is minor.

6.58 For each phase of development, a watching brief would be implemented at times of engineering site investigation and then during the construction of ground works, within relevant areas.

6.59 The greatest potential impacts could result from the insertion of basements. Any principal features affected are likely to relate to the Industrial and Modern periods but chance finds of all other periods cannot be ruled out. Taking into account the watching briefs and associated recording of such assets, any effects are likely to be of minor-moderate adverse significance.

6.60 As with any site, there remains some potential for discovery of resources dating to prehistoric times, containing sensitive features that may be damaged or decay as a result of the development works. Given the low potential for such finds, however, any effects on these resources are likely to be of negligible to minor adverse significance.

6.61 No adverse effects are considered likely from noise/vibration, ground contamination, or changes in ground conditions, once construction has been completed. At most, adverse effects of minor significance could result from repair/maintenance of infrastructure, accepting that the installation of these engineering elements would already have disturbed archaeological deposits.

6.62 There would be no long-term adverse effects post-construction. Rather, the site and post site works could result in positive effects of moderate significance given than the results could make a significant contribution to and aid with setting future archaeological research objectives for King’s Cross and Greater London.

Transport

6.63 An assessment has been undertaken of the ways King’s Cross Central would affect the public transport and highway networks used by people. The assessment focuses on the capacity and resilience of the public transport and highway networks to accommodate the travel demands of King’s Cross Central. The ‘environmental’ effects of the changes in traffic volumes on noise and air quality are addressed separately under these headings.

6.64 There are four mainline rail stations within short walking distance (King’s Cross, St Pancras, King’s Cross Thameslink and Euston), six Underground lines and a comprehensive bus network. King’s Cross therefore has the best public transport accessibility in London.

6.65 Currently at King’s Cross/St Pancras and Euston stations, nearly three quarters of National Rail passengers are interchanging to and from Underground services. The proposals would create a new commercial cluster at King’s Cross and thereby ameliorate some of the problems of onward interchange and overcrowding. Significant numbers of employees arriving by National Rail would not need to interchange but would be able to easily access the King’s Cross Central development adjacent to the stations.
6.66 Four theoretical Development Test Scenarios have been identified for the Main Site to determine and assess ‘worst case’ transport impacts for each transport mode, in particular peak hours. These show that the development proposals (Main Site plus Triangle Site) could generate around 80,000 trips on a weekday. In the peak hours, the number of inbound trips in the am peak could reach around 11,000 and in the pm peak the outbound trips could peak at around 12,500. The vast majority of these trips (over 95%) would use public transport, walk or cycle. Most trips would be by mainline rail or Underground. Trips on the highway network could peak at around 600 two way vehicles in the morning and evening peak hours.

6.67 For a development of this scale, which would be developed over a period of more than a decade, it is likely that the trip distribution and travel patterns of users would evolve and distribute taking account of the available Capacity on the rail and Underground networks.

6.68 The assessment of impact on rail and London Underground networks has considered various Demand Profiles and Capacity States, based on trip distributions and transport infrastructure states that could occur in the future. For example, the ‘base’ capacity state considered includes only committed schemes i.e. the CTRL and Public Private Partnership (PPP) upgrades on the London Underground services. Other capacity states considered include new infrastructure, for example King’s Cross Station Enhancement.

6.69 Whichever Demand Profile or Capacity State occurs in the future, the overall conclusion is that the trips generated by King’s Cross Central would be well within the overall Available Capacity on the rail networks (including the London Underground). Around 85% of the Available Capacity on rail modes would be available for other demands, such as background growth.

6.70 An assessment of the ‘worst case’ interim year (2011) shows that the King’s Cross Central development would utilise 5% or less of rail and LUL Available Capacity.

6.71 An assessment has been undertaken of the LUL station capacity based on Design Year development flows and the completed station upgrade configuration. The results indicate that the King’s Cross Central development flows could be accommodated within the LUL station satisfactorily in the Design Year with the committed PPP upgrades.

6.72 The development would generate significant ‘tidal’ peak pedestrian flows heading northbound from the stations in the morning and returning southbound in the evening. Total two way trips in the am peak hour would be 11,500; the equivalent figure in the pm peak hour would be higher (15,000).

6.73 A new fully signalised junction between Goods Way/Boulevard and the Granary would ensure that priority is given to the north/south pedestrian flows and public transport. The predicted traffic on Goods Way would be accommodated and pedestrian wait times between crossings would be kept to a minimum.

6.74 The peak bus demand would be around 1,500 two-way trips. Whilst the majority of these trips would be accommodated by the 2011 London Bus projected service pattern, some capacity shortfalls would potentially be experienced along the York Way and Pentonville Road corridors.

6.75 More generally, the King’s Cross Central development provides an opportunity to enhance and improve the viability of bus services in the area. The additional demand generated by King’s Cross Central would provide bus operators with the opportunity of adding new services and routes, which currently would not be viable.

6.76 The increase in road traffic due to the King’s Cross Central development proposals would be less than 5% on most routes. In certain peak hours York Way, Goods Way, Pancras Way and Caledonian Road would experience higher increases, generally up to around 10%. The increase in traffic on York Way in the Saturday peak hour when the existing flows are lower could approach 15% of the existing flows.

6.77 The network could generally accommodate the predicted traffic increases. Computer modelling shows that the junctions would operate within capacity with the completed development. However, as the development becomes more fully occupied, there could be additional queuing at the existing mini-roundabout junction of York Way and Market Road. A possible signalised junction re-arrangement for this mini-roundabout would reduce this queuing impact. In addition, there is a long-term option to improve/signallise the Caledonian Road/Brewery Road junction, providing crossing facilities for pedestrians.

6.78 These possible junction improvements are not part of the submitted proposals. Rather, they are long-term, possible ‘further mitigation’ responses to traffic flows, calculated on a series of worst-case scenarios, for the completed development in the Design Year of 2020.
Socio-economics

6.79 King's Cross Central is large enough to have effects on a range of socio-economic factors for residential and working communities across a large part of north London. It would also introduce a mix of new residents and employment opportunities that could underpin an economic and social revival of communities that are currently experiencing severe levels of deprivation and exclusion.

6.80 Once complete, accounting for displacement (of some existing businesses) and multiplier effects\(^3\), a range of between 24,773 and 29,496 full time equivalent jobs would be created. Between 7,432 and 8,849 of these (full time equivalent) jobs are likely to be taken by local residents in the Central and Wider Impact Zones\(^4\), without any specific positive interventions (job brokerage and skills training initiatives, for example, could increase these local employment figures). The proposed development would have a major beneficial impact in terms of job creation.

6.81 At the same time, the creation of a new office/commercial cluster would encourage the redevelopment and refurbishment of antiquated, vacant, commercial buildings such as those on Pentonville Road, King's Cross Road and Gray's Inn Road. There are other potential development plots behind the British Library, at Vale Royal and along Market Road. These wider changes would spread employment opportunities and further transform the area into a modern employment district for London.

6.82 The number of local jobs created would significantly increase the potential total spend in local services, businesses and shops, enabling them to increase income and possibly expand and improve. There would be a moderate beneficial impact on local income levels, with far-reaching implications for the local economy and individual social and economic circumstances.

6.83 The proposed development would provide between 1,600 and 2,300 new homes on the Main Site, with up to an additional 250 on the Triangle Site, reintroducing a 24-hour residential presence in the area and probably creating somewhere between 555 and 1,275 affordable/low-cost units across the Main Site and the Triangle Site (the level of affordable housing would depend upon further discussions). The development would help to balance the tenure profile of the Central Impact Zone by introducing a significant mix of market and affordable/low cost housing in an area currently dominated by social rented property.

6.84 Depending upon the level of affordable housing and the tenure profile, therefore, the proposals would have beneficial effects of at least moderate significance. The proposals provide scope for a significant net increase in affordable/low-cost housing in the area, catering for identified housing needs of low income groups with wider, structural effects. However, lower levels of provision (for example, below 600 affordable/low-cost units) and a heavy bias towards social renting would reduce these effects to more minor significance.

6.85 The proposed development could generate a child population of between 757 and 1,025 across the whole site. This could result in increased pressure on the capacity of local schools leading to a deficit of up to 123 places in primary schools and up to 470 in secondary schools (including existing deficits).

6.86 In the absence of new facilities or resources to address the additional capacity pressure arising from the development, the impact on local educational resources would be moderate adverse.

6.87 Targeted correctly, in combination with the Local Education Authorities and other service providers, the investment brought by King's Cross Central could generate significant match funding for local education linked initiatives, encouraging a greater prioritisation of King's Cross for strategic education budgets. Given the long construction period it is children who are currently attending schools that are likely to gain most from the employment and other opportunities generated.

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\(^3\)Multiplier effects; economic activities (jobs, expenditure or income) that would result from knock-on indirect effects of the proposed development.

\(^4\)The Central Impact Zone is defined by following Camden and Islington wards - Caledonian, King's Cross, St Pancras and Somers Town.
The Wider Impact Zone is defined by the following Camden and Islington wards - Barnsbury, Bloomsbury, Clerkenwell, Canteloes, Holborn and Covent Garden, Holloway and Regent's Park.
6.88 Therefore the impact of the development proposals on local educational performance is expected to be moderate beneficial rising to major beneficial if the Applicants successfully develop some floorspace for uses closely linked to schools and higher education.

6.89 In addition, the mix and range of new community and leisure facilities are likely to have a major beneficial impact on the social capital\(^5\) of communities in the Central and Wider Impact Zones. Improved social capital is likely to be a major contributor to regeneration in the area, with knock-on effects on health, income, employment and education.

6.90 King’s Cross Central would represent a dramatic change to the local environment and the removal of some ‘hotspots’ for criminal activity. The high level of management and ‘stewardship’ proposed are likely to have a major beneficial impact on perceptions of the wider King’s Cross area, not just the area within the development boundary.

6.91 Overall, King’s Cross Central would result in a major improvement in social and economic conditions in the neighbourhoods that surround it and beyond. The significance of negative impacts on the local population would generally be low.

6.92 The assessment also considers a number of further mitigation measures that could be taken or agreed as joint actions with the Local Authorities and their partners to enhance the positive impacts and maximise the regeneration potential of the new development. These range from considering methods of promoting and increasing local employment, to promoting new childcare strategies and supporting the Local Education Authorities in establishing stronger higher education links.

Health

6.93 Health effects have been identified based on the predicted impacts on selected determinants of health. The determinant indicators selected for this study include the socio-economic determinants (unemployment, ethnicity and unemployment, educational attainment, proportion of homes judged unfit to live in, crime, social capital), and physical environment determinants (air quality indicators, road traffic accidents, and noise). A literature review has been undertaken to demonstrate the current understanding with regard to linkages between these determinants and specific health effects. In addition, an assessment has been made of the potential effect on health services within the locality of the development.

6.94 Currently, the site and surrounding area is performing poorly with regard to many of the determinants of health. For example unemployment levels are high, particularly among certain ethnic groups and many people are living in poor quality, unsuitable housing, with few options available for progression. This is supported by health based statistics which show, overall, a lower than average standard of health in the area.

6.95 Through the development of the Kings Cross Central proposals, adverse effects on health are identified through:

- some loss of jobs through displacement of existing businesses;
- effects on school capacity (though new facilities/resources would address these effects);
- very small changes in air quality indicator concentrations;

(The minor effects on air quality described reflect poor background air quality; the additional pollutant loading from the development would be very small.)
- additional pressure on health services already operating beyond capacity (though new provision/investment to meet the needs of the development would address these effects).

6.96 At the same time, positive effects on health are predicted through:

- new local employment, supported by stimulation of a graduated housing market to maintain community stability;
- positive impacts on local income levels;
- effects on educational performance within local schools;
- the provision of new, good quality housing;
- the creation and management of new high quality environments, to reduce crime and the fear of crime and enhance perceptions of King’s Cross;
- the provision of new community and leisure facilities and opportunities for exercise;
- increased connectivity between Camden and Islington, by opening the site up and providing new routes and spaces with appropriate pedestrian priority;
- new opportunities for health service rationalisation.

(Note: Because of the close relationship between health and socio-economic and environmental factors the effects on health repeat many of the findings of other parts of the assessment).

6.97 In addition regeneration of the area is likely to help attract and retain staff for health services within the locality and encourage people to stay in the area.

6.98 Overall, the development is projected to lead to beneficial effects on the health of its new residents and surrounding communities, through positive effects on the determinants of health.

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5Social Capital includes the institutions and relationships that shape the quality and quantity of everyday life and hold communities together.
Nature Conservation

6.99 The King’s Cross Central site largely comprises previously developed land in an urban setting and its ecology and nature conservation status reflect this. Although a number of individual impacts of the proposals have been identified, in reality the main effects largely arise from the inevitable land take of development resulting in loss of ‘wasteland’ habitats with consequent effects on species associated with such habitats.

6.100 The assessments of significance below reflect the effects of construction (see Table 3), operations and permanent land-take together, for each part of the site and its nature conservation receptors.

6.101 There would be adverse effects of moderate nature conservation significance on Camley Street Natural Park partly as a result of direct impacts of construction of the new pedestrian and cycleway (see Figure 5), and also the long-term increased numbers of people in the area and increased night time lighting of the canal towpath opposite.

6.102 Similarly increased disturbance and lighting, and potential discharges from moored boats, would also affect the Regent’s Canal (and Canal habitat). Although only a relatively short section of the canal would be affected, the juxtaposition of the canal and Camley Street Natural Park enhances the canal in this area and these are assessed as adverse effects of moderate significance.

6.103 Many of the other nature conservation impacts identified arise from the loss of wasteland or similar habitats and associated species. Thus there would be adverse effects of moderate significance on:
- Wasteland;
- Canalsides and railsides;
- The Built Environment; and
- Black redstart.

6.104 Sparsely-vegetated sites on nutrient-poor substrates form an important component of urban ecology in London. The nature of these sites is such that they come and go, with bare sites becoming sparsely-vegetated and passing through a succession of stages until overtaken by scrub. As one site is lost in this manner, or is re-developed, another is created by clearance and so the cycle continues.

6.105 The loss of such habitat at Kings Cross Central would, on its own, be of no greater consequence than the loss of other local sites. However, the situation is affected not only by the rate at which sites are lost to the habitat mosaic, but also by the rate at which new ones are added. In recent years, the equation has become unbalanced, so that the loss of sites outstrips their creation and overall there is a net decline.

6.106 The effects on habitats would also affect breeding habitat for black redstart. It is dependent on wasteland sites for its survival. The proposals would halt the cycle of re-use and abandonment of such land over a considerable area. However the adverse effects would be to a degree off-set by the commitment to provision of green/brown roofs over a minimum of 15% of the area of new buildings within the Main Site. Taking all these factors into account, the overall effects on the black redstart are judged to be adverse and of moderate significance.

6.107 Other than predicted adverse effects of minor significance of the proposals predicted for Red-list and Amber list birds and terrestrial invertebrates, all other effects on key nature conservation features are assessed as negligible.
Water Resources

6.108 The drainage system would be designed so as not to cause any surface ponding on the ground during a 1 in 30 year event or less. For more extreme events, non-building areas such as roads and car parks would be preferentially ponded, such that critical facilities would not be affected. The impacts of ponding of water on the site by rainfall would be a short-term adverse effect of minor significance.

6.109 A 10% reduction in combined discharges to the public combined sewer system is proposed for the Main Site and a 10% reduction in stormwater flows is proposed for Triangle Site. The risk of flooding of nearby areas from sewers would be reduced as a result. This would be a long-term change in risk with a minor beneficial effect.

6.110 Decreased flows to sewers could also impact on water quality in watercourses due to reduced combined sewer overflows. This would result in a long-term change with minor beneficial effect on water quality.

6.111 The proposed amenity water features, including rills and fountains, would be closed circulating systems of treated water, with any overflows to the public combined sewers within the agreed discharge constraints for the site. The impacts would be negligible.

6.112 Water quality of the canal could be affected by an increased number of moored boats. This would be regulated by British Waterways and could result in a long term minor, adverse impact locally, although any increase in pollution at the site would be offset by a corresponding decrease elsewhere as a result of boat re-location.

6.113 Groundwater quality could be impacted by water soaking into the ground causing long-term migration of contaminants. However, remediation of contaminated ground would result in this being a minor beneficial effect.

Soils and Contamination

6.114 The past land uses of the King’s Cross Central site have resulted in some contamination of ground and local perched groundwater. The proposed development would involve excavation for foundations, basements and utility trenches. There would also be earthworks associated with achieving the finished levels of the development. It is likely that some ground remediation would be required as part of the redevelopment.

6.115 Existing site investigation records have been reviewed, and these have informed the proposed remediation strategy. The strategy for each part of the site would be implemented through a plan approved by the local planning authority. Decontamination of the site would be validated by testing during and after the remediation works.

6.116 Assessment of the environmental impacts has found that the proposed remediation and development would result in negligible or beneficial effects in all categories.

6.117 The combination of the removal, treatment and encapsulation of residual contaminants during remediation and the mainly impermeable nature of the development would have an overall beneficial effect on the environment.
Noise and Vibration

6.118 The main noise impact caused by the operation of the Kings Cross Central development would be the change in traffic noise levels along roads leading to and from the site due to the additional traffic generated by the scheme. The changes in noise level have been calculated for the main access routes in the vicinity of the development and these changes have been found to be not perceptible. The effects are considered to be of negligible significance.

6.119 The operation of the development is not anticipated to give rise to any perceptible vibration at locations outside of the development.

6.120 The gas governor currently located towards the south of the development site would be moved to a location nearer the Regent's Canal. This location is away from residential properties and is subject to road traffic noise. Consequently, noise caused by this equipment would be of negligible significance.

Air Quality and Climate Change

6.121 Existing air quality in the area does not comply with the Government’s Air Quality Objectives. Therefore, the London Boroughs of Camden and Islington have both declared Air Quality Management Areas (AQMAs) and proposed measures to improve the situation in their areas.

6.122 The potential impacts of changes in traffic flows and heating emissions from the King’s Cross Central development on air quality have been assessed. Due to the location of the site, with good public transport links, the scheme is not likely to significantly increase traffic flows in the area, therefore the change in pollutant concentrations, even at worst case locations and using worst case assumptions, would be very small. Emissions to air from natural gas heating plant would lead to a very small increase in local pollutant emissions. These would generally be emitted well above the ground and quickly dispersed, leading to a very small increase in pollutant concentrations at ground level. Even though these changes in pollutant concentrations due to the King’s Cross Central development are predicted to be very small, the overall impact is classified as minor adverse, due to its situation in an area where concentrations are expected to be above the air quality objectives in any event.

6.123 There would be a very small increase in carbon dioxide emissions in the local area. However, this is a global pollutant, which does not have any direct local effects.

Microclimate

6.124 The site lies within the urban context of central London and buildings within and adjacent to the site influence wind flow patterns at pedestrian level and cast shadow upon nearby public realm. The wind climate is typical for central London, with prevailing winds from the south-west and north-east. The site occupies a gentle south-facing aspect.

6.125 Some localised increases in wind speed would arise from the proposed site layout, particularly where open space would be located to the windward side of substantial structures. Nevertheless, pedestrian level wind conditions would be comfortable for the proposed uses throughout the site.

6.126 All areas of public realm would receive some degree of sunlight throughout the day during spring, summer and autumn and would therefore be suitable for the proposed uses. Solar access would reduce during winter. Principal new open spaces including Station Square, Granary Square, and Long Park would enjoy good levels of solar access, particularly during spring, summer and autumn.
6.129 Development south of Goods Way would increase shading of the canal area and the overall effect on the Regent's Canal (incorporating Camley Street Natural Park) is assessed as an adverse effect, of minor significance.

6.130 Within the Northern Area the establishment of extensive new public realm for mixed active and passive uses on former vacant and under-used land, along a principal north-south orientation would optimise solar access. East-west orientated routes would have less solar access. The overall effect on the Northern Area (including the Triangle Site) is assessed as beneficial of minor significance.

**Urban Services**

6.131 New power supplies to the site would be provided from Longford Street and City Road substations. There would be some minor adverse effects from using the spare capacity at Longford Street. However, the provision of new supplies to the site from the City Road substation and a new primary substation on site is considered to provide a benefit to the local area surrounding Kings Cross since it would provide the potential for further additional capacity to supply other developments and load growth.

6.132 The on-site separation of storm and foul flows and any diversion of the Camden Sewer away from the Granary building would enhance future flexibility and remove constraints. These would be beneficial effects.

6.133 Enhancement of the existing local water supply network would provide opportunities for others, with a minor beneficial effect.

**Waste**

6.134 It is estimated that up to 1,800 tonnes of domestic waste and 21,500 tonnes of commercial waste could be generated by the development per annum. Domestic waste would be collected and disposed of by the London Boroughs of Camden and Islington. Industrial and commercial waste would be collected by appropriately licensed waste management companies. This would be managed and disposed of through the facilities that are available at the time. Waste management would be regulated by the requirements of the Environmental Protection Act 1990 Part II including the ‘Duty of Care’.

**Inter-relationships between Effects**

6.135 Inter-relationships between effects have been addressed throughout the EIA process and some of the main ones are explained here. For example, heritage issues are inextricably linked to considerations of townscape and views and the two topics have been assessed in conjunction with one another. There are also clear inter-relationships between a number of individual socio-economic factors and indeed between these factors and community health. For example, the creation of homes, jobs and a safer environment are likely to bring health benefits to the local population.

6.136 Changes in traffic levels result in changes to the environment. For example they lead to changes in noise and/or air quality conditions. Changes in traffic induced levels of noise and air quality may also contribute to effects on health. At the same time, there may be indirect beneficial effects on health through changes in accessibility to public transport, leading to improvements in access to jobs, community facilities and recreation.
Effects Without the Triangle Site

6.137 If the Main Site was developed without the Triangle Site, the effects on the environment would not be materially different from that set out above for the full (Main Site plus Triangle Site) development. There are some instances where the effects would be different and examples are given here.

6.138 Some of the benefits of comprehensive development would be lost; for example in the context of cultural heritage and townscape, the ‘gateway’ to the site would be weakened by the lack of definition to the east. With respect to soils and contamination, in so far as there would be potential benefits from the removal of any contaminated material from the Triangle Site, these benefits would not be realised.

6.139 For microclimate, should the Triangle Site not be developed, the Main Site frontage on York Way could experience accelerated wind flows. However, with proposed tree planting along the western edge of York Way dissipating wind speeds in any event, the effect on York Way would be broadly the same.

6.140 There would be no material effect on the requirement for off site reinforcement of urban services, but there would be no need for minor utility connections from supplies in York Way, or across York Way from the Main Site, and no need to discharge foul sewage to the York Way combined sewer.

Effects with King’s Cross Station Enhancement

6.141 If the King’s Cross Station Enhancement goes ahead, the adverse effects on the environment would not be materially different in significance than for the development of King’s Cross Central alone. There are some instances where the effects would be different and examples are given here.

6.142 In the case of cultural heritage and townscape, the potential cumulative effects would be beneficial, with the benefits to the Euston Road frontage, from the removal of the temporary concourse, outweighing any adverse effects from additional built development within Station Square.

6.143 For transport, with the King’s Cross Station Enhancement, the impact of the King’s Cross Central development on rail and London Underground Available Capacity would be slightly reduced.

6.144 For microclimate, closure of the gap between King’s Cross Station and the Great Northern Hotel to provide a King’s Cross Station Enhancement concourse would reduce channelling of south-westerly winds, improving pedestrian level conditions to the north, and at the entrance to the Boulevard. The introduction of the concourse would slightly extend shadow northwards. However, the northern part of Station Square would continue to receive good levels of solar access from mid morning to mid afternoon in spring and autumn, extending through to late afternoon in summer. Removal of the temporary concourse would give rise to minor wind turbulence at the base of the south facing elevation of King’s Cross station.
<table>
<thead>
<tr>
<th>Summary of Effects</th>
<th>Type</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition of one Listed Building and 3 unlisted heritage buildings within conservation areas; other buildings and structures would be refurbished and embedded within the new development, including the listed gas holder guide frames. The character and appearance of the conservation areas would change. New high-quality streets and civic spaces would replace fragmented areas of vacant and under-used land. There would be a net increase in tree planting (in appropriate areas) and many historic surfaces would be restored/re-used. Some local views would be lost and new views created. Public access to the site would increase. Their overall appearance of the site would be enhanced.</td>
<td>Many adverse effects of minor-moderate significance and many beneficial effects of minor-major significance. The net effects on heritage, townscape and views would be beneficial, of moderate significance.</td>
<td></td>
</tr>
<tr>
<td>Possible disturbance to / loss of buried archaeological features through new basements, piling and other foundations, regrading of site levels, insertion of infrastructure, services and landscape features and other works. Any effects are likely to relate to the Industrial and Modern periods but chance finds of other periods cannot be ruled out. The development and post-site works could make a significant contribution and aid with setting future archaeological research objectives for King's Cross and Greater London.</td>
<td>Any effects on industrial/modern resources are likely to be adverse, of minor-moderate significance. (Other adverse effects are likely to be of lower significance). Could be beneficial, of moderate significance.</td>
<td></td>
</tr>
<tr>
<td>The scale of the regeneration proposals is such that the travel demands arising from the development would be significant and complex, with a range of both beneficial and adverse effects. It is likely that the trip distribution and travel patterns of users would evolve over time and distribute taking account of available capacity on the public transport (mainline rail, Underground and bus) and highway networks. At the same time, the development would create a new commercial cluster at the most accessible site in London by public transport and reduce the need for interchange from various modes.</td>
<td>The assessment finds that the trip demands of the development could be accommodated on the various public transport and highway networks, within existing and committed transport facilities and services.</td>
<td></td>
</tr>
<tr>
<td>Creation of new jobs, together with displacement and multiplier effects. Effects on local employment and income levels. New housing provision/new tenure profile (a heavy bias towards social renting would deliver a lower level of benefits). Effects on school capacity (new facilities/resources could address these effects). Effects on educational performance. Effects on social capital of local communities. Effects on crime, fear of crime and perceptions of King's Cross.</td>
<td>Beneficial (overall)</td>
<td>Major</td>
</tr>
<tr>
<td>Adverse</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor-Moderate</td>
<td></td>
</tr>
<tr>
<td>Adverse</td>
<td>Moderate-Major</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Major</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor-Modeate</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor-Moderate</td>
<td></td>
</tr>
<tr>
<td>Adverse</td>
<td>Minor</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Negligible</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Adverse</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor-Moderate</td>
<td></td>
</tr>
<tr>
<td>Beneficial</td>
<td>Minor-Moderate</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Summary of King's Cross Central Operational Effects
<table>
<thead>
<tr>
<th>Summary of Effects</th>
<th>Type</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nature Conservation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The main effects largely arise from the inevitable land take of the proposals resulting in loss of ‘wasteland’ habitats with consequent effects on species associated with such habitats.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effects on Camley Street Natural Park from new pedestrian and cycle link plus increased population pressure and increased night-time lighting in the area.</td>
<td>Adverse</td>
<td>Moderate</td>
</tr>
<tr>
<td>Effects on Regent’s Canal - increased disturbance and lighting and potential discharges from moored boats.</td>
<td>Adverse</td>
<td>Moderate</td>
</tr>
<tr>
<td>Effects on wasteland, canalsides and railsides, the built environment and black redstart.</td>
<td>Adverse</td>
<td>Moderate</td>
</tr>
<tr>
<td>Effect on Red- and Amber-list birds and terrestrial invertebrates.</td>
<td>Mostly adverse</td>
<td>Minor Negligible (Minor beneficial for Railside Land in Islington)</td>
</tr>
<tr>
<td>Effects on other habitats and species.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponding of water on the site.</td>
<td>Adverse</td>
<td>Minor</td>
</tr>
<tr>
<td>Reduced risk of flooding from sewers.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Decreased flows to sewers leading to changes in quality of watercourses.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Effects of new water features.</td>
<td>Negligible</td>
<td>Minor</td>
</tr>
<tr>
<td>More moored boats along the Regent’s Canal affecting water quality.</td>
<td>Adverse</td>
<td>Minor</td>
</tr>
<tr>
<td>Effects on ground water quality of rain water infiltrating the (remediated) ground.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>Soils and Contamination</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remediation and development of the site (with impermeable surfaces) would reduce the risk of contact between users of the site and any contaminated material.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>Noise and Vibration</strong></td>
<td></td>
<td>Negligible</td>
</tr>
<tr>
<td>Change in traffic noise levels along roads leading to and from the site and vibration effects from operation of the development.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Noise effects of the relocated gas governor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air Quality and Climate Change</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in traffic flows (see Transport above) leading to very small changes in pollutant concentrations.</td>
<td>Adverse</td>
<td>Minor (because within AQMA)</td>
</tr>
<tr>
<td>Heating plant within the development would lead to a very small increase in local pollutant emissions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Microclimate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There would be some localised increases in wind speeds in parts of the development. Nevertheless, pedestrian level wind conditions are likely to be comfortable for the proposed uses throughout the site.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>All areas of public realm would receive sunlight throughout the day during Spring, Summer and Autumn and would therefore be suitable for the proposed uses. The projected shade patterns are typical of city streets and squares.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North and south of the canal the development would establish extensive new public realm with an orientation that optimises solar access.</td>
<td>Adverse</td>
<td>Minor</td>
</tr>
<tr>
<td>The Regent’s Canal would suffer some increase in shading as a result of the development.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Urban Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilising spare capacity for power supplies from Longford Street.</td>
<td>Adverse</td>
<td>Minor</td>
</tr>
<tr>
<td>Provision of new power supplies to the site and new primary substation (potential for further enhancement to serve other developments).</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Separation on-site of storm and foul flows (enhances future flexibility).</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Diversion of Camden sewer (if implemented; sewer is currently beneath a building).</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>Reduced peak flows to sewers.</td>
<td>Beneficial</td>
<td>Moderate</td>
</tr>
<tr>
<td>Introduction and operation of new water supplies to the site.</td>
<td>Beneficial</td>
<td>Minor</td>
</tr>
<tr>
<td>(enhancement of the local network provides opportunities for others).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effects without the Triangle Site</strong></td>
<td>No significant changes to findings above; some benefits of comprehensive development would be lost.</td>
<td></td>
</tr>
<tr>
<td>Small reduction in area and corresponding reductions in some adverse and beneficial effects (for example there would be no need for new services/works across York Way).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effects with Kings Cross Station Enhancement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different massing of development and public realm arrangement between the stations, leading to different townscape/heritage, transport and microclimate effects.</td>
<td>No significant changes to findings above; there would be townscape benefits to the Euston Road frontage from the removal of the temporary concourse and also transport benefits.</td>
<td></td>
</tr>
</tbody>
</table>
Overall Summary

6.149 Early consultation identified the construction phase as of most concern to local people. The large scale of the proposed development and the long timeframe suggested the potential for significant adverse effects on areas adjacent to the site. However, the assessment has shown that the effects would be lower than might be anticipated for an inner city location; this is largely because the site is enclosed by substantial railway development on three sides, restricting the main effects on residential properties and open space to the eastern boundary (York Way) and moorings on the Regent’s Canal.

6.150 Most of the construction effects would be confined within the site and the adverse effects are generally assessed as of negligible or minor significance, with some moderate adverse effects. Not all effects would be adverse; for example, the creation of up to 900 (full time equivalent) local jobs during the construction phase would bring benefits to the area.

6.151 The adverse operational effects are generally confined to effects on resources such as the loss of some heritage buildings and wasteland habitats. Adverse effects on air quality arise from small increases in road traffic emissions, in the context of poor background levels and Air Quality Management Area designations.

6.152 The operational effects on people would mostly be beneficial and many of these beneficial effects are of major significance, as one might expect from a regeneration project of this scale.
Notes