

Chapter 14

**SUMMARY
TABLES**

14 Summary tables

Introduction

- 14.1 This chapter summarises the findings of the EIA. A comprehensive assessment has been undertaken of the potential environmental effects arising from the proposed development. Where possible, measures have been incorporated into the development proposals to prevent or reduce the potential for environmental effects. These primary mitigation measures are an integral part of the design and were taken into account in the impact assessments. The primary mitigation measures are summarised in table 14.1.
- 14.2 Measures to help mitigate adverse effects identified during the assessment process have also been proposed for some of the environmental topics. These secondary mitigation measures largely, but not exclusively, relate to potential effects arising during the construction phase and are summarised in table 14.2.
- 14.3 The residual effects, i.e. the significant effects remaining after mitigation, are summarised in table 14.3.

Table 14.1: Primary mitigation measures

Design description / detail	Environmental issue addressed / avoided / reduced
Community facilities, such as a crèche / day nursery and gym / leisure facilities, together with 48.5 ha of informal public open space and an outdoor natural pool / swimming lake will be provided on site	Avoided the potential for increased pressure on community facilities in the surrounding area
Dead, dying and dangerous trees will be removed for arboricultural reasons, while good quality trees and woodlands will be retained. Restoration planting works with semi-mature trees will be undertaken in the parkland and along the avenue to reflect the layout shown on historic maps. Species to be planted will include beech, yew and walnut. Earth bunds up to 3.5 m high will be created along the main site's western and southern boundaries and in the south east of the bus / cycle interchange site to retain clean spoil on site and help strengthen the existing hedgerow boundaries. These will be planted with native woodland species, including whips, transplants and some advanced nursery stock. New native species woodland matrix planting between 15 m and 20 m wide will be carried out on the southern and western boundaries of the parkland, and on the main site's northern and eastern boundaries. This will include whips, transplants and advanced nursery stock. New native species hedgerows up to 5 m wide, planted as transplant hedge with advanced nursery stock hedgerow trees, will be planted along the southern edge of the proposed built development and to sub-divide the retained agricultural fields. These will be maintained as 3 m high hedgerows with hedgerow trees	Minimised effects on the site's landscape resources and landscape setting, views into the site and the setting of Hinxton Grange and its parkland
A site-wide earthworks strategy has been developed to retain all clean spoil on site by accommodating excess material within areas of proposed landscape and public open space, landscaped bunds and the land in the south of the main site that is to be retained in agricultural use and is included within the application site to enable topsoil distribution	Avoided the requirement for off site disposal of soil and associated vehicle movements
Taller buildings and higher density development will be located towards the centre of the site	Reduced the potential for changes to views into the site and the setting of Hinxton Grange and its parkland
There will be no point features (such as air conditioning plant) on the plots adjacent to the parkland. The area of proposed higher density development closest to the parkland will include at least 50% of the area as landscape planting, with up to a further 25% comprising infrastructure (including parking). The areas of proposed lower density development immediately to the south of the parkland and to the south of the Hinxton Grange access will include at least 40% of the area as landscape planting, with up to a further 40% comprising infrastructure and parking. Buildings in these areas will be a maximum of 60 m long by 22 m wide and will be orientated so that the smaller elevation is presented to the adjacent parkland	Reduced the potential for adverse effects on views and the setting of Hinxton Grange and its parkland
No works are proposed to the listed buildings at Hinxton Grange and the historic and architectural significance of the house and its associated stables and coachhouse will remain unaltered and readable. No built development is proposed within the parkland	Avoided the potential for direct adverse effects on the listed buildings and parkland
A bus / cycle interchange is proposed as part of the development and the A505 will be widened to accommodate an eastbound bus lane between the proposed bus / cycle interchange and the 'McDonalds' roundabout. A new shuttle bus service will be provided, connecting Whittlesford Parkway station to the main site via the bus / cycle interchange and will be timed to coincide with arriving and departing rail services. Improvements to the Citi 7 and 7a bus services will be funded to allow them to extend their current routes to stop at the bus / cycle interchange and the main site. Two new sets of bus stops	Facilitated public transport accessibility to and from the site and reduced the potential for a significant increase in traffic and associated emissions and noise

Design description / detail	Environmental issue addressed / avoided / reduced
<p>will be provided within the main site to allow buses to serve the proposed development directly. Contributions will also be provided through a section 106 legal agreement to support improvements in and around Whittlesford Parkway station, which could include public realm and accessibility improvements</p>	
<p>A new 4 m wide multi-user (pedestrian, cycle, equestrian) route will be provided along the western boundary of the main site, leading to the proposed bus / cycle interchange via a pedestrian / cycle / equestrian bridge. The bus / cycle interchange will also be linked to Sawston via a new 4 m wide multi-user route to the west of the A1301. The route within the main site will be set back 20-30 m from the carriageway. A clear grass margin will be maintained alongside these routes to allow horse riders to follow the routes. While it will not be permitted to ride horses across the bridge, mounting blocks will be provided at either end to allow them to be led safely across. Pedestrian and cycleway connections will be created across the main site, which will provide more direct routes for pedestrians and cyclists to access the different parts of the site. Pedestrian / cycle access is also proposed from the south west corner of the development to enable good access between the site and the village of Hinxton. A signalised toucan / Pegasus crossing will be provided across the A1301 in this area to give a direct, protected connection to the existing footway / cycleway on the western side of the A1301 and the footway connecting to Hinxton. The existing Station Road East bridge across the unnamed watercourse will be widened to accommodate a footpath. A new pedestrian / cycle / equestrian bridge will be created across the River Cam to link the bus / cycle interchange to Station Road East. A signalised toucan / Pegasus crossing will be provided across the A1301 from the proposed footway / cycleway link to Sawston, to give a direct, protected connection to the existing footway, on-road cycle route and bus stop at the south end of Sawston. A cycle hire service will be provided, with dedicated parking areas / docks at the bus / cycle interchange and a number of locations around the main site. Financial contributions, via a section 106 legal agreement, may be provided for additional docks at Whittlesford Parkway station. It is envisaged that this service could be provided by a commercial operator, allowing use by the general public as well as discounted use for park employees</p>	<p>Facilitated pedestrian and cyclist accessibility to and from the site and reduced the potential for a significant increase in traffic and associated emissions and noise. Reduced the potential for increased pedestrian severance associated with increased traffic on the A1301</p>
<p>Up to 2,000 car parking spaces will be provided (based on a parking rate assumption of half a space per employee). There will be some limited additional spaces for operational and visitor parking. Forty percent (or 800 spaces) will include electric vehicle charging points. A parking management plan will be put in place to allocate parking permits for the 2,000 spaces, prioritising disabled drivers, car sharers / car pool vehicles, electric vehicles and those with a specific business requirement. Up to 4,000 cycle parking spaces are proposed, based on provision of one space per employee</p>	<p>Reduced the potential for a significant increase in traffic and associated emissions and noise</p>
<p>The existing 'McDonalds' roundabout will be widened on all four arms to a three-lane entry and an additional circulatory lane will be created by reducing the central island. At the A505 / Hunts Road roundabout, the left-hand lane of the west arm of the A505 eastbound will be made into a dedicated bypass lane, allowing eastbound traffic to cross the roundabout without having to give way to traffic approaching from the right. At the M11 / A505 roundabout, an extra left hand turn-only lane will be introduced from the north arm of the M11 slip road southbound to the A505 east eastbound. An extra left hand turn-only lane will be introduced from the A505 east westbound to the M11 south slip road heading southbound. An extra left hand turn-only lane will be introduced from the south arm of the M11 slip road northbound to the A505 west westbound</p>	<p>Reduced the potential for a significant adverse effect on these junctions as a result of increased traffic</p>
<p>Sustainable drainage systems will be put in place as part of the proposed development. Clean runoff from buildings will be drained to infiltration trenches, while private parking areas will use permeable paved surfaces with a clean stone sub-base</p>	<p>Avoided the potential for increased surface water runoff from the site and effects on surface water</p>

Design description / detail	Environmental issue addressed / avoided / reduced
<p>that will act as storage prior to discharging to the ground. The main access roads will either discharge to roadside swales or use a collector drain to convey runoff to a soakaway feature located in a suitable area of open space. The proposed bus / cycle interchange will have a permeable surface, with runoff allowed to infiltrate to the ground. The use of permeable paving in the SuDS network will minimise the potential for pollution of groundwater, as the stone medium under the permeable paving will naturally capture any hydrocarbon contamination. The infiltration trenches will include granular material and geotextile membranes to prevent infiltration of contaminants. Oil / silt / debris traps will be incorporated into the access road drainage system as necessary to intercept contamination or silt prior to infiltration</p>	<p>and groundwater quality</p>
<p>Existing localised flooding issues have been identified at the junction of Tichbault Road with the A1301 at the main site's south western corner and adjacent to the 'McDonalds' roundabout. It is intended that new road drainage will be installed to intercept these flows and discharge them to new soakaways within the site</p>	<p>Addressed existing flooding issues</p>
<p>The widening of the Station Road East bridge across the unnamed watercourse will not modify the cross sectional area and invert level of the bridge. The new pedestrian / cycle / equestrian bridge across the River Cam will have a minimum soffit level of 25.07 m AOD (based on the 1-in-100 year flood event, plus a 65% allowance for climate change, height of 24.47 m and allowing for 600 mm freeboard). The proposed multi-user link to Sawston will cross a highways ditch on the western side of the A1301. The opening below the crossing will have an internal diameter of 450 mm or greater to minimise the risk of blockages and will be placed up to one quarter of the diameter below hard bed level to allow for future re-grading</p>	<p>Avoided the potential for the bridges to be affected by flooding or increase flood risk elsewhere</p>
<p>The proposed development's wastewater will either be treated on site, using either traditional or enhanced ecological package treatment works, or discharged via a new off site wastewater rising main into the existing foul sewer network at the Duxford pumping station</p>	<p>Avoided the potential for adverse effects on the area's wastewater treatment network</p>

Table 14.2: Secondary mitigation measures

Potential effect	Mitigation
<i>Air quality</i>	
Generation of dust during construction	<p>The following measures to reduce dust generation during construction will be put in place through a construction environmental management plan (CEMP):</p> <ul style="list-style-type: none"> • A risk-based dust management plan will be compiled • Details will be recorded of all dust and air quality complaints made and of all significant air quality incidents • Solid barriers will be erected around areas where dust-generating activities are being undertaken for an extensive period • Dust-generating activities will be carried out away from the site where possible and potentially dusty objects (such as stockpiles or goods coming into the site) will be covered or screened • Mains powered generators will be used and vehicles will be switched off when idle • Non-road mobile machinery used on the construction site will meet stage IIIA of directive 97/68/EC and its subsequent amendments as a minimum • Dust suppression or minimisation techniques will be employed during site operations and dust-suppression equipment will be accessible • Drop heights will be minimised
<i>Community, social and economic effects</i>	
--	None proposed
<i>Cultural heritage</i>	
Destruction of below ground archaeological remains on site during construction	<p>A programme of excavation will be carried out that will include, where feasible, schemes of community involvement followed by dissemination to the local and wider archaeological community. Future marketing opportunities of the archaeological findings could be used in local schools and / or in the placement of one or a number of heritage interpretation panel(s) that would display and describe the findings, similar to the examples now in place to the north east at Fourwentways Travelodge that illustrate the adjacent Bronze Age barrows that were investigated prior to construction. These measures can be outlined in a brief and specification for the recommended work by Cambridge Historic Environment Team (CHET) and implemented by the successful archaeological contractor</p>
	<p>The site has been divided into six zones, based on the results of the trench evaluation and the identified landscape organisation and / or areas of settlement. It is intended to excavate and preserve by record the definite archaeological areas / sites identified in the trench evaluation, namely the series of Bronze Age ring ditches, the Bronze Age enclosures near the western boundary, the Iron Age enclosure in the south east and the adjacent Iron Age settlement. It is not intended to focus any further investigations in the central zone stretching from trenches 9 and 10 south of the avenue to Hinxton Grange to trench 69 in the south, as it was found to be outside the areas of settlement between the Bronze Age and Iron Age because of unsuitable underlying geology</p>
	<p>Future groundworks for the proposed bus / cycle interchange (zone 1) should be the subject of pre-commencement archaeology investigations</p>
	<p>Zone 2 lies immediately to the north of the avenue to Hinxton Grange. The area should be the subject of targeted open area excavation, outside the areas of identified low / negligible archaeology, to determine the extent and date of a probable trackway anomaly identified during the desk study, and any other features that may survive but have not been detected to date</p>
	Zones 3 and 5 were found to contain well-defined areas of land organisation in the form of extensive boundaries dating from the Late Bronze Age /

Potential effect	Mitigation
	<p>Early Iron Age, remnants of former Bronze Age burial barrows and a large rectilinear enclosure and contemporary Iron Age settlement area. All will require further, detailed full excavation and the surrounding landscape on the eastern part of zone 3 and western part of zone 5 should be the subject of strip, map and record to the identified edge of the change in geology in the central zone</p> <p>To facilitate future arable crop trials in zones 4 and 6, a maximum of 0.06 m of topsoil will be spread onto the existing ground level. The postulated southern extent of the Iron Age settlement is shown in the eastern extent of zone 6. This area should be fully excavated prior to the topsoil being spread</p> <p>Depending on the significance and sensitivity of the site investigation work locally, social media could be employed for dissemination of findings during and after the archaeological site investigations. A site-specific blog, Facebook page or Twitter account could be initiated if deemed appropriate by the client. With the open area excavations proposed, there may be the opportunity to promote this positive archaeological mitigation work. There could be open day events or dedicated tours for local schools, especially as archaeology is now part of the national curriculum, and finds from a local excavation would be seen as a preferred opportunity to disseminate the archaeological heritage to a wider, local audience than merely publishing results in peer reviewed academic journals. Information packs for occupiers of business units at the proposed development site could include a summary card / pamphlet to explain the finds and process involved as part of the construction phase</p> <p>A detailed written scheme of investigation will be produced by a suitably qualified and approved archaeological contractor and fully endorsed by CHET following a specific brief. In the unlikely event that additional features of archaeological interest are uncovered during construction outside of investigation areas, further appropriate surveys and investigations will be undertaken. In the first instance, CHET will be informed and the methodology for appropriate archaeological investigations will be discussed and agreed</p>
Induced effects on the setting of Hinxton Grange as a result of poor parkland management	To ensure the future management of the parkland for its intended role as a publicly accessible space adjacent to the proposed development, a management plan will be secured through a condition attached to any consent. This will prevent any induced effects resulting from possible divergence of management of the park and control the nature of the boundary between the house and garden and the rest of the parkland
Ground conditions	
Potential risk to construction workers and adjacent site users from contamination	<p>It is likely that further intrusive investigation will be undertaken within individual plots to suit the development types. Further reporting would include (if necessary) a remediation method statement and verification report to deal with any identified contaminated ground. Should any contaminated soils be encountered during the development works, these materials will be handled, stored and possibly removed in accordance with current waste management legislation and guidance</p> <p>Health and safety risks to adjacent site users relating to dust, noise, odour and vibration will be appropriately addressed prior to commencement of specific works in sensitive areas. A CEMP will be prepared and implemented by the contractors prior to the commencement of each construction phase</p> <p>Appropriate health and safety measures will be implemented to mitigate risks to construction workers. Contractors developing each area or development plot will be responsible for ensuring that members of the public and site workers are protected from the potential effects of any identified contamination encountered during works on site</p> <p>The contractors will carry out a health and safety risk assessment, with appropriate precautionary measures planned and recorded in advance by adequately trained and qualified staff. At present, based on the existing site investigation information, contaminated ground and soils are not expected</p> <p>All site personnel will be advised of the significance of land affected by contamination and the associated risks to human health on site prior to</p>

Potential effect	Mitigation
	commencing work. No land affected by contamination has been identified thus far; however, there is the possibility that such materials may be uncovered in subsequent investigations and during development works. Suitable personal protective equipment (PPE), including clothing, footwear, gloves, safety helmets and breathing apparatus will be provided for all site personnel, who will be advised on the specific use of PPE on various areas of the site. Comprehensive welfare facilities will be provided for all site staff to enable workers to wash prior to eating and leaving the site
Potential risk to construction workers from ground gases	While recorded soil gas concentrations are not necessarily reflected by those in the breathing zone, all contractors and maintenance workers will be made aware of the possible presence of carbon dioxide and take all necessary health and safety precautions when working in trenches or confined spaces
Potential risk to controlled waters from mobilisation of existing contamination	<p>Protection of the underlying groundwater and nearby surface water from mobilisation of any unknown existing contamination that is revealed during site works and construction activities will be achieved using the following methods that will form part of a specific management strategy as required:</p> <ul style="list-style-type: none"> • Prevention of water from entering excavations, where possible • Use of measures such as cut-off ditches, silt fences or impermeable membranes to prevent uncontrolled release of runoff from excavations or exposed ground • Use of adequate wheel wash facilities to contain and dispose of potentially polluted runoff • Regular washing of plant and access roads and dampening to reduce dust, with appropriate collection and disposal
Land use and agriculture	
Damage to soils on site during construction	A materials management plan has been developed, focusing on topsoil as the most valuable soil resource. Topsoil and subsoil, as required, will be lifted from the construction footprint and operational areas, such as internal roads for construction traffic and construction compounds, in order to protect it from damage, and either used to construct the proposed landscape bunds or stored in designated areas. It will subsequently be used to reinstate the proposed landscape areas, which extend to approximately 10 ha, as required. Surplus topsoil will be spread on the two fields in the south of the main site to increase the topsoil depth to a maximum of 400 mm (the limit recommended by Defra, 2009). The topsoil in the proposed green spaces will be protected in situ
	It is recommended that a detailed trial pitting survey be undertaken in advance of each phase of development. This will establish the precise depths and textures of the topsoil and subsoil that will be encountered, which can be used to determine the soil requirements for each phase of development. It will identify any topsoil surplus, which can be made available for additional use on the retained agricultural land
	It is envisaged that the subsoil on site will predominantly remain in situ and will fulfil a recognised soil function in providing a platform for construction. The subsoil in operational areas will be managed to ensure as far as possible that it is protected from loss or damage and will be used to reinstate areas where the indigenous soil is absent or sparse
	<p>Soils will be handled using hydraulic excavators, articulated dump trucks and low ground pressure bulldozers. This equipment will be used in accordance with MAFF's (2000) <i>Good Practice Guide for Handling Soils</i> (version 04/00), with particular reference to the following:</p> <ul style="list-style-type: none"> • Sheet 1: Soil stripping with excavators and dump trucks • Sheet 2: Building soil storage mounds with excavators and dump trucks • Sheet 3: Excavation of soil storage mounds with excavators and dump trucks • Sheet 4: Soil replacement with excavators and dump trucks • Sheet 14: Building soil storage mounds with bulldozers and dump trucks (to allow the option of constructing the topsoil stores with a bulldozer where the tracks are able to apply light pressure to the store surface, discouraging infiltration of surface water and slumping of the silty soil

Potential effect	Mitigation
	<p>types)</p> <ul style="list-style-type: none"> • Sheet 19: Soil decompaction with bulldozer drawn tines (to allow for decompaction of the soil bund footprints, if required, and to loosen the underlying chalk before soil reinstatement) <p>Site traffic will only travel on internal roads, which will be prepared by lifting the topsoil and, where required, the subsoil. Topsoil and subsoil will be stored on adjacent land and reinstated on completion of construction work after the underlying chalk has been loosened. This measure will protect the soil structure in the landscape areas to maintain soil functions. Soils will only be handled, where practicable, when they are in a dry and friable condition, which is when they are least susceptible to lasting damage by compaction and smearing. It is anticipated that appropriate conditions will be based on soil and weather criteria</p> <p>Topsoil and, where applicable, subsoil will be stored to maximum heights of 3 m and 5 m respectively. Soil types will be stored 'like on like', i.e. topsoil on topsoil and subsoil on subsoil. Therefore, the footprint of subsoil stores will be prepared by first lifting and separately storing the topsoil. The soil stores will be built with a slightly convex top, to shed surface water, and stable side batters. Soil stores that are to remain in situ for more than three months will be seeded with a low maintenance grass seed mix. The stores will be managed by cutting at least three times per year and, if growth is excessive, the arisings will be removed. Weed growth will be controlled by cutting or spraying with approved herbicide and weeds will not be allowed to go to seed</p> <p>Soil stores will only be trafficked during construction or deconstruction, or by maintenance machinery. They will not be driven on at any other time. Areas of the proposed development identified for green infrastructure will be kept free from significant construction traffic movements to avoid compaction of the topsoil in these areas. The materials management plan and proposed methods of soil handling and storage will be implemented through a CEMP</p>
<i>Landscape and visual effects</i>	
Changes to views of the site	<p>There is the potential that, during detailed design, building heights may reduce, as the parameter plans establish maximum criteria. While the density parameter plan has defined the orientation and maximum building size for the plots adjacent to the parkland, the secondary mitigation will ensure that the remainder of the site respects and responds to the wider landscape setting. This can be through the articulation of the built form, with the sensitive sizing, orientation of buildings and the location of taller buildings in less sensitive areas. Allowing for the retention of some views out to the countryside by orientation of streets, footpaths and green corridors will enhance the overall landscape structure through the site</p> <p>The design and style of the built form should make a positive contribution to the local distinctiveness of Cambridge and provide high quality design, which will enrich the local environment and create a sense of place (refer to local plan policy DP/1 to DP/3, achieving high quality development)</p> <p>Streetscapes and the public realm should enhance local distinctiveness and reinforce a sense of place. Proposals should include high quality design that creates an attractive public realm</p> <p>Development will be in scale and character with similar developments. Controlled use of colour and materials is recommended to minimise unnecessary or unintentional visual impacts in the wider landscape</p> <p>Any adverse impacts from lighting can be avoided by detailed development control. Careful consideration will be given to the height and type of street, amenity and building lighting to reduce night time effects. Planting should be used to help filter the lighting, reducing its visual impact in the wider landscape</p> <p>Opportunities for further enhancement include tree, hedgerow and shrub planting within the informal open spaces and car parks and along principal routes throughout the proposed development. This should have the effect of integrating the development into the wider landscape</p>

Potential effect	Mitigation
Natural heritage	
Effects on the River Cam CWS during construction	<p>A CEMP will be prepared that will include (but not be limited to) the following measures to limit the potential effects of construction activities:</p> <ul style="list-style-type: none"> • Details on construction methodology, including factors such as access, methods of construction, timing of work and working hours • Details of how materials and chemicals will be stored and controlled on site to avoid pollution and siltation (e.g. drip trays fitted to plant, refuelling controls, storage of fuel / chemicals and other materials within the site) • Dust suppression methodology (e.g. damping down of stockpiles and surfaces, imposition of a site speed limit and the early completion of hard surfaces) • Protection of sensitive habitats by Heras fencing during construction <p>The CEMP will also include details of safe working methods around watercourses and storage of materials that could adversely affect the water environment will be located at least 50 m from sensitive watercourses. Activities such as concrete batching and refuelling of vehicles will also be a minimum of 50 m from watercourses</p>
Precautionary badger mitigation	While badger activity was not recorded on site, badger setts were recorded in the wider area. As a precautionary measure, during the construction period badgers will be allowed to move freely across the site. Any trenches or holes left overnight and during weekends will either be covered or an exit ramp will be provided to ensure badgers do not become trapped. Prior to the commencement of each phase of the development, the site will be resurveyed to determine current levels of badger activity. Should active setts be found, it may be necessary to apply for a licence to close the sett
Removal of a tree that potentially supports a low status soprano pipistrelle bat roost	Prior to removal, this tree will be re-surveyed. If bats are found to be using the tree, a European Protected Species licence would be required from Natural England to implement measures to mitigate impacts on a bat roost resulting from actions that would otherwise be illegal. Mitigation is likely to take the form of provision of additional bat roosts. It is recommended that the other 15 trees identified for removal be assessed for potential to support bat roosts prior to removal. Should it be necessary, measures could be implemented to retain trees in situ or provide appropriate mitigation
Disturbance of otters during construction of the River Cam crossing	Prior to works being undertaken in the vicinity of the proposed River Cam pedestrian / cycle / equestrian bridge, a survey will be undertaken, extending 100 m upstream and downstream of the crossing point, to search for evidence of holts or resting places for otter. Should any of these features be found, there is the potential for works to result in an impact on otter and a European Protected Species licence from Natural England would be required to implement measures to mitigate impacts resulting from actions that would otherwise be illegal
Harm to reptiles during construction	A mitigation strategy will be implemented using specialist drift fencing around areas of suitable reptile habitat, followed by the capture of any individuals prior to the commencement of construction. Suitable receptor sites will be identified for each stage of the development. The first receptor area is likely to be the established parkland habitat around Hinxton Grange. Receptor sites for later phases are likely to include parts of the new landscaping scheme
Harm to breeding birds during construction	Where possible, site clearance will be timed to avoid the bird breeding season, which is considered to run between March and August. However, if works must take place within this period, a suitably qualified ecologist will check for nesting birds prior to work commencing. Any nest present will be left and a buffer zone of at least 5 m radius will be placed around the nest, excluding any works until the young have fledged
Requirement to control Himalayan balsam	Control measures for Himalayan balsam will be implemented where necessary for the area of the River Cam affected by the construction works. This will be in the form of carefully applied Glyphosate herbicide between early March and late May (before the plant flowers in June). The treatment will be repeated the following year and any subsequent years as necessary. Once the Himalayan balsam has been successfully removed, planting to enhance the river habitat can be undertaken

Potential effect	Mitigation
Effects on foraging bats from increased lighting post-construction	Lighting will be kept to a minimum in the corridor of the River Cam and areas of existing open space and trees around Hinxton Grange through the use of low-level and directional lighting where possible. Lights will be no greater than 3 lux, and 1 lux where possible in sensitive areas. The use of LEDs within or close to areas of open space will reduce the impacts on foraging bats. LEDs do not emit UV light, so these will not impact on the distribution of insects within the areas of open space. Light emitted from LEDs is very directional and light spill can be minimised with careful design and the use of cowls or hoods. If required, a central monitoring system could be employed to allow light to be dimmed or switched off for defined periods to ensure the movement of bats is not adversely impacted
	The pedestrian / cycle / equestrian crossing of the River Cam will be designed to ensure that there is no significant light spill onto the water surface of the River Cam. Motion sensors, cowls and hoods and low-level lighting could be used to minimise light spill in this area
Noise and vibration	
Generation of noise and vibration during construction	Ensure that each item of plant used on the project complies with the noise limits quoted in directive 2000/14/EC and The Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 (as amended)
	Adopt the recommendations set out in section 8 of part 2 and annex B of BS5228 with regard to noise and vibration mitigation options. Where alternative authoritative guidance and procedures are thought to be more reasonable and have been agreed in advance with the council, these may be adopted instead
	Locate plant and equipment liable to create noise and / or vibration while in operation as far as reasonably practicable away from sensitive receptors. Use barriers to absorb and / or deflect noise away from noise-sensitive areas where required
	Maintain all plant and equipment and noise control measures applied to plant and equipment in good and efficient working order and operate them to minimise noise emissions. Where possible, any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired
	Where reasonably practicable, fixed items of construction plant should be electrically powered, in preference to diesel or petrol driven
	Vehicles and mechanical plant employed for any activity associated with the construction works will, where possible, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited
	Machines in intermittent use should be shut down or throttled down to a minimum during periods between works. Static noise-emitting equipment operating continuously will be housed within a suitable acoustic enclosure, where appropriate
	These measures will be implemented through a noise control plan, which will form part of the CEMP. Checks may be made to ensure that best practicable measures are being adopted and, for example, that acoustic screening is effective, working hours are adhered to and plant on-times are realistic
Traffic and transport	
Increased traffic during construction	As part of the CEMP, a construction logistics plan will be prepared to provide detailed measures to reduce the effects of construction traffic on the existing highway and pedestrian networks. It is anticipated that the construction logistics plan will include the following: <ul style="list-style-type: none"> • Designated access routes to the site to ensure that construction traffic uses the most appropriate routes and avoids sensitive receptors, such as residential roads, wherever possible • Arrangements for contractor compounds, storage areas and construction personnel parking • Details of the construction working hours and times when the site can be accessed for the delivery of materials and movements of construction personnel, including restricting HGV movements to outside peak hours

Potential effect	Mitigation
	<ul style="list-style-type: none"> • Details of cleaning procedures to ensure vehicles do not transport mud and other waste onto the local highway network • Measures to reduce private car use by construction personnel, such that traffic generated by the construction works is minimised • Measures to ensure the safe movement of vehicles within the site during construction, including clearly demarked pedestrian and vehicle routes on site (kept separate where possible), clear signage and posting of warning signs where pedestrian routes cross vehicle routes and signposting of main entry and exit points, vehicles entering construction parcels in a forward direction only, provision of safety instructions to drivers on arrival, specific construction of vehicle routes on site (to be permanent where possible) and application of a site speed limit
Increased traffic post-construction	A framework travel plan for the proposed development is provided in the transport assessment that sets out a number of measures to promote the use of sustainable travel, including the distribution of travel information packs to employees, cycle training and bike maintenance events, encouraging employers to provide interest free loans for public transport season tickets for staff, and setting up a car pooling scheme to reduce single occupancy journeys
Waste	
--	None required
Water environment	
Pollution of surface waters and groundwater during construction	<p>The CEMP that will be prepared for each development plot / area and established prior to construction commencing will include the following measures to prevent pollution of the water environment during construction:</p> <ul style="list-style-type: none"> • Appropriate storage of potentially polluting materials and chemicals in accordance with relevant regulations and guidance • Implementation of measures such as cut-off ditches, silt fences or impermeable membranes to prevent the release of silts and sediment into surface waterbodies • Control of any refuelling facilities, chemical and waste storage and handling areas • Adequate supervision of all deliveries and refuelling involving potentially polluting substances • Delivery and refuelling areas to be located away from surface waterbodies and outside SPZ1, with adequate measures in place to contain spillages at these locations • Leaks or spillages of potentially polluting substances to be contained, collected and removed from site in an appropriate manner, for example through the use of absorbent material or booms. An emergency action plan will be formulated, which all site personnel will have read and understood • Storage of plant and equipment away from surface waterbodies and outside SPZ1. Drip trays to be placed underneath any parts where oil / fuel may be found • Regular servicing and inspection of vehicles used on site • Restriction of vehicle movements in close proximity to surface waterbodies • Management of any dewatering required for construction of foundations • Secure access to the site for construction personnel only, to prevent vandalism and minimise the potential for release of polluting fluids
Effects on the River Cam and its unnamed tributary during construction of the proposed bridge and	Potential effects will be minimised through compliance with the legal requirements covering works in or near a main river. Necessary consents under the Water Resources Act 1991 will be obtained. The stability of the watercourses' banks will be assessed and the works will be designed and undertaken accordingly. Appropriate materials and construction methods will be used and works will be programmed to avoid periods of higher flood risk

Potential effect	Mitigation
widening of the existing bridge	
Flood risk from design exceedance flows	It is recommended that all building finished floor levels be elevated 150 mm above the immediately surrounding ground. This will ensure that any design exceedance flows, should they occur, are directed away from the buildings
Disruption to travel between the site and Whittlesford Parkway station during an extreme flooding event	The Environment Agency provides a flood warning service for the stretch of the River Cam immediately downstream of the site, which will provide information in the event of a flood

Table 14.3: Significant residual effects

Significant residual effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
<i>Air quality</i>						
None	--	--	--	--	--	--
<i>Community, social and economic effects</i>						
Reduction in amenity in the vicinity of the site during construction	Medium	Small to medium	Adverse	Short term	Slight to moderate	Reasonable
Generation of employment post-construction	Low	Large	Beneficial	Long term	Moderate	Reasonable
Contribution to the local economy post-construction	Low	Large	Beneficial	Long term	Moderate	Reasonable
<i>Cultural heritage</i>						
Knowledge gained through excavation required to mitigate substantial effect on the on site archaeology	Medium to high	Large	Beneficial	Long term	Substantial	Absolute
Construction effects: Hinxton Grange, effects of parkland restoration works on the non-designated asset	Medium	Small to medium	Beneficial	Long term	Slight to moderate	Reasonable
Construction effects: Hinxton Grange, effects of breaks in existing vegetation and new boundary planting on the non-designated asset	Medium	Small to medium	Adverse	Long term	Slight to moderate	Reasonable
Construction effects: Hinxton Grange, effects of breaks in existing vegetation and new boundary planting on the listed buildings	High	Negligible to small	Adverse	Long term	Slight to moderate	Reasonable
Construction effects: Hinxton Grange, effects of the presence of construction activity on the listed buildings	High	Small	Adverse	Short term	Moderate	Reasonable
Post-construction effects: Hinxton Grange, effects of the development on the listed buildings	High	Medium	Adverse	Long term	Substantial	Reasonable
Post-construction effects: Hinxton Grange, effects of the development on the non-designated asset	Medium	Medium to large	Adverse	Long term	Moderate to substantial	Reasonable
Post-construction effects, Hinxton conservation area, effects of the development	Medium	Small to medium	Adverse	Long term	Slight to moderate	Reasonable
Post-construction effects: Hinxton church, effects of the development on the listed building	High	Small	Adverse	Long term	Moderate	Reasonable
<i>Ground conditions</i>						
None	--	--	--	--	--	--
<i>Land use and agriculture</i>						
Loss of best and most versatile agricultural land	High	Large	Adverse	Long term	Very substantial	Absolute

Significant residual effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
Introduction of new employment land use in the form of an AgriTech technology park	High	Large	Beneficial	Long term	Very substantial	Absolute
Introduction of new informal public open space, community and bus / cycle interchange land uses	Low	Large	Beneficial	Long term	Moderate	Absolute
Landscape and visual effects						
Change to site's landscape character at completion	Medium	Medium	Adverse	Medium term	Moderate	Reasonable
Change to views from Pampisford at completion	Medium to high	Small	Adverse	Medium term	Moderate	Reasonable
Change to views from Hinxton Grange at completion	High	Medium to small	Adverse	Medium term	Moderate	Reasonable
Change to views from Hinxton conservation area at completion	High	Medium to small	Adverse	Medium term	Moderate	Reasonable
Natural heritage						
Loss of arable land	Low	Large	Adverse	Long term	Moderate	Absolute
Loss of arable margins	Medium	Large	Adverse	Long term	Substantial	Absolute
New woodland planting	Low	Large	Beneficial	Long term	Moderate	Absolute
New grassland creation	Low	Medium	Beneficial	Long term	Slight to moderate	Reasonable
Creation of natural pool / swimming lake	Low	Large	Beneficial	Long term	Moderate	Absolute
New hedgerow planting	Low	Medium	Beneficial	Long term	Slight to moderate	Reasonable
New wastewater treatment wetland	Low	Large	Beneficial	Long term	Moderate	Uncertain
New habitat for common reptiles	Low	Large	Beneficial	Long term	Moderate	Reasonable
New foraging habitat for Daubenton's bat	Medium	Medium	Beneficial	Long term	Moderate	Reasonable
Better quality foraging habitat for bats	Medium	Medium	Beneficial	Long term	Moderate	Reasonable
Noise and vibration						
None	--	--	--	--	--	--
Traffic and transport						
Reduced severance on the A505 as a result of the provision of a pedestrian / cycle / equestrian bridge and on the A1301 as a result of the proposed signalised crossings	Low	Large	Beneficial	Long term	Moderate	Absolute
Improved pedestrian / cyclist amenity along the stretch of the A1301 adjacent to the site	Low	Large	Beneficial	Long term	Moderate	Absolute
Reduced driver delay at the A505 / M11 roundabout as a	High	Small to medium	Beneficial	Long term	Moderate	Reasonable

Significant residual effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
result of highway improvements						
Reduced driver delay at the A505 / Hunts Road roundabout in the AM peak as a result of highway improvements	High	Small	Beneficial	Long term	Moderate	Reasonable
Increased driver delay on the Hunts Road arm of the A505 / Hunts Road roundabout in the PM peak as a result of the proposed development	High	Small to medium	Adverse	Long term	Moderate	Reasonable
Increased driver delay on the Moorfield Road arms of the A505 / Moorfield Road junction as a result of the proposed development	High	Small to medium	Adverse	Long term	Moderate	Reasonable
Reduced driver delay at the A1301 / A505 'McDonalds' roundabout in the AM peak as a result of highway improvements	High	Medium	Beneficial	Long term	Substantial	Reasonable
Waste						
None	--	--	--	--	--	--
Water environment						
None	--	--	--	--	--	--