

16 SUMMARY OF MITIGATION & RESIDUAL EFFECTS

16.1 INTRODUCTION

This chapter of the ES provides a summary of the mitigation measures recommended and the final residual effects of the proposed development.

16.2 MITIGATION MEASURES SUMMARY

Table 16.1 presents the collated mitigation measures recommended throughout the ES for reference purposes.

These are typically identified as being secured via planning condition or Section 106 obligation.

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

Table 16.1
Mitigation Measures Summary

TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Socio-Economics	Operation	Secondary Schooling	Financial resources to contribute to increasing secondary school capacity in Schools Planning Group areas (non-selective and selective)	Community Infrastructure Levy
Socio-Economics	Operation	Primary Health Care Facilities (GP provision)	Financial resources to contribute to increasing capacity of local health care system to absorb additional demand, including primary care (GP and dentists) and acute health care (hospitals).	Community Infrastructure Levy
Socio-Economics	Demolition and Construction	Increase benefits of employment and training opportunities for local residents (Local Impact Area and Sevenoaks)	Potential to introduce into procurement with developer requirements for local sourcing of labour and earmark apprenticeship and training opportunities.	Development contracts
Socio-Economics	Operation	Employment impacts could generate higher value, higher paid jobs	Developer targeting higher value business sectors as occupiers of employment floorspace.	Marketing by application site developers, possibly working with public sector.
Landscape & Visual	Construction	Potential changes to the fabric, character and views of the application site resulting from construction activity.	Implementation of a Construction and Environmental Management Plan (CEMP). A CEMP will play an important in ensuring considerate construction activity and that the identified woodland, trees and other landscape / habitat features are protected during the construction phase	Planning condition
Landscape & Visual	Construction and Operation	Potential changes to the fabric, character and views of the application site resulting from inappropriate management of landscape / habitat features.	Implementation of a Landscape and Ecological Management Plan (LEMP). A LEMP will ensure the identified landscape / habitat features are appropriately managed, in particular in ensuring the long-term health and robustness of perimeter woodland which provides an important screen. The LEMP should build on the Framework Ecological Mitigation Strategy (prepared by Middlemarch) which sets out the approach to retention, creation and management of ecology features.	Planning condition
Historic Environment Built Heritage	Construction	Loss of existing buildings with heritage value. Specifically Buildings Q1, Q3, Q4 and Q4-1	Building Recording to appropriate level to allow recording, dissemination and archiving to provide a permanent record of the buildings and any features of architectural and/or historic interest they possess	Planning condition
Historic Environment Archaeology	Construction	Potential for truncation and/or complete removal of known and as yet unknown buried archaeological remains (non-designated prehistoric to modern remains and post-medieval to modern designated remains)	<p>A programme of archaeological monitoring and recording during ground intrusive works (including for example attenuation ponds, ecological mitigation sites, service excavation, grubbing out of foundations where buildings are being demolished etc) is proposed.</p> <p>It is currently understood that the development would be undertaken in phases (likely 13 phases between 2020-2031). The scope and programme of appropriate archaeological phasing of works (such as watching briefs, evaluation and strip, map and record excavation) would need to be confirmed in consultations with KCCHC following submission of the EIA. The methodology for any archaeological works would be subject to an Archaeological Written Scheme of Investigation for the approval of KCCHC.</p> <p>Outline Planning Application for the extant scheme was granted in December 2015 (application reference SE/15/00628/OUT). The following conditions were attached:</p> <ul style="list-style-type: none"> <i>Prior to commencement of any works to the Scheduled Ancient Monument details shall be submitted to, and approved in writing by the Local Planning Authority of any proposed landscaping works, including the removal of trees within the curtilage of the Scheduled Ancient Monument. No development will be carried out otherwise than in accordance with the approved details.</i> <i>Before each phase of development identified pursuant to condition 5 is commenced no development shall take place until a written scheme of archaeological investigations has been submitted to and improved in writing by the Local Planning Authority. No development shall take place other in accordance with the programme of archaeological work provided for tin the written scheme of investigation. No development may take place in any area which is identified in the scheme of investigations (or by the work provided for by that scheme) as requiring a programme of archaeological investigation work until that programme has been completed in accordance with the scheme of investigation.</i> <p>The potential presence of explosive materials in the moat represents a health and safety concern. The proposed development does not seek to expose the moat. As a result, it is not envisaged that examination or exploration of this feature would be proportionate or necessary as part of any archaeological mitigations as the moat will be preserved <i>in situ</i>.</p>	Planning condition

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Biodiversity	Construction	Temporary, minor changes to habitat assemblage of Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites and unimproved calcareous grassland due to construction phase pollution and dust.	Implementation of best practice construction measures, including maintenance checks of construction vehicles and dust suppression measures. In accordance with extant outline planning permission, all ancient woodland will be retained and a minimum 15m buffer will be implemented between development plots and ancient woodland. Appropriate protection measures outlined in a Framework Ecological Mitigation Strategy (FEMS) and implemented via a Construction Ecological Management Plan (CEcMP), prepared for each phase of the development.	Planning condition
Biodiversity	Construction	Potential loss of small areas of broadleaved semi-natural woodland to accommodate attenuation ponds.	Although it may not be possible to avoid the initial loss of habitat, the enhancement of retained woodland and creation of new habitats will improve ecological and structural diversity and connectivity in the long-term, and has been incorporated into the design of the proposed development. Retained and created habitats to be managed in accordance with a Landscape and Ecological Management Plan (LEMP).	Planning condition
Biodiversity	Construction	Removal of scattered trees within site.	New replacement tree planting incorporated into design of proposed development. Trees will take time to establish, but will provide valuable habitat in the long-term. Habitat management in accordance with a LEMP.	Planning condition
Biodiversity	Construction	Physical damage or disturbance of retained woodland, hedgerows and trees, through compaction of soils and damage to the root stock, leading to localised degradation and loss of these habitats.	Implementation of a tree protection plan in accordance with British Standard 5837: 2012 Trees in relation to design, demolition and construction. In accordance with extant outline planning permission, all woodland will be retained, and scattered trees will be retained where possible. Appropriate protection measures outlined in a FEMS and implemented via a Construction Ecological Management Plan (CEcMP), prepared for each phase of the development.	Planning condition
Biodiversity	Construction	Loss, damage or disturbance of a bat roost. Killing/injury of individual roosting bats.	All works carried out in accordance with a method statement, formally approved by Natural England through receipt of development licence. Compliance with legislation will inform need for licence/s on a phased basis. In accordance with extant outline planning permission, a purpose-built bat house will be provided in the south-western part of the site and additional bat boxes will be installed in the woodland and within new builds, providing additional roosting habitat for bats.	Compliance with legislation requiring Natural England Licence
Biodiversity	Construction	Loss, damage or disturbance of bat foraging and commuting habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. Method statement/s submitted in support of Natural England development licence application/s will confirm how favourable conservation status of bat populations at the site will be maintained.	Planning condition, compliance with legislation requiring Natural England Licence
Biodiversity	Construction	Loss, damage or disturbance of dormice nesting habitat. Killing/injury of individual dormice.	All works carried out in accordance with a method statement, formally approved by Natural England through receipt of development licence. Compliance with legislation will inform need for licence/s on a phased basis. In accordance with extant outline planning permission, dormice boxes will be installed in the woodland, providing additional nesting habitat for this species.	Compliance with legislation requiring Natural England Licence

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Biodiversity	Construction	Loss or fragmentation of dormouse foraging and commuting habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. Method statement/s submitted in support of Natural England development licence application/s will confirm how favourable conservation status of dormice populations at the site will be maintained.	Planning condition, compliance with legislation requiring Natural England Licence
Biodiversity	Construction	Killing/injury or disturbance of hedgehogs during vegetation clearance.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition
Biodiversity	Construction	Temporary reduction in foraging success of terrestrial mammals due to killing/injury as a result of falling into open excavations or colliding with vehicles	Appropriate measures for covering excavations and pipework outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition
Biodiversity	Construction	Loss, damage or disturbance of a birds nest. Killing/injury of nesting birds.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development. In accordance with extant outline planning permission, bird boxes will be installed in the woodland and within new builds, providing additional nesting habitat.	Planning condition
Biodiversity	Construction	Loss, damage or disturbance of bird nesting and foraging habitat.	Appropriate measures for protection of retained habitats and control of construction-phase lighting, noise and vibration outlined in a FEMS and implemented via a CEcMP, prepared for each phase of the development.	Planning condition
Biodiversity	Construction	Killing/injury of individual reptiles.	Appropriate measures for protection of retained habitats and control and timing of vegetation clearance outlined in a Reptile Mitigation Strategy, incorporated into the FEMS.	Planning condition
Biodiversity	Construction	Loss or fragmentation of reptile foraging/basking/refuge habitat.	Appropriate measures for protection of retained habitats outlined in a Reptile Mitigation Strategy, incorporated into the FEMS. In accordance with extant outline planning permission, reptile refugia will be installed within appropriate habitats, providing additional habitat for this species group.	Planning condition
Biodiversity	Operation	Recreational disturbance and damage to Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Access management measures, such as the provision of clearly defined pathways away from habitats of greatest value in accordance with the extant outline planning permission, will be outlined in a LEMP.	Planning condition
Biodiversity	Operation	Increased illumination leading to disturbance/fragmentation of Chevening Estate LWS, Woodlands West of Shoreham LWS, Polhill Bank Kent Wildlife Trust Reserve, ancient woodland sites and retained habitats within application site, resulting in degradation and a decline in favourable conservation status.	Operational Lighting Strategy designed with ecological input, in accordance with best practice guidance. In accordance with extant outline planning permission, low level / directional lighting will be used in proximity to woodland edges and habitats of ecological value to retain and create dark corridors.	Planning condition

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Biodiversity	Operation	Loss of biodiversity value of woodland, hedgerows, trees and unimproved calcareous grassland due to a lack of, or inappropriate, management.	Habitat management and monitoring measures outlined in LEMP. In accordance with the extant outline planning permission, the following measures will be implemented: enhancement of woodland connectivity and native woodland infill and scrub planting; provision of a species-rich wildflower grassland 'wildlife area'; new tree planting and creation of ponds and SuDS. Appropriate long-term management of retained and created habitats will increase structural and species diversity within woodland and grassland areas, contribute to providing a net gain in biodiversity and create valuable green connective corridors.	Planning condition
Biodiversity	Operation	Increased illumination leading to disturbance/fragmentation of bat roosting, foraging and/or commuting habitat	Operational Lighting Strategy designed with ecological input, in accordance with best practice guidance. In accordance with extant outline planning permission, low level / directional lighting will be used in proximity to woodland edges and habitats of ecological value to retain and create dark corridors.	Planning condition
Biodiversity	Operation	Increase in road-related mortality of terrestrial mammals (badgers and hedgehogs) due to increase in vehicle movements within application site, leading to decline in favourable conservation status.	Implementation of speed limit within site. The design of the internal highway network will be compatible with the requirements for designation as a 20mph zone. This has resulted in a number of traffic calming features within the internal site which have been agreed with KCC. Tunnels to be provided under Crow Road, to ensure badgers can continue to move through the site.	Planning condition
Biodiversity	Operation	Increased predation of reptiles, dormice and birds by domestic pets, leading to decline in favourable conservation status.	In accordance with the extant outline planning permission, wild areas will be created within the green infrastructure for domestic pets. However, it will not be possible to prevent domestic pets (particularly cats) from entering more valuable habitat areas which support reptiles, dormice and nesting birds.	n/a
Biodiversity	Operation	Killing/injury of nesting birds during habitat management	Suitable timing of habitat management outlined in LEMP.	Planning condition
Biodiversity	Operation	Enhancement of retained habitat and provision of new habitats providing suitable roosting/nesting/refuge/foraging opportunities for bats, badgers, hedgehogs, reptiles, dormice, birds and invertebrates	Habitat retention and creation incorporated into design of proposed development. Retained and created habitats to be managed in accordance with a LEMP.	
Transportation & Access	Construction	Potential for HGV movements to be uncontrolled.	Implementation of a Construction Logistics Plan and a Construction Environmental Management Plan to reduce the effects of HGVs and worker vehicles throughout construction.	Planning condition
Transportation & Access	Operation	Number of vehicles generated by the development	Implementation of a Travel Plan to reduce car vehicle trip generation and promote sustainable modes share.	Planning condition
Transportation & Access	Operation	Traffic Flows	Periodic monitoring of traffic flows along Star Hill Road/Rushmore Hill is proposed to inform if the developer should be required to design additional traffic calming measures.	Planning condition
Transportation & Access	Operation	Number of people driving to and from site	The main public transport improvements include the diversion of the existing 431 bus service into the site and provision of a new community bus service into the site.	Planning condition
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	The environmental management controls, with reference to the IAQM guidance relating to high risk sites. All relevant management control measures are set out below:	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. Display the head or regional office contact information.	Planning condition - CEMP

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make the inspection log available to the local authority when asked Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period Avoid sit runoff of water and mud Keep site fencing, barriers and scaffolding clean using wet methods. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover Cover, seed or fence stockpiles to prevent wind whipping	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Ensure all vehicles switch off engines when stationary – no idling vehicles Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate Use enclosed chutes and conveyors and covered skips Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Avoid bonfires and burning of waste materials	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Ensure effective water suppression is used during demolition operations Avoid explosive blasting, use appropriate manual or mechanical alternatives Bag and remove any biological debris or damp down such material before demolition	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable Only remove the cover in small areas during work and not all at once	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Avoid scabbling (roughening of concrete surfaces) if possible Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a process, in which case ensure that appropriate additional control measures are in place	Planning condition - CEMP
Air Quality	Construction	Potential damage to health at all existing sensitive receptors	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10m from receptors where possible.	Planning condition - CEMP

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Noise & Vibration	Construction	Human Health (noise exposure) effect	<p>Prior to construction, a construction programme will be subject to a CEMP approval by Kent County Council/SDC. Demolition and construction contractors will be subject to controlling noise with Best Practicable Means as per Control of Pollution Act, 1974 and minimum mitigation measures as specified in BS 5228.</p> <p>Reduction of greatest ambient construction noise levels to 75 dB or 70 dB $L_{Aeq,10hr}$ (0800 hrs-1800 hrs) at NSRs by use of the mitigation measures contained in CEMP, Best Practicable Means of Control of Pollution Act 1974 and minimum mitigation measures for controlling construction noise from BS 5228:2009. This is of particular importance to existing residential receptors at NSR A (Armstrong Close) and proposed NSR H (school).</p> <p>Typical outline measures include:</p> <ul style="list-style-type: none"> All vehicles and mechanical plant will be fitted with effective exhaust silencers and will be maintained in good efficient order; Inherently quiet plant should be used where appropriate – all major compressors and generators will be ‘sound reduced’ with sealed acoustic covers Machines in intermittent use will be shut down in the intervening periods between use or turned down to a minimum; All ancillary plant such as generators and pumps will be positioned so as to cause minimum noise disturbance, and where necessary, acoustic enclosures will be provided; The use of all noisy plant will be limited to core construction time periods (08:00 – 18:00 hrs Monday to Friday, 08:00 – 13:00hrs Saturdays); Channels of communication will be established between the contractor / developer, local authority and residents; A site representative will be responsible for matters relating to noise; Localised noise barriers will be erected as necessary around plant items such as generators or high duty compressors; and <p>Construction compounds will be organised so as to minimise noise impacts to neighbouring noise sensitive receptors, by locating noisy operations away from receptors and using on-site structures and materials to screen noise where practicable and necessary</p>	Planning condition for Construction Environmental Management Plan for demolition and construction works
Noise & Vibration	Operation	Human Health (noise exposure) effect	<p>Road Traffic management measures on Crow Drive, e.g., information provided by Peter Brett Associates (PBA) detail highway proposals for speed attenuation curves and bends, traffic islands and traffic control junctions which will reduce vehicle speeds and have a proportionate decrease in noise levels over the previously consented scheme where these measures were not previously considered.</p> <p>All residential premises within approximately 20metres of, and with a direct line of sight on to Crow Drive, will require glazing ratings ranging from 30 dB R_w (standard thermal double glazing) to 35 dB R_w at the noisiest locations. The closest noise sensitive locations will require acoustic trickle ventilators to allow for adequate ventilation, while maintaining appropriate internal levels, in accordance with current guidance.</p> <p>For residential premises and noise sensitive receptors to the North East of the site and East of Crow Drive, including the school, glazing ratings requirements range from 30 dB R_w (standard thermal double) to 35 dB R_w at the noisiest locations, with facades requiring acoustic trickle ventilators to allow for adequate ventilation where windows cannot be opened without exceeding the internal ambient noise level.</p> <p>For noise sensitive receptors located North West and West of the site where noise levels are relatively lower compared to the South East and East of the Site, and where they are approximately 20 metres or more from Crow Drive, external noise levels are predicted to be at or below 55 dB L_{Aeq} (07:00 – 23:00hrs) thereby showing compliance with external noise level criteria taken from BS 8233:2014 and WHO.</p> <p>It should be noted that glazing ratings are based on elevations and plans submitted as part of the outline application. Glazing ratings are provided as indicative recommendations and are to be used only as guidance to demonstrate the expected performance required to meet the internal noise levels as recommended by BS 8233 and WHO guidelines.</p>	Secured through outline planning application design proposals/plans.
Noise & Vibration	Construction & Operation	Human Health (noise exposure) effect	<p>GenetiQ and adjacent land occupiers to review operations and apply mitigation on their site wherever practicable (e.g., review of open range firing to become semi-open range firing to reduce noise impact at noise sensitive receptors).</p>	Ongoing operations at adjacent land occupiers to be agreed
Noise & Vibration	Operation	Human Health (noise exposure) effect	<p>Attenuation and control of noise through building design and acoustic engineering (e.g., typical commercial attenuators for commercial ducting and extracts), building services design requires that the rating level does not exceed the typical minimum $L_{A90,15min}$ background sound level at any time.</p> <p>At NSR A, the adopted plant noise rating level upper limits are 34 dB $L_{A,Tr}$ (daytime 07.00-23.00) and 29 dB $L_{A,Tr}$ (night-time 23.00-07.00).</p> <p>At NSR B, the adopted plant noise rating level upper limits are 37 dB $L_{A,Tr}$ (daytime 07.00-23.00) and 32 dB $L_{A,Tr}$ (night-time 23.00-07.00).</p> <p>At NSR C, the adopted plant noise rating level upper limits are 40 dB $L_{A,Tr}$ (daytime 07.00-23.00) and 36 dB $L_{A,Tr}$ (night-time 23.00-07.00).</p> <p>At NSR D, the adopted plant noise rating level upper limits are 34dB $L_{A,Tr}$ (daytime 07.00-23.00) and 29 dB $L_{A,Tr}$ (night-time 23.00-07.00).</p> <p>At NSR E, the adopted plant noise rating level upper limits are 39 dB $L_{A,Tr}$ (daytime 07.00-23.00) and 34 dB $L_{A,Tr}$ (night-time 23.00-07.00).</p>	Planning condition for the control and operation of mechanical plant and building services noise to operate at or below the background noise levels as given in Table 12.9.

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
			<p>At NSR F, the adopted plant noise rating level upper limits are 36 dB $L_{A,T,r}$ (daytime 07.00-23.00) and 31 dB $L_{A,T,r}$ (night-time 23.00-07.00).</p> <p>At NSR G, the adopted plant noise rating level upper limits are 36 dB $L_{A,T,r}$ (daytime 07.00-23.00) and 31 dB $L_{A,T,r}$ (night-time 23.00-07.00).</p> <p>It should be noted that the background levels and rating level limits are considered to be low and BS 4142:2014 provides guidance with regard to assessment of plant at low noise levels and the noise being considered in context (relative to the existing/residual noise climate). The criteria are designed to ensure there is negligible impact on noise sensitive receptors.</p>	
Ground Conditions & Contamination	Construction	Inhalation of asbestos fibres and windblown dust during demolition and construction activities	<p>Prior to demolition, the existing buildings will be subject to an asbestos survey to identify if asbestos is present. If so, demolition would be preceded by removal of asbestos by licensed contractors.</p> <p>A Construction Environmental Management Plan (CEMP) should be developed to place environmental controls on the construction activities to ensure any construction related impacts are minimised.</p> <p>Further ground investigation will be undertaken to investigate areas previously not accessible. This will allow further delineation of asbestos fibres.</p>	Planning Condition
Ground Conditions & Contamination	Construction/Operation	Direct contact or inhalation of elevated lead, copper, PAH, petroleum hydrocarbons during construction activities	<p>Following demolition of existing structures further ground investigation will be required to investigate areas previously not accessible. This will allow further delineation of metals, PAH and petroleum hydrocarbons. Further investigation should also be undertaken in the area of the Scheduled Monument Area.</p> <p>A Construction Environmental Management Plan (CEMP) should be developed to place environmental controls on the construction activities to ensure any construction related impacts are minimised.</p>	Planning Condition
Ground Conditions & Contamination	Construction	Foundations in direct contact with elevated contaminants are at risk damage to building materials potential creating structural faults in the buildings/infrastructure.	<p>Following demolition of existing structures further ground investigation will be required to investigate areas previously not accessible. This will provide further information on potential aggressive contaminated ground conditions.</p> <p>Foundations will then be designed in accordance with the identified ground conditions.</p>	Planning Condition
Ground Conditions & Contamination	Construction	Direct contact with elevated contaminants may cause an adverse impact to newly planted flora and fauna.	<p>Within areas of landscaping, gardens or public open space a suitable capping layer should be placed over the Made Ground with a no dig marker to prevent plant life and ecology coming into contact with contaminants.</p>	Planning Condition
Ground Conditions & Contamination	Construction	Impact to Controlled Waters (Groundwater)	<p>Whilst no significant impact to controlled waters has been identified given the depth to the underlying groundwater, the Contractors for each stage of works must manage the construction activities to ensure no adverse impact to controlled waters or underlying soils occurs.</p> <p>A Construction Environmental Management Plan (CEMP) should be developed to place environmental controls on the construction activities to ensure any construction related impacts are minimised.</p> <p>A Piling Risk Assessment will be undertaken to demonstrate the proposed foundations do not have an adverse risk on the underlying groundwater.</p> <p>Deep bore soakaways are proposed for drainage. These are anticipated to discharge surface waters at depth (circa 15m bgl) and be sealed to prevent any contact with potential surface contaminants. The design of the Deep bore soakaways will be agreed with the regulatory authorities.</p>	Planning Condition
Ground Conditions & Contamination	Construction	Impact to Controlled Waters (surface waters)	<p>Surface waters (eg swales) have the potential for direct contact with elevated contaminants. The swales will be specifically designed to remove any potential contamination from the sites operation and be isolated from any existing contaminants within the Made Ground.</p> <p>The design of the surface water strategy will be agreed with the regulatory authorities.</p>	Planning Condition
Ground Conditions & Contamination	Operation	Recreational use of landscaping activities and garden	<p>To mitigate for the presence of asbestos a suitable capping layer will be placed over the Made Ground within areas of landscaping, gardens or public open space to prevent receptors coming into contact with asbestos.</p>	Planning Condition
Ground Conditions & Contamination	Operation	Recreational use of landscaping activities and garden	<p>To mitigate for the presence of metals, PAH and petroleum hydrocarbons a suitable capping layer will be placed over the Made Ground within areas of landscaping, gardens or public open space to prevent receptors coming into contact with contaminants.</p>	Planning Condition
Ground Conditions & Contamination	Operation	Potable water supply to future users	<p>To mitigate for the presence of metals, PAH and petroleum hydrocarbons the use of barrier pipe for potable water supplies is proposed.</p>	Planning Condition

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TECHNICAL AREA	PHASE	POSSIBLE EFFECT BEING MITIGATED	MITIGATION MEASURE	HOW SECURED / TRIGGER
Ground Conditions & Contamination	Operation	Undertaking maintenance works	All services should be installed within clean service corridors to prevent direct contact with contaminants and ensure future maintenance workers do not come into contact with contaminants.	Planning Condition
Water Resources & Flood Risk	Construction	Increase in potable water demand	Given the essential use of water during the construction phase, it is not feasible to actively restrict water usage. Nevertheless, standard measures will be incorporated into the construction phase to limit potable water demand, use and wastage wherever practicable (i.e. ensure water supply connections are not leaking etc.). These measures will be formalised in a Construction Environmental Management Plan (CEMP) for the proposed development.	Planning condition
Water Resources & Flood Risk	Operation	Increase in potable water demand	Standard measures will be incorporated through the detailed design of the proposed development to reduce water use. Such measures will likely include installation of water efficient welfare devices, and landscaping and open space areas designed to be of low water use. All residential buildings will be required to achieve Lifetime Homes standards and Code for Sustainable Homes (or equivalent scheme) Level 4 (≤ 105 litres per person per day potable water demand) as a minimum. Confirmation will also be sought from Thames Water to ascertain whether their existing infrastructure is sufficient to supply the proposed development, with any necessary off-site reinforcement works being undertaken as part of the construction phase.	Planning condition

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

Table 16.2
Summary of Residual Effects

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Socio-Economics	Demolition, Enabling, Construction	Employment	Generation of construction employment	<ul style="list-style-type: none"> Application Site and Local Impact Area: Major Sevenoaks: Moderate FEMA: Minor Kent: Negligible 	BEN	ST	D	T	IRR
Socio-Economics	Operation	Population	Increase in population	<ul style="list-style-type: none"> Application Site and Local Impact Area: Major Sevenoaks: Minor FEMA/Kent: Negligible 	BEN	LT	D	P	IRR
Socio-Economics	Operation	Employment	Generation of operational employment	<ul style="list-style-type: none"> Application Site and Local Impact Area: Major Sevenoaks: Minor FEMA and Kent: Negligible 	BEN	LT	D/IND	P	IRR
Socio-Economics	Operation	Labour Force	Increase in local resident workforce	<ul style="list-style-type: none"> Application Site and Local Impact Area: Major Sevenoaks: Minor FEMA/Kent: Negligible 	BEN	LT	D	P	IRR
Socio-Economics	Operation	Housing Supply	Provision of new housing at the site	<ul style="list-style-type: none"> Application Site and Local Impact Area: Major Sevenoaks: Minor FEMA/Kent: Negligible 	BEN	LT	D	P	IRR
Socio-Economics	Operation	Early Years Provision	Increase in population of students aged 16-18 at the site	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Primary Schooling	Year 1: 28 primary school aged children at Yr 1. Small impact since primary school on application site not complete at Yr 1, but contribution of CIL resources would assist in providing capacity to meet demand in local schools.	Negligible	BEN	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Socio-Economics	Operation Completion	Primary Schooling	182-210 primary-aged pupils, but provision of primary school included in outline application for proposed development. Negligible impact post mitigation.	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Secondary Schooling	Year 1: 20 pupils aged 11-16 at end Yr 1. CIL will contribute to resources to absorb additional demand. Negligible impact post-mitigation.	Negligible		LT	D	P	IRR
Socio-Economics	Operation Completion	Secondary Schooling	60-73 pupils aged 11-16. CIL will contribute to expansion of schools capacity, so negligible impact post-mitigation.	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Post-16 Provision	Increase in population of students aged 16-18 at the site	Negligible/ Minor	ADV	LT	D	P	IRR
Socio-Economics	Operation	GP Provision	Impacts on GPs in the local area	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Dental Facilities	Impacts on Dental Facilities in the local area	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Acute Health Care Facilities	Impacts on Acute Health Care Facilities in the local area	Negligible	BEN	LT	D	P	IRR
Socio-Economics	Operation	Sports, Leisure Facilities, Green Infrastructure	Creation of green infrastructure, sports, leisure facilities on site	Negligible	BEN	LT	D	P	IRR
Landscape & Visual (Landscape Receptors)	Construction	LCA1: Darent Valley	Impact on the landscape due to the construction works	Minor	ADV	MT	D	T	R
Landscape & Visual (Landscape Receptors)	Construction	3a: Knockholt and Halstead Wooded Downs	Impact on the landscape due to the construction works	Minor	ADV	MT	D	T	R
Landscape & Visual (Landscape Receptors)	Construction	5a: Chevening Scarp LCA	Impact on the landscape due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Landscape Receptors)	Construction	Westerham to Sundridge Parks and Farmlands	Impact on the landscape due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Landscape Receptors)	Operation	LCA1: Darent Valley	Impact on the landscape associated with the development, once complete and operational	Major-moderate	BEN	LT	D	P	IRR
Landscape & Visual (Landscape Receptors)	Operation	3a: Knockholt and Halstead Wooded Downs	Impact on the landscape associated with the development, once complete and operational	Moderate	BEN	LT	D	P	IRR
Landscape & Visual (Landscape Receptors)	Operation	5a: Chevening Scarp LCA	Impact on the landscape associated with the development, once complete and operational	Negligible	BEN	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Landscape & Visual (Landscape Receptors)	Operation	Westerham to Sundridge Parks and Farmlands	Impact on the landscape associated with the development, once complete and operational	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Construction	Crow Drive, Armstrong Close and Fort Road	Impact on view due to the construction works	Moderate	ADV	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Halstead	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Knockholt and Knockholt Pound	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Offord (inc. Twitton and Shoreham)	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Sevenoaks (inc. Dunton Green and Riverhead)	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	M25	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	A224 Pole Hill	Impact on view due to the construction works	Minor	ADV	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	A25	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Star Hill	Impact on view due to the construction works	Minor	ADV	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Offord Lane	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	North Downs Way	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	Darent Valley Path	Impact on view due to the construction works	Negligible	Neutral	MT	D	T	R
Landscape & Visual (Visual Receptors)	Construction	PRoW around the Application Site	Impact on view due to the construction works	Moderate	ADV	MT	D	T	R
Landscape & Visual (Visual Receptors)	Operation	Crow Drive, Armstrong Close and Fort Road	Impact on view due to the construction works	Minor	BEN	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Halstead	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Knockholt and Knockholt Pound	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Offord (inc. Twitton and Shoreham)	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Landscape & Visual (Visual Receptors)	Operation	Sevenoaks (inc. Dunton Green and Riverhead)	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	M25	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	A224 Pole Hill	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	A25	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Star Hill	Impact on view due to the construction works	Minor	BEN	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Oxford Lane	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	North Downs Way	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Darent Valley Path	Impact on view due to the construction works	Negligible	Neutral	LT	D	P	IRR
Landscape & Visual (Visual Receptors)	Operation	Other Public Rights of Way	Impact on view due to the construction works	Moderate	BEN	LT	D	P	IRR
Historic Environment Built Heritage	Construction	Fort Halstead, including buildings F2, F3, F4, F5, F6, F7, F8, F9 and the Second World War Firewatcher's Post	Demolition of existing buildings and consequent loss of historic context.	Moderate	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Building F16 and Building F17	Demolition of existing buildings within the setting of the listed buildings and consequent loss of historic context. Demolition works will also create new views to the listed building.	Minor	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Building F11	Demolition of existing buildings within the setting of the listed building and consequent loss of historic context. Demolition works will also create new views to the listed building.	Minor	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Building Q14	Demolition of existing buildings and consequent loss of historic context. Demolition works will also create new views to the listed building.	Negligible	BEN	MT	D	T	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Historic Environment Built Heritage		Building F14 and Building F18	Demolition of existing buildings within the buildings' settings and consequent loss of historic context. Demolition works will also create new views to the listed buildings.	Minor	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Q1, Q3, Q4 and Q4-1	Demolition, which will be mitigated by building recording and dissemination of information.	Moderate	ADV	LT	D	P	IRR
Historic Environment Built Heritage	Construction	Building A10, Building A11, Building A13 and Building A14	Demolition of existing buildings within the setting of the buildings and consequent loss of historic context. Demolition works will also create new views to the listed building.	Minor	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Building Q13	Demolition of existing buildings and consequent loss of historic context. Demolition works will also create new views to the listed building.	Negligible	BEN	MT	D	T	IRR
Historic Environment Built Heritage	Construction	Building F1, Building F10, Building F12, Building F13, Building F15, Building X2, Building X3, Building X4, Building X5, Building X6, Building X7, Building X11, Building X12, Building X13, Building X8, Building X9, Building X38, Building X44 and Building X45	Demolition of existing buildings within the setting of the buildings, including buildings both within and outside of the Fort. This will lead to the loss of historic context. Demolition works will also create new views to the listed building.	Minor	ADV	MT	D	T	IRR
Historic Environment Built Heritage	Operation	Fort Halstead, including buildings F2, F3, F4, F5, F6, F7, F8, F9 and the Second World War Firewatcher's Post and Building F16 and Building F17	Provision of long-term viable use and increased public appreciation, including public access and heritage trail.	Major	BEN	LT	D	P	IRR
Historic Environment Built Heritage	Operation	Building F11 and Building Q14	Provision of long-term viable use and increased public appreciation, including public access and heritage trail.	Moderate	BEN	LT	D	P	IRR
Historic Environment Built Heritage	Operation	Building F14, Building F18 and A14	Provision of long-term viable use and increased public appreciation, including public access and heritage trail.	Minor	BEN	LT	D	P	IRR
Historic Environment Built Heritage	Operation	Building A13, Building A10, Building A11, Building F1, Building F12, Building F13, Building F15, Building Q1, Building Q3, Building Q4, Building Q4-1, Building Q13, Building X2, Building X3, Buildings X4, Building X5, Building X6, Building X7, Building X11, Building X12, Building X13,	Provision of long-term viable use and increased public appreciation, including public access and heritage trail.	Minor	BEN	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
		Building X8, Building X9, Building X38, Building X44 and Building X45							
Historic Environment Archaeology	Construction	Fort Halstead Scheduled Monument	Physical impact on the scheduled fort may reveal associated archaeological remains	Major	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	Prehistoric trackway	Physical impact on a part of the suspected prehistoric trackway	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	Outfarms south of Polhill Arms Public House and north-west of Dunton Green Lime Works	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains (associated with Scheduled Monument)	Potential for construction works to impact associated buried archaeological remains, should they survive	Major	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	Historic landscape	Impacts on historic landscape	Moderate	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains – Prehistoric (500,000 BC to AD 43)	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains – Romano-British (AD 43 to AD 410)	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains – Early medieval (AD 410 to AD 1066)	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains – Medieval (AD 1066 to AD 1540)	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Historic Environment Archaeology	Construction	As yet unknown buried archaeological remains – Post-medieval (AD 1540 to AD 1901)	Potential for construction works to impact associated buried archaeological remains, should they survive	Minor	ADV	LT	D	P	IRR
Biodiversity	Construction	Nature conservation sites (Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites).	Subject to the implementation of the measures detailed in the CEMP, construction phase impacts on nature conservation sites (minor changes in habitat assemblage due to localised increase in air pollutants and dust) can be reduced to a level at which they are not significant.	Negligible	-	-	-	-	-

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
			No residual impacts.						
Biodiversity	Construction	Broadleaved semi-natural woodland	Potential loss of small areas of habitat to accommodate attenuation ponds. Although it may not be possible to avoid the initial loss of habitat, the enhancement of retained woodland and creation of new habitats (in accordance with the LEMP) will improve ecological and structural diversity and connectivity in the long-term.	Local (Site)/Minor	ADV	MT	D	P	IRR
Biodiversity	Construction	Scattered trees	Loss of some habitat within site. Although this loss is unavoidable, replacement tree planting has been incorporated into the design of the proposed development, and habitats will be managed long-term in accordance with the LEMP.	Local (Site)/Minor	ADV	MT	D	P	IRR
Biodiversity	Construction	Retained habitats (woodland, hedgerows and trees).	Subject to the implementation of the measures detailed in the CEMP, construction phase impacts on retained habitats (physical damage or disturbance leading to degradation) can be reduced to a level at which they are not significant.	Negligible	-	-	-	-	-
			No residual impacts.						
Biodiversity	Construction	Protected and notable species (bats, badgers, dormice, hedgehog, birds, reptiles).	Subject to the implementation of the measures detailed in the CEMP and the completion of works in accordance with Natural England Licences, as required, construction phase impacts on protected and notable species (killing, injury, disturbance, habitat loss) and breaches of legislation can be avoided.	Negligible	-	-	-	-	-
			No residual impacts.						
Biodiversity	Construction	Protected and notable species (bats, dormice, birds, reptiles).	Provision of additional bat, bird and dormice boxes and reptile refugia will increase the available roosting/nesting/refuge habitat for these species.	Local (Site)/minor	BEN	LT	IND	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Biodiversity	Operation	Nature conservation sites (Chevening Estate LWS, Woodlands West of Shoreham LWS, ancient woodland sites).	<p>Subject to the implementation of measures detailed in the LEMP, recreational disturbance impacts on nature conservation sites will be minimised.</p> <p>Subject to the implementation of the Operational Lighting Strategy, illumination impacts on nature conservation sites will be minimised.</p> <p>No residual impacts.</p>	Negligible	-	-	-	-	-
Biodiversity	Operation	Nature conservation sites (ancient woodland sites) and retained habitats (woodland, grassland hedgerows and trees).	Structural and species diversity within the ancient woodland, other woodland, grassland and hedgerows will be enhanced. Ecological connectivity will also be improved	Up to County for ancient woodland/major, up to Local (District) for other habitats/minor	BEN	LT	D	P	IR
Biodiversity	Operation	Protected and notable species (bats, [REDACTED], dormice, hedgehog, birds, reptiles).	<p>Subject to the implementation of measures detailed in the LEMP, recreational disturbance impacts on nature conservation sites will be minimised.</p> <p>Subject to the implementation of the Operational Lighting Strategy, illumination impacts on nature conservation sites will be minimised.</p> <p>No residual impacts.</p>	Negligible	-	-	-	-	-
Biodiversity	Operation	Reptiles, dormice and birds	Increased predation by domestic pets, leading to decline in favourable conservation status.	Local (Site) scale / minor	ADV	LT	D	P	IRR
Biodiversity	Operation	Bats, badgers, hedgehogs, reptiles, dormice, birds and invertebrates	Enhancement of retained habitat and provision of new habitats will provide suitable roosting/nesting/refuge/foraging opportunities for a range of species groups.	Up to Local (District) scale / minor	BEN	LT	IND	P	R

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Transportation & Access	Construction	Severance	Implementation of the CEMP will agree routes for construction vehicles	Negligible	BEN	ST	IND	T	IRR
Transportation & Access	Construction	Driver Delay	Implementation of the CEMP will ensure that HGVs operate within specific hours which will help to ensure construction vehicles are on the Local Highway Network outside of Peak hours to reduce the impact of the construction on the operation of junctions within both the AM and PM peak.	Negligible	BEN	ST	IND	T	IRR
Transportation & Access	Construction	Pedestrian and Cycle Delay	Implementation of the CEMP will ensure that HGVs operate within specific hours which will help to reduce the likely interaction between people and HGVs.	Negligible	BEN	ST	IND	T	IRR
Transportation & Access	Construction	Fear and Intimidation	Implementation of the CEMP will ensure that HGVs operate within specific hours which will help to reduce the likely interaction between people and HGVs.	Negligible	BEN	ST	IND	T	IRR
Transportation & Access	Construction	Accident and Safety	Limited Impact	Negligible	BEN	ST	IND	T	IRR
Transportation & Access	Operation	Severance	Bus, monitoring and Travel Plan expected to reduce car trips which would reduce severance	Negligible	BEN	LT	IND	P	IRR
Transportation & Access	Operation	Driver Delay	Bus, monitoring and Travel Plan and mitigation at junctions is anticipated to relieve driver delays at the assessed junctions.	Negligible	BEN	LT	IND	P	IRR
Transportation & Access	Operation	Pedestrian and Cycle Delay	Bus, monitoring and Travel Plan expected to reduce car trips which would reduce effect on pedestrian and cycle delay.	Negligible	BEN	LT	IND	P	IRR
Transportation & Access	Operation	Fear and Intimidation	Bus, monitoring and Travel Plan expected to reduce car trips which would reduce effect on fear and intimidation.	Negligible	BEN	LT	IND	P	IRR
Transportation & Access	Operation	Accident and Safety	Bus, monitoring and Travel Plan expected to reduce car trips which would reduce effect on accidents and safety.	Negligible	BEN	LT	IND	P	IRR
Air Quality	Construction	All receptors within 350m of the Site boundary	Demolition	Negligible	ADV	ST	D	T	R

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
			The implementation of mitigation measures are routinely and successfully applied to major construction projects throughout the UK and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the demolition stage of construction work.						
Air Quality	Construction	All receptors within 350m of the Site boundary	Earthworks The implementation of mitigation measures are routinely and successfully applied to major construction projects throughout the UK and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the earthworks of construction work.	Negligible	ADV	ST	D	T	R
Air Quality	Construction	All receptors within 350m of the Site boundary	Construction The implementation of mitigation measures are routinely and successfully applied to major construction projects throughout the UK and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the construction stage of construction work.	Negligible	ADV	ST	D	T	R
Air Quality	Construction	All receptors within 350m of the Site boundary	Trackout The implementation of mitigation measures are routinely and successfully applied to major construction projects throughout the UK and are proven to reduce significantly the potential for adverse nuisance dust effects associated with the trackout of construction work.	Negligible	ADV	ST	D	T	R
Air Quality	Construction	All receptors within 350m of the Site boundary	The residual impact of construction traffic and plant on concentrations of NO2, PM10 and PM2.5 would remain as per the assessment pre-mitigation	Negligible	ADV	ST	D	T	R
Air Quality	Construction	All receptors within 350m of the Site boundary	Emissions from Plant on Site would remain as per the assessment pre-mitigation.	Negligible	ADV	ST	D	T	R

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Air Quality	Operation	Keeper Cottage, Star Hill Road	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Star Hill Road Cottages	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Leesfield, Knockholt	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	14 Fort Road, Halstead	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	High Field Farm, Crow Drive, Halstead	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Corner Cottage, Old London Road, Knockholt	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	20 Main Road, Knockholt	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Knockholt Road, Halstead	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Halstead Community Primary School	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Halstead Hall, Shoreham Lane, Halstead	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Hunters Retreat, Shoreham Lane	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Finnart, Otford Lane, Halstead	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	Morants Court Road, Dunton Green	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Air Quality	Operation	Pilgrims Way West	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	On Site: Proposed Residential 1	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	On Site: Proposed Community Use	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	On Site: Proposed Residential 2	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Air Quality	Operation	On Site: Proposed Primary School	The residual impact of operational traffic and plant on concentrations of NO2, PM10 and PM2.5 is negligible	Negligible	ADV	LT	D	P	IRR
Noise & Vibration	Construction	NSR A	Demolition Works Noise level during demolition works: up to 68dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR B	Demolition Works Noise level during demolition works: up to 46dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR C	Demolition Works Noise level during demolition works: up to 54dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR D	Demolition Works Noise level during demolition works: up to 47dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR A	Construction Works Noise level during construction works: up to 62dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR B	Construction Works Noise level during construction works: up to 40dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR C	Construction Works Noise level during construction works: up to 49dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR D	Construction Works Noise level during construction works: up to 42dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Noise & Vibration	Construction	NSR E	Construction Works Noise level during construction works: up to 51dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR F	Construction Works Noise level during construction works: up to 41dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR G	Construction Works Noise level during construction works: up to 51dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR H	Construction Works Noise level during construction works: up to 62dB(A). Reduced residual impact.	Negligible /Moderate Adverse	ADV	ST	D	T	IRR
Noise & Vibration	Construction	NSR A - H	Demolition and Construction Traffic Noise Noise levels from construction traffic increase ambient noise levels > 1.5dBA over existing ambient noise levels	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR E & F	Human exposure and negative health effects due to operations at QinetiQ 61dB L _{Afmax} externally and 48 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR A	Human exposure and negative health effects due to operations at QinetiQ 55 dB L _{Afmax} externally and 38 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR B	Human exposure and negative health effects due to operations at QinetiQ 55 dB L _{Afmax} externally and 43 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR C	Human exposure and negative health effects due to operations at QinetiQ 53 dB L _{Afmax} externally and 40 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR D	Human exposure and negative health effects due to operations at QinetiQ 51 dB L _{Afmax} externally and 38 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Construction & Operation	NSR G	Human exposure and negative health effects due to operations at QinetiQ	Negligible Significance	ADV	ST	D	T	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
			59 dB L _{Afmax} externally and 46 dB L _{Afmax} internally						
Noise & Vibration	Construction & Operation	NSR H	Human exposure and negative health effects due to operations at QinetiQ 59 dB L _{Afmax} externally and 46 dB L _{Afmax} internally	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR A	Road Traffic Noise External road traffic noise predicted to be 46.6dBA daytime, 41.1dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR B	Road Traffic Noise External road traffic noise predicted to be 51.4dBA daytime, 45.8dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR C	Road Traffic Noise External road traffic noise predicted to be 41.8dBA daytime, 35.9dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR D	Road Traffic Noise External road traffic noise predicted to be 42.9dBA daytime, 37.2dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR E	Road Traffic Noise External road traffic noise predicted to be 59.4dBA daytime, 54dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR F	Road Traffic Noise External road traffic noise predicted to be 46.4dBA daytime, 40.9dBA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR G	Road Traffic Noise External road traffic noise predicted to be 41.3dBA daytime, 35.8BA night time.	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR H	Road Traffic Noise External road traffic noise predicted to be 59.3dBA daytime	Negligible Significance	ADV	ST	D	T	IRR
Noise & Vibration	Operation	NSR A - H	Commercial, Business and Industrial Uses	Negligible Significance	ADV	ST	D	T	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
			Increase in ambient noise levels at NSRs A - G due to commercial, business and industrial land class uses are predicted to be within BS 8233:2014 noise levels at external and internal areas, being less than 50dBA L _{eq} at external locations daytime, and less than 45dBA L _{eq} night time						
Noise & Vibration	Operation	NSRs A - H	Building Services/Plant Noise Plant noise emissions from the proposed development at every NSR (A – H) are predicted to be (as a maximum operational noise level) 5dBA below daytime and night time background noise levels at each NSR.	Negligible Significance	ADV	ST	D	T	IRR
Ground Conditions & Contamination	Construction	Human Health (Construction Workers / passers-by / users of off-site areas, future site users associated with any proposed uses that become operational during construction)	Following completion and removal of asbestos containing materials by a licensed contractor demolition of existing buildings will have no residual impact on inhalation of asbestos fibres.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	Human Health (Construction Workers)	Following completion of construction works in accordance with the CEMP no residual impact from direct contact or inhalation of elevated lead, copper, PAH, petroleum hydrocarbons is anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	Existing buildings and infrastructure	Existing buildings that are to be retained and currently show no sign of damage are not anticipated to experience any residual impact.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	New buildings and infrastructure	Foundations will be designed taking into account potential aggressive contaminated ground conditions and therefore no residual impact on building materials is anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	Existing flora and fauna	Existing flora and fauna that does not show any evidence of distress is not anticipated to experience any residual impact.	Negligible	BEN	LT	D	P	IRR

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Ground Conditions & Contamination	Construction	Proposed flora and fauna	Clean capping layers for plant growth will be installed removing the pathway for direct contact with elevated contaminants that may cause an adverse impact to newly planted flora and fauna. No residual impact anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	Controlled Waters (Groundwater)	Following completion of construction works in accordance with the CEMP, completion of a foundation works risk assessment and approval for the deep bore soakaway design, no residual impact to controlled waters is anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Construction	Controlled Waters (Surface Water)	Following completion of construction works in accordance with the CEMP and approval for the surface water strategy, no residual impact to controlled waters is anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Operation	Human Health (future site users associated with all proposed uses)	Capping layers installed in gardens and landscaped areas will break the pathway to the risk of asbestos fibres leaving no residual impact	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Operation	Human Health ((future site users associated with all proposed uses)	Capping layers installed in gardens and landscaped areas will break the pathway to the risk of direct contact or inhalation of lead, copper, PAH, petroleum hydrocarbons leaving no residual impact.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Operation	Human Health ((future site users associated with all proposed uses)	The use of barrier pipe for potable water supplies will ensure contaminants do not impact potable water supplies. No residual impact is anticipated.	Negligible	BEN	LT	D	P	IRR
Ground Conditions & Contamination	Operation	Human Health (Maintenance Users)	Installation of all services in clean service corridors will ensure there is no residual impact to maintenance workers from direct contact with contaminants.	Negligible	BEN	LT	D	P	IRR
Water Resources & Flood Risk	Construction	Flood risk at the application site and in the surrounding area	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Negligible	No impact	-	-	-	-

SUMMARY OF MITIGATION & RESIDUAL EFFECTS

TECHNICAL AREA	PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Water Resources & Flood Risk	Construction	Surface water drainage at the application site	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Negligible	No impact	-	-	-	-
Water Resources & Flood Risk	Construction	Foul water drainage at the application site	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Negligible	No impact	-	-	-	-
Water Resources & Flood Risk	Construction	Potable water demand at the application site	Despite mitigation measure proposed, this is not considered to have a demonstrable effect on water resource availability within the 'Water Resource Zone', and therefore no change from the pre-mitigation assessment is anticipated.	Negligible	No impact	-	-	-	-
Water Resources & Flood Risk	Operation	Flood risk at the application site and in the surrounding area	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Negligible	No impact	-	-	-	-
Water Resources & Flood Risk	Operation	Surface water drainage at the application site	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Moderate	BEN	LT	D	P	R
Water Resources & Flood Risk	Operation	Foul water drainage at the application site	No mitigation proposed, and therefore no change from pre-mitigation assessment.	Moderate	BEN	LT	D	P	R
Water Resources & Flood Risk	Operation	Potable water demand at the application site	Despite mitigation measure proposed, this is not considered to have a demonstrable effect on water resources available within the 'Water Resource Zone', and therefore no change from the pre-mitigation assessment is anticipated.	Negligible	No impact	-	-	-	-

Key: ADV/BEN = Adverse/Beneficial; ST/MT/LT = Short-term/Medium-term/Long-term; D/IND = Direct/Indirect; P/T = Permanent/Temporary; R/IRR = Reversible/Irreversible

16.3 RESIDUAL EFFECTS SUMMARY

The residual effects are summarised in Table 16.2.

Likely Significant Effects

Construction Phase

Following implementation of mitigation measures, the proposed development would produce the following likely significant environmental effects during construction:

- Generation of construction employment – **Major Beneficial**;
- Generation of noise during construction phase – **Moderate Adverse**;
- Changes to views from Crow Drive, Armstrong Close and Fort Road, A224 Pole Hill, Star Hill & PRoW around the Application Site – **Minor to Moderate Adverse**
- Changes to view from Crow Drive, Armstrong Close and Fort Road – **Moderate Adverse**;
- Changes to the setting of listed buildings close to the application site – **Negligible to Moderate Adverse**;
- Changes to the setting of listed buildings beyond the immediate surrounds of the application site – **Negligible to Moderate Adverse**; and
- Changes to the setting of archaeological remains on the application site – **Minor Adverse to Major Adverse**.

Operational Phase

Following implementation of mitigation measures, the proposed development would produce the following likely significant environmental effects during operation:

- Generation of operational employment – **Major Beneficial**;
- Contributions towards the delivery of affordable housing and social and community infrastructure – **Moderate Beneficial**;
- Changes to the landscape receptors (LCA1: Darrent Valley & 3a: Knockholt and Halstead Wooded Downs) – **Moderate to Major Beneficial**;
- Changes to views from Crow Drive, Armstrong Close and Fort Road, Star Hill & Other Public Rights of Way – **Minor to Moderate Beneficial**; and
- Changes to surface water drainage & foul water drainage at the application site – **Moderate Beneficial**.