

18 Summary of Mitigation Measures, Monitoring and Likely Residual Effects

18.1 Introduction

18.1.1 Tables 18.1 and 18.2 provide a summary of the mitigation measures, monitoring requirements and likely residual effects resulting from the construction and occupation of the completed Development, as detailed in Chapters 7-16 and ES Volume II. Table 18.3 provides a summary of the cumulative effects.

18.1.2 Mitigation measures are designed into the Development to reduce potentially significant adverse effects where possible. A summary of key secondary and tertiary mitigation measures is provided below for both the construction phase and the completed Development.

Construction

- Adherence to provision of Outline Construction Environmental Management Plan (CEMP), including the erection of construction hoarding, site lighting control, emissions management plans, to be secured by planning condition; and
- Adherence to the prescriptions of the Framework Construction Traffic Management Plan (CTMP), to be secured by planning condition.

Completed Development

- Design approach to maximise landscape, access and biodiversity benefits;
- Energy and Sustainability Strategy, with a minimum target of BREEAM 'Very Good' - to avoid / minimise natural resource use;
- Framework Travel Plan, to be secured by planning condition;
- Framework Delivery and Servicing Management Plan, to be secured by planning condition;
- A site-specific drainage strategy incorporating sustainable drainage systems (SuDS); and
- Landscaping strategy and scheme management, including adherence to an Outline Landscape and Ecological Management Plan (LEMP), to be secured by planning condition.

Table 18.1: Summary of Construction Phase Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Socio Economics					
Existing employment on-site and economic activity	Existing employees and businesses on site (Medium)	Site	Temporary	None required	Negligible
Construction employment	Construction labour market (Low)	Outer Economic Impact Area	Temporary	None required	Negligible
Cultural Heritage					
Removal due to groundworks	Mid to Late Bronze Age, Iron Age and Anglo-Saxon buried heritage assets (Medium)	On Site	Permanent	Agreed programme of mitigation measures intended to record archaeological deposits prior to disturbance.	Slight adverse
Removal due to groundworks	Unidentified archaeological remains (Unknown)	On Site	Permanent		Slight adverse
It is possible that cranes or similar tall temporary structures may be visible	Bladon Camp (High)	Off-site	Temporary	None required	Slight adverse
Site clearance, loss of agricultural land, woodland, and hedgerows; introduction of new planting and open spaces; construction noise and lighting, and phased	Begbroke Hill Farmhouse (High)	On-site	Temporary	Siting of construction compounds and haul roads away from the farmhouse, and temporary screening or protection measures	Slight adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
introduction of built structures in the setting.	Parker's Farm and associated buildings (Negligible)	On-site	Permanent	Photographic survey of historic elements	Slight adverse
Removal of asset					
Change of local character of the area from agricultural to urban	Historic landscape types (Low)	On-site	Permanent	None required.	Slight adverse
Partial removal and removal of hedgerows	Historically important hedgerows (OA 388-9 and OA 387)	On-site	Permanent	Agreed programme of recording and sampling.	Slight adverse
Construction noise, lighting and vehicle movement; temporary reduction of rural setting	Grade II listed buildings Roundham Lock; Bridge 227; Bridge 228; Kidlington Green Lock (High)	Off-site	Temporary	The short duration of the Construction works, and the mitigation provided by the CEMP	Slight adverse
Visibility of cranes or similar tall, temporary structures	Grade II* Church of St Philip; Grade II St Philip's Priory; The Old Rectory; and Old Rectory coach house and stable, Begbroke Conservation Area (high)	Off-site	Temporary	None proposed.	Slight Adverse
Increased noise levels, it is possible that cranes or similar	Grade II listed building Tudor Cottage, Rose	Off-site	Temporary	None proposed	Slight adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
tall temporary structures may be visible	Cottage and attached cottage, and Grapes Inn (now Turnpike Inn) (high)				
Increased noise levels, It is possible that cranes or similar tall temporary structures may be visible	non-designated Ivy House (low)	Off-site	Temporary	The increased noise levels will be temporary, lasting the length of the construction phase	Slight adverse
No change	Grade II* listed St Mary's Church (High)	Off-site	Temporary	None required.	Neutral
Site clearance, loss of agricultural land, woodland, and hedgerows; introduction of new planting; construction noise, lighting and vehicle movement; and phased introduction of built structures in the setting	Non-designated Crossing Cottage	Off-site	Temporary	None required.	Slight adverse
Transport and Access					
Severance	A44 near Begbroke Hill	Local	Temporary	None Required	Negligible to minor adverse
Pedestrian Delay					
Pedestrian Amenity	A44 near Rutten Lane				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Fear and Intimidation	A44 near Cassington Road A44 near Frieze Way				
Driver Delay	All routes				Minor Adverse
Road Safety					
Noise and Vibration					
Construction Traffic	All offsite (High)	Local	Temporary	None required.	Not significant
Demolition Noise	All offsite receptors (High)	Local	Temporary	None required.	Not significant
	Begbroke Science Park – Impact and Shock Mechanics Lab and Centre for Innovation and Enterprise (Medium)	Local	Temporary	Stakeholder engagement, management and screening	Significant
	R20a (Begbroke Farm House) (Medium)	Local	Temporary	None required.	Not significant
Construction Noise – Begbroke Hill	Earthworks and groundworks: 226 Woodstock Road (High)	Local	Temporary	Acoustic barrier	Not significant
	Other phases: Poppy Close, 204 and 226 Woodstock Road, Garden Centre and Begbroke Science Park (BSP) (High)	Local	Temporary	None required.	Not significant

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	All other receptors (High)	Local	Temporary	None required.	Not significant
Construction Noise – Begbroke Science Park (BSP)	Earthworks and Groundworks: BSP Earthworks: 31 Sandy Lane Paving: BSP (High)	Local	Temporary	Acoustic barrier for 31 Sandy Lane	Significant
	Earthworks: 31 Sandy Lane (High)	Local	Temporary	Acoustic barrier	Not significant
	All other phases: 31 and 88 Sandy Lane, Stanley Close (High)	Local	Temporary	None required.	Not significant
	All other receptors (High)	Local	Temporary	None required.	Not significant
Construction Noise – Parkers Farm	Earthworks groundworks and paving: 88 Sandy Lane Earthworks: Begbroke Farm House (High)	Local	Temporary	Acoustic barrier at 88 Sandy Lane	88 Sandy Lane: Not significant Begbroke Farmhouse: Significant
	Piling and superstructure: Crossing Caravans, Crossing Cottage and 88 Sandy Lane All other phases: BSP (High)	Local	Temporary	None required.	Not significant
	All other receptors (High)	Local	Temporary	None required.	Not significant

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Construction Noise – Foxes Cover	Earthworks and groundworks: Crossing Caravans, Crossing Cottage, Gravel Pits Lane, 3 and 4 Ryder Close, 88 Sandy Lane, and cumulative site adjacent to south. Paving: Crossing Caravans, 3 Ryder Close, and 88 Sandy Lane (High)	Local	Temporary	Acoustic barriers	Not significant
	All phases: Littlemarch Playing Fields, 105 and 128 Woodstock Road All other phases: Crossing Cottages, Crossing Caravans, Gravel Pits Lane, 3 and 4 Ryder Close, 88 Sandy Lane and cumulative scheme adjacent to south of Site (High)	Local	Temporary	None required.	Not significant
	All other receptors (High)	Local	Temporary	None required.	Not significant

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Construction Noise at introduced receptors	Introduced receptors within 70m of construction activity	Local	Temporary	Acoustic barriers where they will be effective, consideration of phasing/sequencing	Significant
	Introduced receptors between 70m and 220m from construction activity	Local	Temporary	None required.	Not significant
	Introduced receptors 220m or more from construction activity	Local	Temporary	None required.	Not significant
Construction Vibration – Piling	Any receptor greater than 15m from location of piling (High)	Local	Temporary	None required.	Not significant
Construction Vibration – Vibratory Ground Compaction	Any receptors between 15 – 30m from compaction (High)	Local	Temporary	Reduce amplitude of drum vibration. Monitoring to be undertaken.	Not significant
	Any receptor greater than 30m from compaction (High)	Local	Temporary	None required.	Not significant
Air Quality					
Dust emissions due to construction activities adversely impacting amenity.	Surrounding existing residential properties, including moored canal boats (High)	Local	Temporary	Employ site specific mitigation measures outlined in Appendix 11.10	Not significant

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Dust emissions due to construction activities causing ecological damage	Rushy Meadows Site of Special Scientific Interest (Medium)	Local	Temporary	Employ site specific mitigation measures outlined in Appendix 11.10	Not significant
PM ₁₀ emissions due to on-site construction activities adversely impacting human health.	Surrounding existing residential properties, including moored canal boats (High)	Local	Temporary	Employ site specific mitigation measures outlined in Appendix 11.10	Not significant
Effects of emissions arising from traffic generated by the construction of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (High)	Local	Temporary	None	Not significant
Climate Change and Greenhouse Gases					
Embodied carbon associated with the product stage (lifecycle stages A1-A3)	Global atmosphere (High)	Global	Permanent	Commitment to reduce lifecycle embodied carbon by 10% compared to the business-as-usual baseline. Explore the possibility of using cement replacement where possible to reduce embodied carbon. To be	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				<p>reviewed at the reserved matters stage.</p> <p>Review opportunities to minimise internal finishes.</p> <p>A whole life carbon assessment should be undertaken for each building to identify opportunities to reduce embodied carbon through design, material specification and construction processes.</p>	
Embodied carbon associated with the construction process stage (lifecycle stages A4-A5)				<p>Review opportunities to reduce energy association with construction installation processes.</p> <p>Explore the use of off-site modular</p>	Moderate adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				construction to consolidate delivery requirements, and for energy efficient assembly and minimising site installation process.	
Ecology					
Water-borne pollution	Oxford Meadows SAC	National	Temporary	None required.	Negligible adverse
Aerial pollution					
Habitat degradation and change in habitat connectivity	Rushy Meadows SSSI	National	Permanent	<ul style="list-style-type: none"> ▪ Detailed CEMP(s) to include specific SSSI protection measures, to prevent accidental incursion. ▪ Boundary hedgerow of Site in proximity to SSSI to be retained and managed for conservation. ▪ 15m buffer of uncultivated native 	Minor beneficial
Change in habitat connectivity.					

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				vegetation to be included on parts of the Site bordering the SSSI	
Waterborne pollution.	Other SSSIs	National	Temporary	None required.	Neutral
Aerial pollution.	Ancient Woodlands	National	Temporary	None required.	Neutral
Habitat changes	Lower Cherwell Valley CTA	Local	Permanent	Detailed CEMP(s) and LEMP(s) to include detailed measures to achieve and maintain CTA objectives	Moderate beneficial
Water-borne pollution from spillage of oils, fuels, lubricants, cement or silt	Other non-statutory sites	Local	Temporary	None required.	Negligible adverse
Habitat loss, degradation and loss of habitat connectivity	Grassland	Local	Permanent	Adherence to detailed CEMP(s) and LEMP(s)	Minor beneficial
	Woodland	Local	Permanent		Minor beneficial
	Hedgerows and ditches	Site	Permanent	All hedgerow losses to be compensated for, wherever possible, and subject to	Moderate adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				conservation management	
	Rowel Brook	Local	Permanent	<ul style="list-style-type: none"> ▪ Footpath design to maintain the majority of the length of the Rowel Brook and its tributary without public access. ▪ Detailed LEMP(s) to include measures to open the tree canopy in parts of the Rowel Brook to encourage marginal vegetation 	Minor beneficial
Habitat loss and degradation	Ponds	Local	Permanent	None required	Minor beneficial
Loss and damage New tree planting	Isolated trees	Site	Permanent	New tree planting should allow adequate spacing for trees, e.g., 5m minimum	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Habitat loss	Arable plants	Site	Permanent	Adherence to detailed LEMP(s).	Minor adverse
Killing, injury, disturbance or destruction of setts; trapping of animals; loss of foraging habitats	Badger	Local	Temporary	<ul style="list-style-type: none"> ▪ The detailed CEMP(s) should include protection measures for badger during construction, to prevent accidental entrapment in trenches, and other such impacts. ▪ Any badger sett requiring translocation is to be subject to licensed translocation. 	Neutral
Reductions in populations through loss of habitat; killing or injury	Bats	Site	Temporary	<ul style="list-style-type: none"> ▪ Any trees or buildings supporting bats that require felling/demolition will require inspections and appropriate bat 	Minor beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				<p>licences from Natural England (setting out appropriate mitigation).</p> <ul style="list-style-type: none"> ▪ The detailed CEMP(s) should include detailed measures to avoid light spillage and accidental impacts to retained trees. 	
	Water vole	Site	Temporary	<ul style="list-style-type: none"> ▪ Detailed LEMP(s) to include measures to open the tree canopy in parts of the Rowel Brook. ▪ Detailed CEMP(s) to include precautionary checks and precautionary protection measures for 	Minor beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				any works within 30m of the Rowel Brook or the Oxford Canal.	
	Otter	Site	Temporary	Adherence to detailed CEMP(s). If otter holts are found in such proximity to works, an otter licence from Natural England may be required for works to go ahead (setting out appropriate mitigation)	Minor beneficial
	Hedgehog	Site	Temporary	Adherence to detailed CEMP(s).	Minor beneficial
	Brown hare	Site	Temporary		Minor adverse
Change in value of site from site clearance works; killing or injury	Breeding birds	Local	Temporary	Adherence to detailed CEMP(s). Off-site skylark habitat creation totalling 10 additional territories is to be created on arable land within 5km of the Site.	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Reduction in population through loss of habitat and habitat connectivity; killing or injury	Great crested newt	Local	Temporary	<ul style="list-style-type: none"> ▪ The small population of this species in the ornamental pond at Begbroke Science Park should be translocated to a new pond in the north east of the Site under a NE licence. ▪ A licensed destructive search should be carried out in terrestrial habitat at Begbroke Science Park, and any great crested newts found (along with any other reptiles or amphibians) moved to the new habitat. 	Moderate adverse
	Common toad	Site	Temporary	Adherence to detailed CEMP(s).	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				Ten hibernation sites suitable for amphibians should be constructed across greenspaces at the Site	
	Brown hairstreak butterfly	Site	Temporary	Blackthorn to be included in hedgerow and scrub planting mixes across the Site, at c. 5-15%.	Minor adverse
Reduced population size through habitat loss, degradation and connectivity; killing or injury	Reptiles	Local	Temporary	Adherence to detailed CEMP(s). Ten hibernation sites suitable for reptiles should be constructed across greenspaces at the Site	Minor adverse
Development of Site	Biodiversity Net Gain	Local	Permanent	None required.	Moderate beneficial
Agriculture and Soils					
Built, irreversible development on agricultural land (sealing)	Grade 2 agricultural land (Very High)	National	Permanent	None required.	Large adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Built, irreversible development on agricultural land (sealing)	Subgrade 3a agricultural land (High)	National	Permanent	None required.	Large adverse
Change of land-use from agriculture to green infrastructure (potentially reversible)	Grade 2 agricultural land (Very High)	National	Permanent	Standard agricultural cultivation to restore land to agriculture by future generations, if required.	Moderate adverse
Change of land-use from agriculture to green infrastructure (potentially reversible)	Subgrade 3a agricultural land (High)	National	Permanent		Moderate adverse
Change of land-use from agriculture to green infrastructure (potentially reversible)	Subgrade 3b agricultural land (Medium)	National	Permanent		Slight adverse
Structural damage, e.g., compaction, to soil during soil handling operations	Soil Type 1 (Medium sensitivity/Medium Resilience to damage during soil handling)	Local	Temporary	Adherence to Soil Management Plan	Slight adverse
Structural damage, e.g., compaction, to soil during soil handling operations	Soil Type 2 (Low sensitivity/High Resilience to damage during soil handling)	Local	Temporary		Slight adverse
Ground Conditions and Contamination					
Exposure to contamination	Construction Workers (High)	Local	Temporary	No additional mitigation required.	Negligible adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
(excluding asbestos) associated with historical and current land use	Off-site users of surrounding area (High)				
Exposure to ground gas associated with historical and current land use	Construction Workers (High)				Negligible adverse
	Off-site users of surrounding area (High)				
Increased mobilisation of chemical contaminants into surface water and/or groundwater from site works	Surface water (Medium)				Negligible adverse
	Groundwater (Medium)				
Mobilisation of contaminants from compaction works to historical landfill site	Surface water (Medium)				Negligible adverse
	Groundwater (Medium)				
Temporary alteration of groundwater flow regime in relation to the baseflow to surface water features	Rushy Meadows SSSI (High)				Negligible adverse
	Surface water (Medium)				
Exposure to contamination (asbestos) associated	Construction Workers (High)	Local	Permanent	No additional mitigation required.	Negligible adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
with historical and current land use	Off-site users of surrounding area (High)				
Water Resources, Flood Risk and Drainage					
Increased sediment loads	Oxford Canal (High)	Local	Temporary	None required	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High)				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
Foul water management and sewerage	Oxford Canal (High)	Local	Temporary	None required	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High)				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
Accidental release of hydrocarbons	Oxford Canal (High)	Local	Temporary	None required	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High)				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
	Oxford Canal (High)				
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High)				
	Science Park Pond (High)				
Accidental leaks of hazardous materials	Oxford Canal (High)	Local	Temporary	None required.	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Meadow with Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High))				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
Dust and debris (risk of being blown into brook)	Oxford Canal (High)	Local	Temporary	None required.	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Wolvercote Common & Green SSSI (including Oxford Meadows SAC (High)) Science Park Pond (High) Northern Ponds (High) Pond in Yarnton (High) Off-site Southern Ponds (High) Off-site Western Ponds (High) Eastern Drainage Ditches (High) Southern Drainage Ditch (Low)				
Dewatering of excavations	Oxford Canal (High) Rowel Brook (High) Rushy Meadows SSSI including Thrupp Ditch (High) Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common	Local	Temporary	None required.	Negligible

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	& Green SSSI (including Oxford Meadows SAC (High))				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
Increased water demand during construction	Water services infrastructure (supply) (High)	Local	Temporary	None required.	Negligible
Increased sediment loads	Water services infrastructure – surface water capacity (High)	Local	Temporary	None required.	Negligible
Dust and debris (risk of being blown into drainage lines and sewer network)					Negligible
Dewatering of excavations					Negligible

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Flood risks to site workers (groundwater, surface water and fluvial from Rowel Brook and Oxford Canal)	Site users (construction workers and plant users) (High)	Local	Temporary	None required.	Negligible

Table 18.2: Summary of Completed Development Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Socio Economics					
Housing delivery	Housing need (High)	Outer Economic Impact Area	Permanent	None required	Major Beneficial
Demand for primary education places	Primary schools (Medium)	Site, Local	Permanent	None required	Major Beneficial
Demand for secondary education places	Secondary schools (High)	Site, Local	Permanent	None required	Major Beneficial
Demand for primary healthcare (GP) facilities	Primary healthcare provision (medium)	Local	Temporary	None required	Minor Adverse
Demand for open space, sport and play provision	Existing open space, sports provision and play (medium)	Site, Local	Permanent	None required	Moderate Beneficial
Demand for community halls	Existing community halls (Medium)	Site, Local	Permanent	None required	Negligible
Employment and labour market	Labour market (medium)	Outer Economic Impact Area	Permanent	None required	Moderate Beneficial
Economy (contribution of non-residential floorspace)	Economy of Outer Economic Impact Area (High) Economy at a National level (Low)	Local, Inner and Outer Economic Impact Area	Permanent	None required	Major Beneficial
Economy (contribution of	Local economy (Low)	Local	Permanent	None required	Minor Beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
employee and resident spending)					
Cultural Heritage					
Erosion of rural setting	Grade II listed buildings Roundham Lock; Bridge 227; Bridge 228; Kidlington Green Lock; Oxford Canal Conservation Area (high)	Off-site	Permanent	The introduction of hedgerows and green corridors will shield and preserve the historical setting; sympathetic design of the Proposed Development. By implementing a considerate design for the route that restricts private car access, it will be possible to minimise the impact on the Oxford Canal Conservation Area and its associated Listed Buildings; the role of the Railway Marshes and the Canal Parkland within the Nature-focused landscape will balance the disturbance related to the new road	Slight adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Erosion of setting; introduction of a road within a quiet and green setting; disruption of some important views	Begbroke Hill Farmhouse (high)	Off-site	Permanent	Sympathetic design of the Proposed Development, as shown in the sections 3.1: Open space and landscape character and 4.1: The Farmstead of the Strategic Design Guidelines, sets out the principles of preservation of the BSP hedge to the north of the farmhouse, creation of two green arteries connecting the Farmhouse to Rowel Brook Park, and the retainment of existing trees and gardens to the east.	Slight adverse
Increased level of traffic	Grade II listed buildings Roundham Lock; Bridge 227; Bridge 228; Kidlington Green Lock; Oxford Canal Conservation Area (high)	Off-site	Permanent	A44 acts as a barrier between these assets and the Proposed Development. Chapter 9: Transport and	Slight adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				Access concluded that there would be no impact on the A44. a Framework Lighting Strategy will ensure that lighting is delivered sensitively, especially adjacent to the green buffer between the development area and Begbroke. Car use will be discouraged through a range of design measures.	
Removal of historic setting, increased level of traffic	semi-detached 19 th -century dwellings on Sandy Lane, Ivy House, Crossing Cottage (low sensitivity)	Off-site	Permanent	None proposed	Slight adverse
Transport					
Severance	Hamilton Road, north Oxford First Turn, north Oxford	Local	Permanent	Adherence to Framework Travel Plan and Framework Delivery	Minor beneficial
Pedestrian delay					Negligible – Minor beneficial
Amenity					
Fear and Intimidation					

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Five Mile Drive, north Oxford			and Servicing Management Plan	
Driver delay	All routes				Minor adverse
Road safety					Moderate beneficial
Noise					
Noise from fixed plant and commercial sources	All (high)	Local	Permanent	Condition required to secure future assessment.	Not significant assuming target levels met
Primary 1 playground sound	31 and 88 Sandy Lane, Stanley Close (High)	Local	Permanent	Acoustic barrier	Not significant
Primary 2 playground sound	128 Woodstock Road (High)	Local	Permanent	N/A	Not significant
	Gravel Pits Lane and 4 Ryder Close (High)	Local	Permanent	Acoustic barrier	Not significant
Secondary: playground sound	Crossing Cottage and Crossing Caravans (High)	Local	Permanent	N/A	Not significant
Primary 1: pitch sound	31 Sandy Lane (High)	Local	Permanent	Acoustic barrier	Not significant
	88 Sandy Lane and Stanley Close (High)	Local	Permanent		Not significant
Primary 2 pitch sound	Gravel Pits Lan (High)	Local	Permanent	Barrier	Not significant
	128 Woodstock Road and 4 Ryder Close (High)	Local	Permanent	N/A	Not significant

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Secondary: pitch sound	Crossing Cottage and Crossing Caravans (High)	Local	Permanent	N/A	Not significant
Air Quality					
Effects of emissions arising from traffic generated by the operation of Proposed Development on human health	Surrounding sensitive uses, e.g. residential properties and schools (High)	Local	Permanent	None	Not significant
Effect of air pollution on new exposure introduced by the Proposed Development	Future sensitive uses on-site, including residential properties and schools (High)	Local	Permanent	None	Not significant
Effects of emissions arising from traffic generated by the operation of Proposed Development on designated ecological sites	Oxford Meadows SAC and SSSI (High) Meadows West of Oxford Canal LWS (High) Wytham Wood (High) Four Ancient Woodland: Church	Local	Permanent	Refer to Chapter 13 of the ES	Refer to Chapter 13 of the ES

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Grove, Godstow Holt and two unnamed sites.				
Climate Change and Greenhouse Gases					
Embodied carbon associated with the in-use stage for the Proposed Development (lifecycle stages B1-B5).	Global atmosphere (High)	Global	Permanent	<p>Commitment to reduce lifecycle embodied carbon by 10% compared to the business-as-usual baseline.</p> <p>A whole life carbon assessment should be undertaken for each building .</p> <p>Consideration should be given for embodied carbon associated with the maintenance and replacement cycle.</p> <p>Minimise the use of materials that require more frequent replacement or refurbishment (such</p>	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				<p>as carpets and flood coverings).</p> <p>Extend the longevity of the materials of the materials (e.g., specifying appliances with extended warranty and lifespan).</p>	
GHG emissions associated with operational energy for the Proposed Development (lifecycle stage B6).				Specify a target year for net zero carbon emissions in operation.	Negligible
GHG emissions associated with operational water consumption (lifecycle stage B7)				<p>Specify water saving devices within the Proposed Development.</p> <p>Specify landscaping that does not require irrigation to reduce unregulated water consumption.</p>	Negligible

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
GHG emissions associated with operational transport				Provide parking spaces that will benefit from active charging facilities for electric vehicles. Where possible, use green routing to optimise route choices of servicing and delivery trips.	Moderate adverse
GHG emissions associated with the end-of- life stage (lifecycle stage C1-C4).				<p>Commitment to reduce lifecycle embodied carbon by 10% compared to the business-as-usual baseline.</p> <p>A whole life carbon assessment should be undertaken for each building .</p> <p>Consideration should be given for embodied carbon associated with the maintenance and replacement cycle.</p>	Minor adverse

Ecology

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Habitat degradation	Oxford Meadows SAC	National	Permanent	None required	Negligible adverse
Habitat degradation	Rushy Meadows SSSI	National		None required	Negligible adverse
Habitat degradation	Other SSSIs	National		None required	Negligible adverse
Habitat degradation	Ancient Woodlands	National		None required	Minor adverse
Habitat degradation and improvements	Lower Cherwell Valley CTA	Local		Detailed LEMP(s) to include detailed measures to achieve and maintain CTA objectives	Moderate beneficial
Habitat degradation	Other non-statutory sites	Local		None required	Negligible adverse
Habitat degradation, Insufficient quality or quantity of retained and new grassland and habitat improvements	Grassland	Local		Footpath design within current and new woodland to maintain some areas without access	Minor beneficial
Habitat degradation and habitat improvements	Woodland	Local		Footpath design to maintain the majority of the length of the Rowel Brook and its	Minor beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				tributary without public access	
Habitat degradation and protection	Hedgerows and ditches	Site		Retained hedgerows and new native hedgerows to be in ownership and layouts that will enable access for management.	Minor beneficial
Habitat degradation	Rowel Brook and Oxford Canal	Local		Footpath design to maintain the majority of the length of the Rowel Brook and its tributary without public access. Detailed LEMP(s) to include ongoing measures to open the tree canopy.	Minor adverse
Habitat degradation	Ponds	Local		None required	Beneficial effect, Site level
Habitat degradation	Isolated trees	Site		None required	Minor adverse
Habitat degradation	Arable plants	Site		Annual cultivation of the arable plants strip to allow these species to persist	Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Killing and injury of individuals	Badger	Local		None required.	Neutral
Degradation of foraging, roosting or commuting habitat; killing or injury	Bats	Site		Implementation of detailed lighting plan	Minor adverse
Disturbance; killing or injury	Water vole	Site		Footpath design to maintain the majority of the length of the Rowel Brook and its tributary without public access. Detailed LEMP(s) to include ongoing measures to open the tree canopy.	Negligible adverse
Killing or injury	Otter	Site			Negligible adverse
	Hedgehog	Site		New fences at the Site to include access to allow species to move between green spaces and between gardens	Minor adverse
Killing, injury or displacement	Brown hare	Site		None required.	Minor adverse
	Breeding birds	Local		Detailed surface water drainage strategy to be	Minor adverse
Degradation of habitat; killing or injury	Great crested newt	Local			Minor adverse

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				designed to be amphibian friendly. Kerbs on all road crossings or adjacent to greenspace to be bullnose or half battered kerbs (rather than straight kerbs)	
Killing or injury	Common toad	Site		None required.	Minor adverse
Degradation of habitat	Brown hairstreak butterfly	Site		Hedgerows and scrub at the site to be subject to conservation management, set out in detail in the detailed LEMP(s). These habitats not to be trimmed more than one year in three, to minimise destruction of overwintering eggs	Minor beneficial
Killing, injury or displacement	Reptiles	Local		None required.	Minor Beneficial
Change in biodiversity value of the Proposed	BNG	Site		None required.	Moderate beneficial

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Development (compared with the predicted value)					
Agriculture and Soils					
<i>None identified.</i>					
Ground Conditions and Contamination					
Exposure to contamination associated with historical and current land use	On-site future site users (High)	Site	Temporary		Negligible beneficial
	Off-site users of surrounding area (High)				
Exposure to ground gas associated with historical and current land use	On-site future site users (High)	Site	Temporary		Moderate beneficial
	Off-site users of surrounding area (High)				Negligible beneficial
Increased mobilisation of chemical contaminants into surface water and/or groundwater	Surface water (Medium)	Local	Permanent		Moderate / minor beneficial
	Groundwater (Medium)				Moderate / minor beneficial
Alteration of groundwater flow regime in relation to the baseflow to surface water features	Rushy Meadows SSSI (High)	Local	Permanent		Negligible adverse
	Surface water (Medium)				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Degradation of plastic pipes from contaminants	Plastic pipes (Negligible)	Local	Permanent		Negligible adverse
Permeation of water supply pipes from contaminants	Human Health (High)	Local	Permanent		Negligible adverse
Aggressive ground conditions	Below ground infrastructure (Negligible)	Local	Permanent		Negligible beneficial
Effects to proposed new landscaped areas from the release of any potential contamination	New landscaped areas (Low)	Local	Permanent		Negligible beneficial
Water Resources, Flood Risk and Drainage					
Pollutants contained in surface water	Oxford Canal (High)	Local	Permanent	None required.	Negligible
	Rowel Brook (High)				
	Rushy Meadows SSSI including Thrupp Ditch (High)				
	Pixey and Yarnton Meads SSSI, Wolvercote Meadows SSSI, and Port Meadow with Wolvercote Common & Green SSSI				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	(including Oxford Meadows SAC (High))				
	Science Park Pond (High)				
	Northern Ponds (High)				
	Pond in Yarnton (High)				
	Off-site Southern Ponds (High)				
	Off-site Western Ponds (High)				
	Eastern Drainage Ditches (High)				
	Southern Drainage Ditch (Low)				
Flood risk - change to runoff rates	Future on-site water surface infrastructure (capacity) (Medium)	Local	Permanent	None required.	Minor Adverse
Increased foul water drainage demand	Water services infrastructure - foul (Medium)	Local	Permanent	None required.	Minor Adverse
Increased potable water demand	Water services infrastructure - foul (Medium)	Local	Permanent	None required.	Minor Adverse
Flood risk to site users	Future site users (Medium)	Local	Permanent	None required.	Minor Adverse

Landscape effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Effects on character of landscape receptors	LCT 8. Lowland Village Farmlands / LoCA I. Begbroke (Medium - High)	Local	Permanent	None required.	Major Adverse
	LCT 1. Alluvial Lowland / LoCA D. Yarnton (Medium - High)				Major to Slight Neutral Adverse
	LCT 19. Woodland Estatelands / LoCA F. Bladon (Medium - High)				Moderate to Minimal Adverse
	LCT 4. Estate Farmlands / LoCA C. Woodstock (Medium - High)				Minimal Neutral
Visual effects					
Change in views on visual receptors	The Site north-west of Cherwell Valley Railway Line and the northern extent of Yarnton (Medium - High)	Local	Permanent	None required.	Major Adverse – Moderate Neutral
	The Site south-east of Cherwell Valley Railway Line (Medium - High)				Moderate Neutral

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Land west of the A44, Begbroke Wood and Spring Hill (Medium - High)				Moderate Adverse to Minimal Neutral
	Lane north of Begbroke Lane (Medium - High)				Minimal Neutral
	South Yarnton (Medium - High)				Moderate Adverse to Minimal Neutral
	Users of A44 (Low)				Slight Adverse to Minimal Neutral
	Users of Cherwell Valley Railway Line (Medium)				Moderate Adverse to Minimal Neutral
	Users of Oxford Canal Walk (High)				Moderate Adverse to Minimal Neutral
	Users of Shakespeare's Way (High)				Moderate Adverse to Minimal Neutral

Table 18.3: Summary of Cumulative Effects – Construction

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Socio Economics					
Construction employment	Construction industry (low)	Outer Economic Impact Area	Temporary	None Required	Negligible
Cultural Heritage					
No cumulative effects.					
Noise and Vibration					
Cumulative Construction Noise with Former Piggery	105 Woodstock Road (High)	Local	Temporary	None required	Not significant
Cumulative Construction Noise – Site and with PR9 Development	204 and 226 Woodstock Road (High)	Local	Temporary	None required	Not significant
Cumulative Construction Noise – Site and Yarnton /Sandy Lane Crossings	Crossing Caravans and Crossing Cottages (High)	Local	Temporary	Liaison between contractors to minimise adverse effects, temporary barriers	Not significant
Construction Vibration	All (High)	Local	Temporary	None required	Not significant
Air Quality					
No significant cumulative effects.					
Climate Change and Greenhouse Gases					
No significant cumulative effects.					
Agriculture and Soils					

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Loss of BMV land from change of use from agricultural to other land uses	BMV agricultural land in ALC Grades 1, 3 and 3a	National	Permanent	None	Very large adverse
Ground Conditions and Contamination					
None					
Water Resources, Flood Risk and Drainage					
Poor water quality resulting from construction activities	Water quality - all water bodies	Local	Temporary	None	Negligible
Landscape Effects					
No cumulative effects.					
Visual Effects					
No cumulative effects.					

Table 18.3: Summary of Cumulative Effects – Completed Development

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Socio-Economics					
Housing delivery	Housing need (high)	Outer Economic Impact Area	Permanent	None required	Major Beneficial
Social infrastructure demand and delivery	Existing social infrastructure (medium)	Outer Economic Impact Area	Temporary	Appropriate mitigation to be secured through appropriately worded Section 106 or CIL	Negligible

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
				spending, according to local priorities and in accordance with Regulation 122 of the CIL regulations.	
Employment creation	Employment and labour market (medium)	Outer Economic Impact Area	Permanent	None required	Major Beneficial
Additional spending	Economy (low)	Outer Economic Impact Area	Permanent	None required	Minor Beneficial
Cultural Heritage					
No cumulative effects.					
Transport					
Severance	Yarnton Rd, Cassington Yarnton Rd, north of Cassington Yarnton Road, west of Yarnton Moreton Road, north Oxford A4165 Banbury Road Bell Lane, Cassington A4144 Woodstock Rd A4144 Woodstock Rd, near Wolvercote Roundabout Five Mile Drive, north Oxford	Local	Permanent	N/A	Minor adverse – Negligible and Minor beneficial
Pedestrian delay					
Amenity					
Fear and intimidation					

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
Driver delay	All routes				Minor adverse
Road safety					Moderate beneficial

Noise and Vibration

Operational Road Traffic	All	Local	Temporary	None required	Not significant
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Air Quality

Effects of emissions arising from traffic generated by the operation of Proposed Development and cumulative PR sites on human health	Surrounding sensitive uses, e.g. residential properties and schools (High)	Local	Permanent	None required	Not significant
In combination effects of emissions arising from traffic generated by the operation of Proposed Development and PR sites on designated ecological sites	Oxford Meadows SAC and SSSI (High)	Local	Permanent	See Chapter 3 of the ES	

Climate Change and Greenhouse Gases

No cumulative effects.

Ecology

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
No cumulative effects.					
Agriculture and Soils					
No cumulative effects.					
Ground Conditions and Contamination					
No cumulative effects					
Water Resources, Flood Risk and Drainage					
Pollutants contained in surface water	Water quality - all water bodies	Local	Permanent	None required	Minor adverse
Increased off-site flood risk	(High)	Local	Permanent	None required	Minor adverse
Increased potable water demand	Future site users (Medium)	Local	Permanent	Continued early engagement with Thames Water on the water needs for proposed cumulative developments and any current restrictions and the need for any upgrades.	Minor adverse
Increased foul water drainage demand	Water services infrastructure - supply (Medium)	Local	Permanent		Minor adverse
Landscape and Visual Impact Assessment					
Landscape Effects					
No greater than the cumulative effects stated in Table 17.2 (with the exception of the below schemes).					
Effects on character of landscape receptors	LCT 1. Alluvial Lowland / LoCA D. Yarnton (Medium - High)	Local	Permanent	None required.	Major Adverse.
	LCT 19. Woodland				

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Mitigation and Monitoring	Likely Residual Effect
	Estatelands / LoCA F. Bladon (Medium - High)				

Visual Effects

No greater than the cumulative effects stated in Table 17.2 (with the exception of the below schemes).

Change in views on visual receptors	Effects on VRG 3	Local	Permanent	None required.	Major Adverse
	Effects on Shakespeare's Way				Major – Moderate Adverse

18.2 Monitoring

- 18.2.1 Outside standard good practice site monitoring requirements during construction works (which will be included within the CEMP), no further environmental monitoring requirements are identified.
- 18.2.2 The CEMP will be prepared and will include monitoring prescriptions during the construction phase for dust, noise and vibration. Details of monitoring techniques, duration and extent will be agreed with CDC once the Principal Contractor is appointed, and the final construction method is confirmed.