20. SUMMARY

Introduction

20.1 This Chapter summarises the mitigation measures and residual significant effects identified in each of the Technical Chapters within this ES.

Mitigation Measures

Design Interventions

20.2 The Development has been subject to an iterative design process. Measures have been incorporated into the Proposed Development in order to avoid, reduce or offset significant environmental effects. The submitted plans for the Proposed Development (**Figure 4.1 – 4.13**) include the embedded mitigation.

20.3 Using the information provided within the Technical Chapters, **Table 20.1** provides a summary of the design measures which have been proposed to avoid and reduce adverse impacts.

Table 20.1 – Design Measures

Topic	Design Interventions
7: Landscape and Visual Impact	The inherent design mitigation that has informed the site layout includes locating the stadium building as far south within the Site as possible, without impacting on the existing woodland block in the south of the Site. This protects this key landscape feature that is designated as a priority habitat under Section 41 of the NERC Act, whilst retaining an open green space in the north of the Site to maintain an open green space between the Proposed Development and the southern edge of Kidlington. The landscaping strategy for the Site is to provide a landscape setting to the proposed stadium. The landscape proposals within the central field within the Site are set back from the Priority Habitat/District Wildlife Site woodland block adjacent to the southern boundary of the Site and retain the trees/vegetation along the northern boundary, including the five Poplars subject to a TPO. The hedgerows and trees along the western and eastern boundaries of the central field are partially retained. The trees and sections of hedgerow identified for removal along these boundaries are required to facilitate the proposed vehicular and pedestrian/cycle accesses to the Site and include the removal of the two Oak trees subject to a TPO. Within the central part of the field, the existing planting associated with the commercial willow farm operation will be removed to facilitate the construction of the stadium, associated infrastructure and public realm. The vegetation along the Oxford Road and Frieze Way corridors within the Site are predominantly retained. The proposed stairs down from Oxford Road to Oxford Parkway Station would see some vegetation loss within the embankment to facilitate this access. The Arboricultural Impact Assessment identifies the proposed removal of 17 individual trees (one Category A, four Category B, 10 Category C and 2 Category U) of varying maturity and the removal of five tree groups (one Category B and four Category C) and the partial loss of two groups to facilitate

	the Proposed Development. The retention of the existing mature trees along the northern boundary and the partial retention of the existing trees on the eastern and western boundaries help to retain a mature landscape setting for the Proposed Development alongside the existing woodland to the south of the Site. The majority of trees to be removed are categorised as 'C'. The Proposed Development therefore provides the opportunity to significantly increase the overall number of trees, the range of species (and associated ecological benefits) and improve the age-structure of the tree stock. 143 new trees would be planted within the Site, including 81 trees of extra heavy standard or above, approximately 2,000m2 of scrub planting and 350 linear metres of native hedgerow. Replacement and additional trees will be planted as early as feasible within the construction programme to enable their rapid establishment. New planting will be selected to create a strong and legible landscape structure and will include a broad range of species to improve the biodiversity and resilience of the planting to climate change. The proposed building facades will comprise of materials, finishes and hues which are evident in the local landscape and townscape and of relevance to OUFC.
8: Ecology and Nature Conservation	Embedded mitigation in the design relates to the landscape design, described above, and include: • The protection of the adjacent woodland. • Creation of species-rich wildflower grassland and species-rich amenity grassland, and if deemed necessary, a transplantation exercise of those plants that are of greater conservation value to dedicated areas left for biodiversity. • New native tree and hedgerow planting is proposed of a length/area greater than lost. • Creation of a pond and attenuation features; • Creation of new scrub habitat and hedgerows which will include Blackthorn. • New bird nest boxes and bat boxes will be provided on suitable retained trees within the Site. • Log piles will be created within areas of open space. • Three areas of biodiverse roof are proposed on parts of the north, east and south stands and a green wall is proposed on the northeastern elevation of the stadium to provide additional opportunities for ecological enhancement.
9: Cultural Heritage and Archaeology	N/A
10: Transport and Access	The Proposed Development seeks to promote the use of sustainable transport measures. In respect of the design of the Proposed Development, the following is proposed: • Vehicle access via a new junction on Freize Way to the north of Stadium and an egress on to Freize Way south of the stadium. • 150 cycle parking spaces on site (with access to further spaces at Oxford Parkway), including electric bike charging. • New and improved pedestrian and cycle routes to/from the Stadium from/to Oxford Parkway, which also connect to the committed pedestrian and cycle routes at Kidlington Roundabout and on Oxford Road. The improvements will include signage and lighting. • Crossing facilities (TOUCAN) across Oxford Road. • Crossing facilities (TOUCAN) across Frieze Way. • A new stepped access to Oxford Parkway from Oxford Road. • New bus stops on Oxford Road
11: Noise and Vibration	The stadium is designed as a 'wraparound' bowl which will contain noise within it. The detailed design will be developed to maximise this containment

	effect and minimise noise spillage outside of the stadium. Detailed design for fixed plant and PAVA systems to ensure background noise levels are not exceeded.
12: Air Quality	N/A
13: Lighting	Design criteria have been set out in the Lighting Chapter which will ensure that the levels of obtrusive light are acceptable in respect of external lighting (including field of play lighting), façade illumination, illuminating advertising, and internal lighting. Detailed lighting design will follow these criteria.
14: Flood Risk and Drainage	The Proposed Development includes the provision of a SuDS based drainage system comprising of filter drains, rain gardens and two attenuation ponds. Two storage ponds and geo-cellular ground surface storage will provide flow attenuation. One pond will be positioned directly south of the stadium receiving runoff from the western part of the Site. The second pond will be located south-west of the stadium and will receive the runoff from the remainder of the Site and the stadium roof. Groundwater management such as lining features with impermeable membranes will be used to ensure that available storage is not reduced by groundwater ingress. Rain gardens will be located within the car park area together with a combination of filter drains, filter strips and swales providing further attenuation.
15: Socio-Economics	N/A
16: Climate Change	In respect of CHG emissions, the Applicant has developed a 'customised' Sustainability Framework, which is designed to optimise sustainability performance for the Proposed Development. The Sustainability Framework is a working document and will continue to evolve through the design, construction and operation stages of the development; however, it demonstrates the commitment of OUFC to deliver a number of measures across the site. A low and zero carbon technology feasibility study is being undertaken to implement energy efficient equipment and technology and will be available in further design stages. Specific mitigation measures in relation to climate resilience have been identified in the Climate Change Chapter which will be applicable at detailed design stage.
17: Waste	N/A
18. Major Accidents and Disasters	Technical, physical and operational measures recommended to mitigate against terrorism will be applicable at the detailed design stage, including preparation of security strategy.

Construction Phase Mitigation Measures

20.4 Using the information provided within the Technical Chapters, **Table 20.2** provides a summary of the mitigation measures which have been proposed to avoid and reduce adverse impacts during the construction phase. More detail in respect of this will be provided through the submission of a Construction Environmental Management Plan (CEMP), which will set out the management practices and measures contractors should adhere to on site, and can be secured via condition.

Table 20.2 – Construction Mitigation/Enhancement Measures

Topic	Construction Mitigation/Enhancement Measures
7: Landscape and Visual Impact	The CEMP should include measures to ensure that all landscape works would be carried out in accordance with best practice procedures to, as far as practicable, avoid, minimise or remedy any adverse impact on the landscape fabric, landscape character and visual amenity during the construction phase. Measures would be put in place to protect existing landscape features (such as trees and hedgerows to be retained) including the erection of site security

	hoarding/fencing. The location, extent and height of the contractor's compound / office should be determined in consultation with the contractor and landscape consultant, in order to reduce the landscape and visual impact of these elements as much as possible. All cabins and storage mounds will be as low as possible to minimise the visual effects of these elements. The contractors' cabins are to be of a muted and visually recessive colour to minimise the visual effect of these temporary elements in localised views.
8: Ecology and Nature Conservation	The CEMP should include: • Implementation of best practice methods and effective engineering solutions to ensure that contaminated run-off is prevented from entering ditches as well as new attenuation features. • Appropriate safeguarding measures to prevent impacts arising from pollution. • Measures to mitigate dust. • All retained hedgerows within the site to be fenced at canopy height. • Woodland to be fenced. • Measures to safeguard badgers including checks and providing means of escape from trenches if left overnight. • Construction lighting to be angled away from suitable habitat. • Vegetation clearance to be undertaken outside of nesting season or after appropriate checks
9: Cultural Heritage and Archaeology	A staged programme of archaeological works prior to construction activities will be secured via condition. These works will be undertaken in accordance with a brief issued by the archaeological advisors to the LPA. No further pre-determination archaeological investigations are required to inform the determination of the application.
10: Transport and Access	A draft Construction Traffic Management Plan (CTMP) has been submitted which includes measures to be adopted in this case. The detail of the CTMP to be conditioned and will outlines agreed routes to and from the Site for construction vehicles, together with details of any relevant mitigation measures, designed to minimise any effects associated with the construction works. This will also include relevant signage in the surrounding area and wheel washing facilities to be provided on site, to minimise material left on the roads frequently used by HGVs.
11: Noise and Vibration	Construction activities will be undertaken in accordance with good practice set out in BS 5228-1/2:2009+A1:2014. The CEMP will incorporate measures to reduce noise and vibration, which may include the following: • Selecting quiet equipment; • Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions; • Members of the construction team should be trained and advised during tool box briefings on quiet working methods; • Equipment shall not be left running unnecessarily; • Equipment shall be fitted with silencers or mufflers; • Use plant enclosures whenever feasible; • Careful orientation of plant with directional features; • Materials shall be lowered instead of dropped from height; • Inform nearby sensitive receptors in advance of construction activities and keep them up to date with progress and changes; • Give nearby sensitive receptors a site contact telephone number; the contact should liaise with residents and maintain good support; • Manage deliveries to prevent queuing of site traffic at access points; and, • Use of adjustable or directional audible vehicle-reversing alarms or use of alternative warning systems (for example white noise alarms).
12: Air Quality	Implementation of a Dust Management Plan as part of the CEMP, which should set out measures for controlling dust and general pollution from site construction operations. This should include measures in respect of communications, site management, monitoring, site preparation and

	maintenance, operating vehicle/machinery and sustainable travel, operations, waste management, and measures specific to construction and trackout, as set out in the Air Quality Chapter.
13: Lighting	The CEMP will include a suitable construction phase lighting strategy which will include the specific limits and design measures for construction task lighting as well as security lighting identified in the Lighting Chapter.
14: Flood Risk and Drainage	The CEMP will include best practice and site-specific measures to control flood risk and drainage. These measures should include: • Maintaining a buffer between construction works activity, compound and stockpiles, and any part of surface water drainage system to prevent sediment and construction materials entering drains and watercourses. • Ensure clearance and repairs to drainage culvert under A4260. • Construction Method Statements to plan and manage in-channel and near-channel works. • Temporary drainage systems will be installed early in the construction programme to alleviate localised flood risk and prevent obstruction of surface runoff pathways. • A network of pre-earthworks/cut-off drains will be installed to keep runoff from the natural catchment separate from construction site runoff.
15: Socio-Economics	N/A
16: Climate Change	Compliance with the CEMP, which will give consideration to construction stage operational emissions.
17: Waste	*Material resource use* Best practice and mitigation measures to be incorporated into the CEMP include: • Materials will be delivered on a just-in-time basis to avoid damage or contamination that would lead to waste generation. • All suitable excavated material would be reused in the construction of the Proposed Development and in landscaping features along the stadium, wherever feasible. • Where site won material is not available or suitable for reuse, secondary or recycled materials would be procured, where available. • Use of locally sourced materials and suppliers, where possible. • Precast elements to be used where feasible. • The waste hierarchy and circular economy principles would be implemented throughout the construction phase to maximise reuse and recycling of material. • A Materials Management Plan. Other measures include: • A Resource Management Plan (RMP) will be produced to outline the procurement requirements for reused, recycled and locally sourced materials. • The proportion of suitable refurbishment waste either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling exceeds 75%. • Specific targets have been set at both building and development level for responsible sourcing in line with industry best practice. • A circular economy workshop with the design team will ensure consideration of resource efficiency, use of renewable materials and waste minimisation in design. • The UN's Sustainable Development Goals is a focal point in procurement, construction, development and operation. *Mitigation measures for generation and management of waste*

	• Good practice measures including the preparation of a Site Waste Management Plan (SWMP) • The route map for zero avoidable waste in construction and/or the Zero Waste hierarchy will be applied. • An RMP will provide specific targets for resource efficiency and diversion from landfill.
18. Major Accidents and Disasters	Regulatory compliance and compliance with the CEMP.

Operational Phase Mitigation Measures

20.5 Using the information provided within the Technical Chapters, **Table 20.3** provides a summary of the mitigation measures which have been proposed to avoid and reduce adverse impacts during the operational phase, as well as proposed enhancement measures.

Table 20.3 – Operation Mitigation/Enhancement Measures

Topic	Operation Mitigation/Enhancement Measures
7: Landscape and Visual Impact	The Design and Access Statement provides measures for the ongoing management of the landscape proposals. A Landscape and Ecological Management and Maintenance Plan, or equivalent, will be secured by condition to ensure the proposed planting and other landscape mitigation is established and maintained in line with the proposed strategy.
8: Ecology and Nature Conservation	Species-rich grassland will be subject to a suitable management regime to increase its floristic diversity. A Landscape and Ecological Management and Maintenance Plan, or equivalent, will be secured by condition to ensure the proposed planting and other landscape mitigation is established and maintained in line with the proposed strategy.
9: Cultural Heritage and Archaeology	N/A
10: Transport and Access	Delivery of embedded mitigation and off-site highway improvements. Implementation of the following measures as part of the transport strategy: • Match Day and Non Match Day Interim Travel Plans. • Shuttle bus services to/from the Park & Ride sites around Oxford on match days (aligned to demand/ticket sales). • Increased frequency and longer operating hours of public bus services to the Stadium on match days if demand/ticket sales require. • Traffic Management Plan: The following traffic management measures are being proposed on match days: - Traffic management on Oxford Road for at least 30 minutes before and after a match. Key bus services and coaches marshalled through Oxford Road during periods of lighter pedestrian flows. - Controlled Match Day Parking Zones up to 2km from the Stadium in Kidlington and North Oxford. - Variable Message Signage on radial routes to the Stadium advising of football match and availability of Park and Ride car parks.
11: Noise and Vibration	• The PAVA systems will be designed to ensure that public address announcements do not exceed the existing background noise levels. • Fixed plant installations will be mitigated by design to ensure that background noise levels are not exceeded. • Noise Management Plan for larger non-football events.

12: Air Quality	N/A
13: Lighting	As set out above, detailed design must meet the criteria and levels within Lighting Chapter to ensure that levels of obtrusive light are acceptable in respect of external lighting (including field of play lighting), façade illumination, illuminating advertising, and internal lighting.
14: Flood Risk and Drainage	Implementation and ongoing management of SuDS features. Best practice measures to include: • Environmental Management Plan (EMP) include best practice and site-specific measures to control flood risk and drainage. • The design of the buildings shall incorporate, where possible, flood resilience and flood resistance measures. • Finished external levels will be designed to direct surface water away from the proposed building to low risk areas of the site such as the car park and public open spaces. Boundary features such as walls/bunds will help to retain flows within these areas until the pressure on the network has subsided and the area can be drained. Vulnerable buildings will have raised thresholds to provide further protection in the event of extreme storm events, groundwater emergence or network failure. • In addition to the embedded SuDS measures, detailed drainage design should consider additional drainage approaches as part of the overall SuDS system, including green roofs, permeable paving, swales and filter strips, where advantageous and beneficial to the design.
15: Socio-Economics	N/A
16: Climate Change	• Minimising emissions from match day activities like energy and water use, waste generation, and food consumption. Energy efficient technologies, renewable energy sources, robust waste management processes, and sustainably sourced, low carbon food and beverage options should be implemented where possible. • Changes to fan travel patterns through improving public transport links, providing incentives for car sharing, cycling and walking, and discouraging single-occupancy car use through parking restrictions. • Careful planning and integration of emissions reduction measures across all aspects of travel, operations, resource use and procurement. • Climate resilience measures include monitoring the response of the Proposed Development to extreme climate events and seasonal trends, the upgrading of assets to tolerate changing temperatures and precipitation patterns, and the amendment of the operation of the site to ensure the safe working environments and use by staff, players and visitors.
17: Waste	• Operation of the stadium with zero plastic, with minimal waste and packaging, in line with UEFA's Football Sustainability Strategy 2030 to achieve zero plastic waste (to landfill) in the food and beverage sector. • The 360 Sustainability Framework will aim to: - Reuse and direct recycling of material - Apply zero waste hierarchy - Adequate external storage space for bins and recycling • An Operational Waste Management Strategy (OWMS) will be produced by the club which will provide an estimate of the anticipated waste generation during operation. The OWMS will provide guidance on how to allow waste to be disposed, stored and managed in a sustainable manner. • The recycling target of the waste generated by the Proposed Development will be 75%. • Good practices for recycling of waste generated will be incorporated that includes:

	- Composting of green waste. - Source segregation of dry recyclables. - Treatment of food waste by anaerobic digestion process or by composting • Sufficient waste storage options will be provided. • The Proposed Development will have a waste management contract with a waste management service provider to help manage the waste generated.
18. Major Accidents and Disasters	Preparation of a Security Strategy which sets out security mitigation measures.

Residual Significant Effects

20.6 Each Technical Chapter includes a summary of effects at the end of the Chapter, which can be found at the following locations:

- Chapter 7: Landscape and Visual – **Table 7.6;**
- Chapter 8: Ecology and Nature Conservation – **Table 8.6;**
- Chapter 9: Cultural Heritage and Archaeology – **Table 9.6;**
- Chapter 10: Transport and Access – **Table 10.17;**
- Chapter 11: Noise and Vibration – **Table 11.12;**
- Chapter 12: Air Quality – **Table 12.30;**
- Chapter 13: Lighting – **Table 13.56;**
- Chapter 14: Flood Risk and Drainage – **Table 14.6;**
- Chapter 15: Socio-Economics – **Table 15.9;**
- Chapter 16: Climate Change – **Table 16.16 and 16.17;**
- Chapter 17: Waste **– Table 17.23; and**
- Chapter 18: Major Accidents and Disasters – **Table 18.2.**

20.7 **Table 20.4** below includes an overall summary table of the **residual significant effects** identified in each Technical Chapter. With the exception of the effects identified, no other residual significant effects are identified in the Technical Chapters included in **Table 20.4.**

20.8 **No residual significant effects** are anticipated in relation to Cultural Heritage and Archaeology (Chapter 9), Noise and Vibration (Chapter 11), Air Quality (Chapter 12), Lighting (Chapter 13), Flood Risk and Drainage (Chapter 14), Climate Change (Chapter 16), Waste (Chapter 17) and Major Accidents and Disasters (Chapter 18).

Table 18.4 – Summary of Significant Residual Effects

Topic	Effect	Receptor	Significant Residual Effect
Construction			
Landscape and Visual Effects	Effects on contextual landscape	County/District LCA F: Peartree Hill	**Moderate-Minor adverse**
	Effects on contextual landscape	Contextual Townscape Elements	**Moderate adverse**

	Effects on site landscape	Landform and drainage	**Moderate adverse**
	Effects on site landscape	Vegetation cover	**Moderate adverse**
	Effects on site landscape	Cultural/social	**Major adverse**
	Effects on site landscape	Perceptual and aesthetic	**Major adverse**
	Effects on site landscape	Landscape character	**Major adverse**
	Effects on site landscape	Night-time character	**Moderate adverse**
	Visual effects	Visual Receptor – Residential: Hazel Crescent/South Avenue, Kidlington	**Moderate adverse**
	Visual effects	Visual Receptor - A4165/A4260 Oxford Road to the east of the Site	**Moderate adverse**
	Visual effects	Visual Receptor - Users of PRoW Footpath 229/4/30 to the east of the Site	**Moderate adverse**
	Visual effects	Visual Receptor - Users of PRoW Footpaths 229/10/10 and 229/10/30 to the southwest and south of the Site	**Moderate adverse**
	Visual effects	Visual Receptor - Users of PRoW Bridleways 229/5/40, 229/9/10, 229/9/20 and 229/9/30 to the east of the Site	**Moderate adverse**
	Visual effects	Visual Receptor - Stratfield Brake to the west of the site including the permissive routes vehicular access/car park and sports pitches	**Moderate adverse**
Operation			
Landscape and Visual Effects	Effects on contextual landscape	County/District LCA F: Peartree Hill	**Moderate-Minor adverse** (year 1) (not significant year 15)
	Effects on contextual landscape	Contextual Townscape Elements	**Moderate-Minor adverse** (year 1)
			Moderate-Minor adverse (year 15)
	Effects on site landscape	Landform and drainage	**Moderate adverse** (year 1) (not significant year 15)
	Effects on site landscape	Vegetation cover	**Minor-Moderate Beneficial** (year 15)
	Effects on site landscape	Cultural/social	**Major-Moderate adverse** (year 1)
			Moderate adverse (year 15)
	Effects on site landscape	Perceptual and aesthetic	**Moderate adverse** (year 1)
			Moderate-Minor adverse (year 15)
	Effects on site landscape	Landscape character	**Moderate adverse** (year 1)
			Moderate adverse (year 15)
	Effects on site landscape	Night-time character	**Moderate-Minor adverse** (year 1)
			Moderate-Minor adverse (year 15)

	Visual effects	Visual Receptor - Users of PRoW Footpath 229/4/30 to the east of the Site	**Moderate adverse** (year 1)
			Moderate-Minor adverse (year 15)
	Visual effects	Visual Receptor - Stratfield Brake to the west of the site including the permissive routes vehicular access/car park and sports pitches	**Moderate adverse** (year 1)
			Moderate – Minor adverse (year 15)
Ecology and Nature Conservation	Loss of Habitat	Willow plantation and neutral grassland	**Minor-Moderate beneficial**
	Loss of foraging Ground/ suitable Habitat	Bats	**Minor-moderate beneficial**
		Invertebrates - brown hairstreak	**Moderate beneficial**
Transport	Pedestrian Delay	Frieze Way	**Moderate beneficial**
	Non-motorised user amenity		**Moderate beneficial**
	Pedestrian Delay	Oxford Road	**Moderate beneficial**
	Non-motorised user amenity		**Moderate beneficial**
	Driver Delay	Banbury road N and S, Elsfield Way and A40 North Way	**Moderate/Minor adverse (temporary)**
Socio Economics	Labour Market	Local Population (District and sub-regional)	**Moderate beneficial at District Level**
	Deprivation	Local Population (Local and District)	**Moderate beneficial**
Cumulative Effects			
Landscape and Visual Impact	Effects on contextual landscape	County/District LCA F: Peartree Hill	**Moderate-Major adverse**
	Effects on contextual landscape	County/District LCA D: Yarnton	**Moderate adverse**
	Effects on contextual landscape	Contextual Townscape Elements	**Moderate-Major adverse**
	Visual effects	Visual Receptor - Stratfield Brake to the west of the site including the permissive routes vehicular access/car park and sports pitches	**Moderate-Minor adverse**
Lighting	Potential change to the environmental zone of the area surrounding the site from E2 to E3 if all of the planned development comes forward.	All lighting receptors	**Moderate adverse**
Socio-economics	Employment (on-site)	Local population (District)	**Moderate beneficial**
	Labour Market	Local Population (District and sub-regional)	**Moderate beneficial**
	GVA	Economic performance (District)	**Moderate beneficial**
	Open space provision	Local population (local)	**Moderate beneficial**
	Deprivation	Local population (local)	**Moderate beneficial**