CASCADE

Richmond Education and Enterprise Campus Development

Environmental Statement

Volume 2 – Environmental Statement

Produced for Richmond upon Thames College

June 2015

In association with:

TPP entran RMS ENVIRONMENTAL nlp Nathaniel Lichfield & Partners waterman oxfordarchaeology

and **Anglia Consultants**

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ABBREVIATIONS AND GLOSSARY

AADT	Annual Average Daily Traffic
ADF	Average Daylight Factor
ADMS	Atmospheric Dispersion Modelling System
AGS	The Association of Geotechnical and Geoenvironmental Specialists
AIA	Arboricultural Impact Assessment
AOD	Above Ordinance Datum
APA	Archaeological Priority Area
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
AQOs	Air Quality Objectives
Aquifer	A body of permeable rock which can contain or transmit groundwater.
As	Arsenic
ATCs	Automatic Traffic Counters
AURN	Automatic Urban and Rural Monitoring Network
AVR	Accurate Visual Representation
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BGS	British Geological Survey
BRE	Building Research Establishment
C_6H_6	Benzene
CA	Conservation Area
Cd	Cadmium
CEMP	Construction Environment Management Plan
CFMP	Catchment Flood Management Plan
CHP	Combined Heat and Power
CIEEM	Chartered Institute of Ecology and Environmental Management

CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment
CLP	Construction Logistics Plan
CLR	Contaminated Land Report
CMP	Construction Management Plan
CO	Carbon monoxide
Contaminated Land	The presence of substances in, on or under the land, that have the potential to cause harm, whether this is to the environment (i.e. groundwater or controlled waters) or to human health.
CPZs	Controlled Parking Zones
CRoW	Countryside and Rights of Way
Cumulative Effects	Effects that occur from the combined impacts of changes caused by one or more developments on specific areas or sensitive receptors.
DEFRA	Department for Environment, Food & Rural Affairs
DMP	Development Management Plan
DMRB	Design Manual for Roads and Bridges
DPDs	Development Plan Documents
EA	Environment Agency
EcIA	Ecological Impact Assessment
EFA	Education Funding Agency
Effects	The change experienced by sensitive receptors as a result of impacts.
EFT	Emissions Factors Toolkit
EIA	Environmental Impact Assessment
EIC	Environmental Industries Commission
EPUK	Environmental Protection UK
EQS	Environmental Quality Standards
ES	Environmental Statement
FALP	Further Alterations to the London Plan

FD	Floods Directive
FORCE	Friends of the River Crane Environment
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GAC	Generic Assessment Criteria
GEA	Gross External Area
GEART	Guidelines for the Environmental Assessment of Road Traffic
GLA	Greater London Authority
GLHER	Greater London Historic Environment Record
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GSVs	Gas Screening Values
GVA	Gross Value Added
Hg	Mercury
HGVs	Heavy Goods Vehicles
HSE	Health and Safety Executive
IAQM	Institute of Air Quality Management
IEMA	The Institute of Environmental Management & Assessment
IHT	Institution of Highways & Transportation
ILE	Institution of Lighting Engineers
IRB	International Rugby Board
LAeq	A-weighted, equivalent sound level. A widely used noise parameter describing a sound level with the same energy content as the varying acoustic signal measured.
LAQM	Local Air Quality Management
LBRuT	London Borough of Richmond upon Thames
LDF	Local Development Framework
LEA	Local Education Authority
LEZ	Low Emission Zone
LGVs	Light Goods Vehicles

LLFA	Lead Local Flood Authority
LNRs	Local Nature Reserves
MEDSL	The Mayor's Economic Development Strategy for London
MOL	Metropolitan Open Land
MSOA	Middle Layer Super Output Area
MUGA	Multi Use Games Area
NERC	Natural Environment and Rural Communities
Ni	Nickel
NNRs	National Nature Reserves
NO2	Nitrogen dioxide
NPL	National Physical Laboratory
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	Noise Policy Statement
O_3	Ozone
ONS	Office of National Statistics
OPA	Outline Planning Application - A general application for planning permission to establish that a development is acceptable in principle, subject to subsequent approval of detailed Reserved Matters.
PAHs	Polycyclic aromatic hydrocarbons
Pb	Lead
PEM	Project Environmental Manager
PFRA	Preliminary Flood Risk Assessment
PM_{10}	Particulate Matter up to 10 micrometers in size
$PM_{2.5}$	Particulate Matter smaller than 2.5 micrometers in size
PPV	Peak Particle Velocity
PRoW	Public Rights of Way
PTAL	Public Transport Accessibility Level
PVI	Private, voluntary and independent

RBMP	River Basin Management Plans
REEC	Richmond Education and Enterprise Campus
REMA	Revised Early Minor Alterations
Reserved Matters	Those planning matters for which approval is not being sought as part of the Outline Planning Application, and for which approval will be sought as part of one or more Reserved Matters Applications.
Residual Effects	Effects predicted to remain after the application of mitigation measures.
RFC	Ratio to Flow Capacity
RFRA	Regional Flood Risk Appraisal
RIGS	Regionally Important Geological Sites
Ruderal	Plant species that colonized land where the natural vegetation cover has been disturbed by humans.
RuTC	Richmond upon Thames College
SAC	Special Area of Conservation
Semi-improved grassland	A transition category made up of grasslands which have been modified, and consequently have a range of species which is less diverse and natural than unimproved grasslands.
Semi-natural woodland	Locally native trees and shrubs which generally derive from natural regeneration or coppicing
SEN	Special Educational Needs
SFRA	Strategic Flood Risk Assessment
SINC	Site of Importance for Nature Conservation
SLINC	Site of Local Importance for Nature Conservation
SO_2	Sulphur dioxide
Source-pathway-receptor model	A model that identifies the linkage between the contaminant and who or what it may affect.
SPA	Special Protection Area
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance
SPOGO	A sport and fitness finder, the database brings together the sports and clubs

	(under Sport England) and the fitness and leisure facilities.
SSSI	Site of Special Scientific Interest
STARS	Sustainable Travel: Active, Responsible, Safe
STEM	Science, Technology, Engineering and Mathematics
SUDs	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TEMPro	Trip End Model Presentation Program
TLRN	Transport for London Road Network
TPOs	Tree Preservation Orders
TRICS	Trip Rate Information Computer System
UDP	Unitary Development Plan
VSC	Vertical Sky Component
WFD	Water Framework Directive
WHO	World Health Organisation
ZVI	Zone of Visual Influence

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 This Environmental Statement (ES) has been prepared by Cascade Consulting (Environment and Planning) Ltd on behalf of Richmond upon Thames College (RuTC), the Applicant. It accompanies an Outline Planning Application (OPA) for the Richmond Education and Enterprise Campus (REEC), a proposed mixed use redevelopment of the RuTC site in Twickenham, located in the London Borough of Richmond upon Thames (LBRuT), south London.

1.1.2 The REEC development offers the opportunity to renew the College and introduce a new Science, Technology, Engineering and Maths (STEM) Centre and a new secondary school into the LBRuT; re-provide the Clarendon School (special educational needs (SEN) secondary school) and upgrade the sports facilities and pitches. It integrates these developments within a shared campus on the existing college site, and incorporates a new technical media hub and a separate enabling residential development.

1.1.3 The vision for the REEC development is to create a new campus for education and enterprise; a college working in partnership with employers on site, which will provide access to resources and work opportunities through work experience, apprenticeships and ultimately, jobs. The potential to completely redevelop the site provides RuTC with an opportunity to create a flagship regional centre of excellence, as well as maintaining its strong commitment to the local community.

1.1.4 The ES for the REEC development has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended 2015[1]). It is submitted to LBRuT for consideration alongside the OPA under the Town and Country Planning Act 1990.

1.2 THE SITE

1.2.1 The REEC development site ('the Site') is located to the north west of Twickenham town centre. The Application Site covers an area of 9.4 hectares (ha) and falls within the administrative boundary of LBRuT. A plan showing the location of the Site is provided in **Figure 1.1** and the planning application boundary for the Site is provided in **Figure 1.2**.

[1] *The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations* 2015


LONDON
Richmond Upon Thames
RICHMOND UPON THAMES
Richmond Upon Thames College
N
CASCADE
Not to scale
Note: All locations are approximate
Contains OS data © Crown Copyright 2015
Drawing Source: HoK Number SK-002
Project Title:
Richmond Education and Enterprise Campus Development
Figure Title:
Site Location
Figure Number:
Figure 1.1
Date:
June 2015

Legend

Site Boundary

Existing Buildings

CASCADE

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Planning Application Boundary

Figure Number:	Date:
Figure 1.2	June 2015

1.3 THE APPLICANT

1.3.1 The Applicant is RuTC, who own the existing college site and operate the College. The Applicant is supported through the REEC partnership. The REEC partnership consists of RuTC, LBRuT, Achieving for Children, Haymarket Media Group and Harlequin Football Club FC, and was formed for the purposes of the REEC development. The partnership has signed a collaboration agreement to co-operate in every respect of the REEC development design and operation.

1.4 THE NEED FOR EIA

1.4.1 The Environmental Impact Assessment (EIA) Regulations transpose the requirements of Council Directive 85/337/EEC and its subsequent amendments (codified in Directive 2011/92/EU and amended in Directive 2014/52/EU).

1.4.2 Schedule 2 of the EIA Regulations lists those types of developments that may require an EIA if certain thresholds are met.

1.4.3 Paragraph 10 (b) of Schedule 2 of the EIA Regulations lists the provision of *'urban development projects, including the provision of shopping centres and car parks, sports centres,* leisure *complexes and multiplex cinemas'* as development that may require an EIA provided the threshold and criteria for this type of development are met.

1.4.4 The REEC development was identified as Schedule 2 development likely to require EIA, as it exceeds the area threshold of 0.5ha specified in the 2011 Regulations. This determination stands, because it was made prior to the changes to the EIA regulations in April 2015. However, the REEC development also exceeds the increased thresholds set out in the April 2015 changes to the Regulations[2].

1.4.5 Schedule 3 of the EIA Regulations sets out the criteria for determining whether a Schedule 2 development is EIA development. Given the likely scale of proposed development, the location of the site, and the potential for significant environmental effects, it was recognised that the REEC development constitutes EIA development. As RuTC agreed that an EIA was required, a formal EIA Screening Opinion was not requested from LBRuT.

1.4.6 An EIA Scoping Opinion, to establish the scope and methodology to be followed in the EIA process, was requested from LBRuT in July 2014 and received in February 2015.

[2] (i) The development includes more than 1 hectare of urban development which is not dwelling house development; or (ii) the development includes more than 150 dwellings; or (iii) the overall area of the development exceeds 5 hectares.

1.4.7 In accordance with the EIA Regulations, this ES presents an assessment of the likely significant environmental effects of the REEC development during demolition, construction and operation. Although the design life of the buildings will be approximately 30 years, the buildings will be designed so that they can be adapted for future uses or extended to meet future demand. This, combined with an ongoing need for these land uses in LBRuT, means that a decommissioning phase is not envisaged, and is therefore not considered in this ES.

1.4.8 The cumulative effects of the REEC development are also considered.

1.4.9 Where significant adverse effects on the environment are identified, the ES sets out mitigation measures that should be implemented to prevent, reduce and, where possible, offset these effects. The ES also presents an assessment of the likely residual effects of the REEC development, following implementation of the mitigation measures.

1.5 CONTENTS OF THE ENVIRONMENTAL STATEMENT

1.5.1 The ES comprises three volumes of information as follows:

- Volume 1 – Non Technical Summary
- Volume 2 – Environmental Statement
- Volume 3 – Appendices

1.5.2 Volume 2 (this volume) contains the following chapters:

- Chapter 1 – Introduction
- Chapter 2 – EIA Methodology
- Chapter 3 – Existing Site and Surroundings
- Chapter 4 – Alternatives and Design Evolution
- Chapter 5 – Proposed Development
- Chapter 6 – Demolition and Construction
- Chapter 7 – Planning Policy
- Chapter 8 – Traffic and Transportation
- Chapter 9 – Noise and Vibration
- Chapter 10 – Air Quality
- Chapter 11 – Ground Conditions
- Chapter 12 – Waste
- Chapter 13 – Water Resources and Flood Risk
- Chapter 14 – Daylight, Sunlight and Overshadowing
- Chapter 15 – Ecology
- Chapter 16 – Townscape and Visual

- Chapter 17 – Cultural Heritage
- Chapter 18 – Socio - economics
- Chapter 19 – Summary of Residual Effects

1.5.3 A glossary of technical terms used in this ES is also provided at the beginning of Volume 2.

1.5.4 Volume 3 provides the technical appendices for each chapter, such as data, reports and correspondence, and is provided separately to avoid the main ES becoming excessively long.

Planning Application Documents

1.5.5 The OPA for the REEC development contains a number of other supporting documents including:

- Transport Assessment;
- Flood Risk Assessment;
- Energy Statement; and
- Sustainability Statement.

1.6 THE ENVIRONMENTAL ASSESSMENT TEAM

1.6.1 The ES has been prepared by Cascade Consulting (Environment and Planning) Ltd on behalf of RuTC. Cascade Consulting is an independent practice specialising in multi-disciplinary environmental consultancy and project management, and a founder member of the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme.

1.6.2 The outline design has been prepared by Atkins and HoK, who have also provided information on the Alternatives and Design Evolution chapter of this ES.

1.6.3 The technical chapters of this ES have been prepared by Cascade Consulting and a number of specialist sub consultants as shown in **Table 1.1**.

Table 1.1 Authorship of ES Chapters

Topic	Consultancy
Construction and Demolition	Waterman
Traffic and Transportation	Transport Planning Practice
Noise and Vibration	Anglia Consultants
Air Quality	Entran
Ground Conditions	RMS Environmental
Waste	RMS Environmental
Water Resources and Flood Risk	Cascade Consulting
Daylight Sunlight and Overshadowing	Nathaniel Lichfield and Partners
Ecology	Cascade Consulting
Townscape and Visual Amenity	Nathaniel Lichfield and Partners
Cultural Heritage	Oxford Archaeology
Socio-economics	Nathaniel Lichfield and Partners

1.7 ENVIRONMENTAL STATEMENT AVAILABILITY

1.7.1 All of the content of the planning application will be made available on the LBRuT website at www.richmond.gov.uk and the ES is available to view at the Council Offices during normal office hours or via the following contact, to whom comments may also be sent:

Chris Tankard
Planning Officer
London Borough of Richmond upon Thames
Civic Centre
44 York Street
Twickenham TW1 3BZ

1.7.2 Additional CD copies of the document can be provided on request.

2 EIA METHODOLOGY

2.1 GENERAL APPROACH TO EIA

2.1.1 The EIA process has been devised to assess the likely significant effects of a development on the environment. It provides the determining authority with supporting information during the decision making process for planning applications where EIA is required. The EIA should provide information about both positive and negative significant environmental effects of a development including effects on natural resources such as water, air and soil; conservation of species and habitats; and community issues such as visual effects and impacts on the population. The aim of EIA is also to ensure that the public are given early and effective opportunities to participate in the decision-making procedures.

2.1.2 The EIA process provides a mechanism by which the environmental effects resulting from all stages of a development, from demolition, construction and operation through to decommissioning of the development at the end of its life, can be predicted, allowing them to be avoided or reduced through the inclusion of mitigation measures. It is also a valuable tool to be used in the early stages of project planning and design. Environmental input to the early design stages of a project can help to identify environmental impacts that can be eliminated or reduced through changes to the development's design or layout.

2.1.3 The aim of EIA is not to evaluate all the potential environmental effects of a development, but only those considered likely to be significant. This approach, that delivers a proportionate EIA, is supported by the Institute of Environmental Management and Assessment through its EIA Quality Mark scheme and reflected in the Government's Planning Practice Guidance.

2.1.4 The output of the EIA process is an ES which is required by the EIA Regulations to be submitted with an application for planning permission for EIA development. This allows the Local Planning Authority, in this case LBRuT, to take the potential environmental effects of a development fully into account in the decision-making process.

2.2 LEGISLATIVE BACKGROUND

European Legislation

2.2.1 Council Directive 85/337/EEC sets out the requirements for the preparation of an EIA for certain types of private and public projects where they are likely to have significant effects on the environment. The types of projects that are subject to EIA are described in two Annexes to the Directive – Annex I, covering projects where an

EIA is mandatory, and Annex II where projects require EIA if a threshold is exceeded.

2.2.2 The Directive was subsequently amended three times, with the amendments codified in Directive 2011 / 92 / EU in December 2011. The Directive was amended again in 2014 and the Environmental Impact Assessment (EIA) Directive (2014/52/EU), which sets out the amendments to Directive 2011/92/EU, entered into force on 15 May 2014.

2.2.3 Once the need for an EIA has been established (either through formal EIA screening or through the developer volunteering to produce an ES), the EIA Directive sets out the following steps in the EIA process:

- Request by a developer for an opinion from the competent authority as to the content of the EIA (scoping stage);
- Production of an ES by the developer providing information on the likely significant environmental effects of the project;
- Informing and consulting with the public and environmental authorities; and
- Decision by the competent authority taking any feedback from consultation into consideration.

National Legislation

2.2.4 In England, the EIA Directive is enforced through the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended 2015), hereafter referred to as the 'EIA Regulations'.

2.2.5 The EIA Regulations set out the procedures to be followed in the preparation of an ES, including the process for scoping the topics to be studied (although scoping is not a statutory requirement). The EIA Regulations also explain the overall submission and decision making processes for taking an ES through the town and country planning system.

2.3 EIA SCOPING

2.3.1 Scoping is an important phase of the EIA process and is principally defined through the EIA Directive. The European Commission defines it as follows:

'Scoping is the process of determining the content and extent of the matters which should be covered in environmental information to be submitted to a competent authority for projects which are subject to EIA[1]'.

[1] European Commission (EC) (2001) *Guidance on Environmental Impact Assessment: Scoping*, Office for the Official Publications of the European Communities, Luxembourg.

2.3.2 The purpose of scoping is therefore to establish the scope and methodology to be followed in the EIA process, based on a consideration of the potential environmental effects arising from all stages of the scheme. Scoping gives the planning authority and consultees the opportunity to highlight any areas of concern not already identified, and thereby influence the EIA process and the subsequent ES in the early stages of preparation. The output of the scoping process for the REEC development has therefore informed the preparation of this ES.

2.3.3 An EIA Scoping Report was prepared and submitted to LBRuT for the REEC development in July 2014. Part 4 of the Regulations describes the minimum requirements for inclusion within a request for a Scoping Opinion as being:

- A plan sufficient to identify the land;
- A brief description of the nature and purpose of the development and of its possible effects on the environment; and
- Such other information or representations as the person making the request may wish to provide or make.

2.3.4 The Scoping Report therefore set out the proposed approach to the EIA and the topics it should cover along with details of consultation that had shaped the approach to the baseline. An outline of the REEC scheme description as of July 2014 was provided. A copy of the Scoping Report is provided as **Appendix 2.1** of this ES.

2.3.5 The approach that was taken to determine the topics to be assessed in the ES, and the individual effects within those topics that were considered to be potentially significant and thus required further assessment, was based on the requirements of the EIA Regulations and relevant national, regional and local policy.

2.3.6 LBRuT consulted the following organisations before preparing its Scoping Opinion:

- Environment Agency
- Greater London Authority
- Transport for London
- Natural England
- English Heritage[2] (archaeology)
- English Heritage (built heritage)
- Sport England
- Thames Water
- Network Rail
- Friends of the River Crane Environment (FORCE)
- Heatham Alliance

[2] Note that from 1 April 2015 English Heritage became Historic England.

- Courtway Residents
- Dene Estate Residents Association
- Crime Prevention Officer
- Metropolitan Police
- NHS Richmond
- South West Trains
- Twickenham Town Centre Manager and Board
- Rugby Football Union, Twickenham (RFU)
- Harlequin FC
- Heatham Residents Association
- Friends of Heatham House
- SWLEN/Richmond BioDiversity Partnership

2.3.7 LBRuT issued its Scoping Opinion on 13 February 2015. A copy of their response is provided as **Appendix 2.2** to this ES. RuTC's response to the Scoping Opinion is also provided as **Appendix 2.3**. Individual comments received from consultees on the scope of the assessment have informed the preparation of each topic chapter of this ES.

2.3.8 **Table 2.1** describes the topics scoped into the assessment as agreed during the EIA scoping process including those added into the scope following receipt of the EIA Scoping Opinion.

Table 2.1 Scope of the Assessment

Topic	Effects scoped into the assessment
Traffic and Transportation	• Effect of increase in traffic generated during the demolition and construction phase (Heavy Goods Vehicles (HGVs), staff car movements etc), car parking provision during demolition and construction. • Effect of increase in vehicle movements on the local and wider road networks during operation including capacity at junctions. • Effect of development on public transport network during all development phases. • Effects on local pedestrians, buses, trains, cyclists, cars and other vehicles (to include Depot service vehicles) from demolition, pre and post-construction works. • Effects on walking and cycling accessibility through the development area and on the public highway in the adjacent area and towards Twickenham town centre and rail station.
Noise and vibration	• Effect of new noise and vibration sources during demolition and construction and impacts on receptors both within and around the site. • Effect of changes to the existing noise climate at sensitive receptors located around the site and the access routes associated with operation of the completed development. • Effect of existing noise sources on new sensitive receptors within the development. • Effect on residents from change in recreational use of the College playing fields south of Cranford Way.
Air quality	• Effect of localised changes in levels of road traffic pollutants caused by exhaust

Topic	Effects scoped into the assessment
	emissions from construction traffic, traffic congestion or increased traffic flows on the local road network including diversionary routes during construction. • Effect of dust emissions from construction materials, plant and machinery, and associated nuisance on sensitive receptors. • Effect of localised changes in levels of road traffic pollutants resulting from traffic on routes to and from the site(s) during operation.
Ground conditions	• Potential sources of contamination on site and creation of pathways impacting sensitive receptors. • Impacts of potential contamination left in-situ. • Management of potentially contaminating materials arising from clearance, demolition and construction.
Waste	• Appropriate management and disposal of wastes arising during construction and operation of the development. • Identifying opportunities for waste minimisation and reuse and recycling of materials and waste during construction and operational phase. • Achieving compliance with waste legislation in all phases.
Water resources and flood risk	• Effects of construction activities on water quality and turbidity in surrounding watercourses. • Effects on groundwater flow as a result of below ground works and structures. • Effects on flood risk within the catchment of the River Crane. • Effects on site drainage and runoff patterns from the new operational site and the requirement for Sustainable Drainage Systems (SuDS). • Changes to potable water supply and foul water drainage capacity.
Daylight, sunlight and overshadowing	• Effects of reduction in daylight and sunlight levels at existing residential properties and gardens adjacent to the REEC development. • Effects on daylight and sunlight within new residential element.
Ecology	• Effects of direct habitat loss on ecologically significant habitats. • Mortality or injury to protected or ecologically significant species within the footprint of the site. • Deterioration or fragmentation of surrounding habitats, including locally designated sites. • Disturbance (by noise, lighting, encroachment) of protected or ecologically significant species within surrounding habitats • Effects of increased recreational pressure on designated sites and other ecologically significant habitats. • Opportunities for biodiversity enhancement and gain.
Landscape and visual	• Effects of the development on the townscape character of the site and surrounding areas - appropriateness of the scale, mass and design of the proposed for its townscape context and the effect on trees that play a notable role in the townscape. • Effects of changes in views and visual amenity.
Cultural heritage	• Effects of the development on archaeological sites located within the Crane Archaeological Priority Area (APA). • Effects on as yet unrecorded archaeological features that may exist on the Kempton Park gravels upon which the site is located. • Effects of the development on the setting of Rosecroft Gardens Conservation Area and All Hallows Church, a Grade I Listed Building.
Socio-economics	• Effects on the local labour market, housing market, education and health facilities, and community facilities. • Changes to provision of recreational facilities and open space/playing fields.

2.3.9 **Table 2.2** describes the topics scoped out during the EIA scoping process, including those listed by LBRuT in Section 5 of their Scoping Opinion, and the reason they were excluded from the assessment. Further detail on issues scoped in and out of the assessment is provided in RuTC's response to the Scoping Opinion, in **Appendix 2.3**.

Table 2.2 Topics/Issues Scoped Out of the Assessment

Topic	Reason for Scoping Out
Operational Vibration	• No anticipated sources of operational vibration
Air Quality – Combined heat and power (CHP) plant/Biomass boilers	• A CHP plant/biomass boiler is not part of the outline energy strategy therefore no assessment is required.
LVIA - photomontages	• Photomontages of the outline design scheme could not be provided as there is insufficient information on the final detailed design or proposed materials to be used on the facades. Accurate Visual Representations for a number of views are provided.
Daylight, sunlight and overshadowing – Tech Hub, education and sports buildings	• These buildings rely on artificial lighting and are therefore outside scope of assessment (in accordance with Building Research Establishment guidance).
Microclimate – solar glare and wind	• Facade treatments are not known at outline design, therefore a solar glare study cannot be completed. • Buildings are not sufficiently high or densely packed to create a tunnelling effect. The parameters have been designed to reflect the existing height profiles of the surrounding area i.e. lower in the south east and getting higher to the north west. This, combined with the set backs from existing boundaries, and minimum distances between the building zones considered in the parameter plans, is unlikely to result in significant adverse wind conditions.
Climate change and sustainability	• Climate change is taken into account in topic chapters e.g. flood risk. Sustainability is covered in a separate Sustainability Statement
Health and well-being	• A separate chapter on Health and Well-being was scoped out but these issues are addressed in the Socio-economics chapter
Telecommunications	• Effects on digital communications unlikely and does not raise environmental issues that need to be addressed in EIA
Utilities	• Utilities are addressed in a separate Utilities Statement

2.4 CONTENT OF THE ES

Guidance

2.4.1 Guidance on the preparation of an ES is derived from the Department of Communities and Local Government Planning Practice Guidance[3] which provides general guidance on the EIA process and what an ES should contain. In particular, the guidance states:

'Whilst every Environmental Statement should provide a full factual description of the development, the emphasis of Schedule 4 is on the "main" or "significant" environmental effects to which a development is likely to give rise. The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects'.

2.4.2 Best practice in preparation of an ES has also been produced by IEMA (2004)[4] and

[3] Department of Communities and Local Government 2014. Accessed at http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/

[4] *Guidelines for Environmental Impact Assessment*, Institute of Environmental Management and Assessment, 2004

reviewed in 2011[5], and specific guidance for highways projects - Design Manual for Roads and Bridges[6] (DMRB)– that has been published by the Highways Agency has relevance for other development sectors, including the REEC development.

2.4.3 Additional guidance exists on the preparation of an ES for several environmental topics. Where used, such guidance has been referenced in the relevant topic chapters within this ES.

Schedule 4 Requirements

2.4.4 Part 1 of Schedule 4 of the EIA Regulations sets out the content of an ES, which is outlined in **Table 2.3** considering what is reasonably required to assess the effects of a project, and which the applicant can reasonably be expected to provide. Part 2 of Schedule 4 lists the basic information that an ES must contain.

2.4.5 **Table 2.3** therefore identifies where each of the elements described in Schedule 4, and required by the EIA Regulations, are covered in this ES.

Table 2.3 Schedule 4 Requirements Covered in this ES

Relevant Section of Schedule 4 of the Regulations	Volume / Chapter in this ES
PART 1: Description of the development including in particular: **1.** (a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases; (b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used; (c) An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development	Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 9 – Noise and Vibration Volume 2: Chapter 10 – Air Quality Volume 2: Chapter 11 – Ground Conditions Volume 2: Chapter 13 – Water Resources and Flood Risk
PART 1: **2.** An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects	Chapter 4 – Alternatives and Design Evolution
PART 1: **3.** A description of the aspects of the environment likely to be significantly affected by the development including, in particular, population, flora, fauna, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors	Volume 2: All topic chapters Volume 2: Chapter 20 – Summary of Residual Effects
PART 1: **4.** A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, positive and negative effects of the development resulting from (a) the existence of the development; (b) the use of natural resources (c) the emission of pollutants, the creation of nuisance and the elimination of waste,	Volume 2: All topic chapters

[5] *Special Report – The State of Environmental Impact Assessment Practice in the UK*, Institute of Environmental Management and Assessment, 2011

[6] *Design Manual for Roads and Bridges*: Volume 11, Department for Transport, 2008 (as amended)

Relevant Section of Schedule 4 of the Regulations	Volume / Chapter in this ES
and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment	
PART 1: **5.** A description of the measures envisaged to prevent, reduce and where possible, offset significant adverse effects on the environment	Volume 2: All topic chapters
PART 1: **6.** A non-technical summary of the information provided under paragraphs 1 to 5 of this Part	Volume 1: Non Technical Summary
PART 1: **7.** An indication of any difficulties (technical deficiencies or lack of know how) encountered by the applicant or appellant in compiling the relevant information	Volume 2: Chapter 2 – EIA Methodology Volume 2: All topic chapters
PART 2: **1.** A description of the development comprising information on the site, design and size of the development.	Volume 2: Chapter 3 – Exisiting Site and Surrounding Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 6 – Demolition and Construction
PART 2: **2.** A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	Volume 2: Chapter 4 - Alternatives and Design Evolution Volume 2: All topic chapters
PART 2: **3.** The data required to identify and assess the main effects which the development is likely to have on the environment	All topic chapters
PART 2: **4.** An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.	Volume 2: Chapter 4 –Alternatives and Design Evolution
PART 2: **5.** A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.	Volume 1: Non – Technical Summary

2.5 CONSULTATION

2.5.1 Consultation has been undertaken throughout the development of the project with both technical and public consultation being completed. Technical consultation is described in more detail in the topic chapters.

2.5.2 The REEC partnership (see Section 1.1) has been involved throughout the design of the development. The partnership includes adjoining landowners such as Harlequin FC who own Twickenham Stoop and LBRuT who own the Council Depot. Early discussions were also held with Nuffield Fitness Club, who lease their site from Harlequin FC. Consultation with landowners will continue throughout the project.

2.5.3 Pubic consultation has involved meetings, drop-ins and a question and answer session for local residents. The dates of these events are listed in **Appendix 2.4** of this ES. A Local Community Forum was established and has been consulted from the early stages of the design development, with 10 meetings held since June 2014. The organisations involved in the Forum are:

- Dean Estate Residents Association
- Friends of the River Crane Environment (FORCE)
- Heatham Alliance
- Court Way Residents Associations
- Heatham Residents Association
- Heathfield South Neighbourhood Watch
- Chudleigh Road Neighbourhood Watch
- Court Way Residents

2.5.4 Local ward members are also invited to attend.

2.5.5 The consultation process and how feedback from stakeholders has been taken into account is set out in Chapter 4 – Alternatives and Design Evolution and individual topic chapters of this ES. Further information on consultation is provided in the REEC Statement of Community Involvement.

2.6 APPROACH TO OUTLINE PLANNING APPLICATION (OPA)

2.6.1 The REEC development is submitted as an OPA with access in detail. The EIA has therefore been completed in line with the Primary Control Documents for the OPA; a Development Specification, Design Code and Parameter Plans. The Development Specification sets out what is proposed in the outline planning application, and the Design Code sets out what the proposed development is expected to look like. The Parameter Plans and Detailed Access Plans set out the maximum and minimum dimensions for buildings; zones to show the location of each element of the development (which are described in Chapter 5 – Proposed Development); and location of access routes.

2.6.2 In addition to the Parameter Plans, the OPA is supported by an Illustrative Masterplan (see Chapter 5, **Figure 5.1**), which provides an indication of what the proposed development could look like. The Illustrative Masterplan is not submitted for approval, but shows one way in which development of the type and scale proposed could comply with the Development Specification, Design Code and Parameter Plans, for which outline consent is being sought.

2.6.3 For developments that are to be determined as a multi–stage consent, such as the REEC development, the Government's Planning Practice Guidance[7] identifies that assessment of likely significant environmental effects should be provided at the principal decision making stage, in this case the OPA. If there is insufficient information at that stage to fully identify all of the likely significant environmental

[7] Department of Communities and Local Government 2014. Accessed at :http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/

effects, further assessment is required at the subsequent decision making stage, the reserved matters stage.

2.6.4 The guidance requires that to minimise the possibility of further environmental information being required at the later stages of a multi-stage consent, the following is considered:

- Where an application is made for an outline permission with all matters reserved for later approval, the permission should be subject to conditions or other parameters (such as a Section 106 agreement) which 'tie' the scheme to what has been assessed; and
- While applicants are not precluded from having a degree of flexibility in how a scheme may be developed, each option will need to have been properly assessed and be within the remit of the outline permission.

2.6.5 The assessments presented in this ES utilise a 'worst case' scenario and are based on the Parameter Plans submitted as part of the OPA, or where appropriate on the Illustrative Masterplan. Providing the development when taken forward at reserved matters stage remains within the parameters set out in the OPA, the significant environmental effects should be no greater than assessed in this ES.

2.7 BASELINE FOR THE ASSESSMENT

Temporal

2.7.1 Baseline environmental surveys for the REEC development were undertaken in 2014 and at the beginning of 2015. The scope and results are described in each individual topic chapter. This information forms the baseline for the scheme assessment, subject to the assumptions and limitations set out below.

2.7.2 The development will be implemented in a series of independent phases, and so the 'with development' situation has therefore been taken to be the completed development with all residential units in place in 2019. The construction phases and occupancy phases of a number of elements of the development are likely to overlap, and therefore to ensure the worst-case scenarios are assessed, a number of 'timeslices' have been considered in the assessments where appropriate. The development will consist of three main phases, as follows:

- **Phase 1 (2015-2017)** – Construction and commissioning of main College building, Secondary School and SEN School / demolition of existing College buildings;
- **Phase 2 (2017-2018)** – Construction and commissioning of Sports Centre and pitches / STEM Centre / completion of external works / construction of first

phase of residential development and access road / demolition of existing sports facilities and remaining existing College buildings; and

- **Phase 3 (2018-2019)** - Construction of Tech Hub / improvements to A316 Langhorn Drive junction / construction of second phase of residential development / final landscaping works.

2.7.3 For the purposes of the assessment, 'temporary' effects are those that occur for a set period of time and are generally associated with the demolition and construction process. 'Permanent' effects are those which will continue over time and are generally associated with the operational phase, when the various elements of the development (described in Chapter 5 – Proposed Development) are occupied.

Spatial

2.7.4 A description of the geographical area within which the proposed REEC development lies is given in Chapter 3 – Existing Site and Surroundings.

2.7.5 The development will be within the redline boundary shown in Chapter 1, **Figure 1.2**. The redline boundary encompasses the development zones for REEC and an additional area for a proposed junction modification on the highway network to facilitate access.

2.7.6 The spatial extent of each topic assessment has been defined in each topic chapter through the consideration of the location of potentially sensitive receptors and the distance from the site at which environmental effects could occur.

2.7.7 For each chapter the spatial extent of the assessment varies and is based on professional judgement or topic specific guidance.

Assumptions and Limitations

2.7.8 The principal assumptions that have been made, and any limitations that have been identified in undertaking the EIA, are set out below.

- The assessments presented in this ES utilise a 'worst case' scenario and are based on the Parameter Plans submitted as part of the OPA, or where appropriate on the Illustrative Masterplan. The topic chapters provide clarification as to the basis for each assessment;
- The assessment of construction effects is based on the indicative construction information, methodologies and phasing which are presented in Chapter 6 – Demolition and Construction; and
- It is assumed that the that the principal existing land uses adjoining the OPA Site will remain substantially unaltered when the REEC development is operational, with the exception of the cumulative schemes listed in Section 2.8.

2.7.9 Any specific limitations affecting the assessment are considered in each of the topic chapters.

Baseline in the Absence of Development

2.7.10 In the absence of achieving funding and planning for the development, the College would not close, but it would need to go through a sequential process of removing surplus accommodation and review its curriculum offer, as the expense associated with maintaining the outdated buildings is very high. The baseline would thus be similar to that at present but with the potential for removal of some of the existing buildings. Further details on the 'Do nothing' option are provided in Chapter 4 – Alternatives and Design Evolution.

Assessing Significance

2.7.11 No specific guidance exists for the development of significance criteria for the purposes of EIA and it is generally determined through professional opinion or topic specific guidance (such as that prepared for Ecological Impact Assessment by the Chartered Institute of Ecology and Environmental Management (CIEEM)).

2.7.12 As such, in this ES, the approach to the assessment of significant environmental effects has been determined by reference to a series of matrices with modifications to accommodate particular topic requirements. These provide a measure of significance based on the magnitude of the potential impact set against the sensitivity of the receptor. Effects are considered to be either adverse or beneficial.

2.7.13 Individual ES chapters identify any assumptions made about the design, construction or operation that are relevant to their specific assessment and the determination of effect significance.

Definition of 'Effects' and 'Impacts'

2.7.14 The terms 'effects' and 'impacts' are generally used interchangeably within EIA. Broadly, 'impacts' are the result of changes in the environment caused by development activities, with 'effects' the change then experienced by the sensitive receptors. The EIA Regulations refer exclusively to 'effect', and where appropriate this term is used in the ES.

Receptors

2.7.15 Effects therefore occur as a result of impacts on receptors on, adjacent to, or within a certain distance of, a development site. Receptors may be human (such as residents, workers and leisure users), sites with environmental designations (such as protected wildlife or archaeological sites) or individual habitats and species. An assessment is made of the sensitivity of the receptor, and the nature of the effect perceived by each

receptor is then determined using the following judgements:

- Its extent;
- Magnitude;
- Duration;
- Frequency;
- Reversibility;
- Nature (direct or indirect); and
- The effect in addition to other developments (cumulative effect).

2.7.16 Receptor value and sensitivity is generally considered through this ES as a hierarchy from High – Low. This is based on the receptor's characteristics or statutory designation (its value), alongside the ability of a receptor to tolerate and recover from any changes presented by the development (its sensitivity).

2.7.17 In order to provide consistency across the whole of the ES, however, a general approach has been taken to define the level of significance of effects, based on the matrix showing receptor value against its sensitivity to change in **Table 2.5**.

Table 2.5: Significance Criteria

		Receptor Value, Scale and Sensitivity		
		High	**Medium**	**Low**
Magnitude of Effect, including Duration, Frequency and Reversibility	**High**	Major	Major	Moderate or Minor
	Medium	Major	Moderate	Minor
	Low	Moderate or Minor	Minor	Negligible

2.7.18 The levels of significance set out in **Table 2.5** are defined as follows:

- Major – adverse or beneficial effects representing effects of considerable duration, magnitude or extent and therefore represent impacts that are of potential concern;
- Moderate – adverse or beneficial effects considered to have moderate importance to the immediate local environment; and
- Minor – adverse or beneficial effects that are likely to be either slight or very short term.

2.7.19 Negligible effects are not considered significant.

2.7.20 Where major, moderate or minor adverse effects have been identified in this ES, practicable mitigation measures are proposed where feasible to reduce or eliminate the effect. This may be through implementing specific working practices to control potential effects (such as dust suppression measures) or by proposing appropriate

replacements for features that will be permanently lost (such as new tree or hedgerow planting). Where mitigation measures are proposed, the assessment establishes their effectiveness and whether any residual effects will remain once the measures have been applied.

2.7.21 For ease of reference, the remaining residual effects arising from the assessment for all of the topic chapters are presented as a summary in Chapter 19 - Summary of Residual Effects.

2.8 CUMULATIVE EFFECTS

2.8.1 The consideration of cumulative effects is also an integral part of undertaking an EIA and understanding the potential changes perceived by receptors. It plays an important role in determining the full likelihood of significant environment effects that may arise from a proposed development.

2.8.2 Cumulative effects can occur in two ways as a result of development activities:

- Intra-project cumulative effects; and
- Inter-project cumulative effects

Intra-project Cumulative Effects

2.8.3 The IEMA explains in Section 6.4 of its 2011 report 'The State of Environmental Impact Assessment Practice in the UK' that intra-project effects:

'occur between different environmental topics within the same proposal, as a result of the development's direct effects'.

2.8.4 Intra-project effects may arise from two or more scheme-related effects having a combined effect. The EIA process has identified and assessed the likely significant intra-project effects that may arise through the construction or operation of the proposed development.

Inter-project Cumulative Effects

2.8.5 There is also a need to consider the relationship between the REEC development and other off site developments that will occur, or are expected to occur, within spatial or temporal proximity. These types of effects are known as inter-project cumulative effects or in-combination effects.

2.8.6 European Union guidance on the assessment of cumulative impacts is provided in the document *'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions'* (EU May 1999) which describes cumulative effects as:

'Impacts that result from incremental changes caused by past, present or other

reasonably foreseeable actions together with the project'.

2.8.7 As such, for the REEC development, the approach to inter-project cumulative effects has been taken to depend on:

- The location of potential cumulative developments; and
- The scale, nature and timing of potential cumulative developments.

2.8.8 To identify if inter-project cumulative effects are likely in combination with the operation or construction of the REEC development, the following types of development have been considered:

2.8.9 Committed developments, comprising:

- Development projects with planning consent and under construction; and
- Development projects with planning consent but which have not started construction.

2.8.10 Known planned development, comprising:

- Submitted planning applications awaiting consent at the time of application;
- Development projects likely to be submitted where sufficient information is available for an assessment of cumulative effects to be completed; and
- Development projects and proposals which are promoted through relevant Local Development Plans, where there is sufficient information.

2.8.11 Following a review using the above criteria, the following schemes were identified for inclusion in the assessment of cumulative effects:

- Twickenham Railway Station London Road Twickenham (10/3465/FUL);
- Former Twickenham Postal Sorting Office London Road, Twickenham (12/3650/FUL); and
- Land Known as Twickenham Rough - Open Land West of Twickenham Sorting Office Site (13/1147/FUL).

2.8.12 The locations of these developments are shown on **Figure 2.1**.

Legend

1. Land Known as Twickenham Rough - Open Land West of Twickenham Sorting Office Site
2. Former Twickenham Postal Sorting Sorting Office London Road, Twickenham
3. Twickenham Railway Station London Road Twickenham

CASCADE

0 250m

Note: All locations are approximate

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Cumulative Developments

Figure Number:	Date:
Figure 2.1	June 2015

2.8.13 Other potential developments for which allocations are made in the LBRuT local Plan include Harlequin FC's possible redevelopment of Twickenham Stoop and future redevelopment of the Council Depot. Harlequin FC have undertaken some feasibility work on a possible future extension to Twickenham Stoop but no planning application has been prepared and, as a result, there is no clear proposal that can be considered. Similarly, there are currently no clear proposals for the relocation of the existing Council Depot or redevelopment of its site. These developments were therefore excluded due to uncertainty surrounding the likelihood and timing of implementation, and a lack of sufficient detail to enable meaningful assessment to be conducted. If sufficient detail was to be available by the reserved matters stage, further potential cumulative developments could be included at that point.

2.8.14 Where it is considered that inter project cumulative effects could arise for specific topics, this is addressed in the relevant topic chapter.

3 EXISTING SITE AND SURROUNDINGS

3.1 SITE LOCATION

3.1.1 As described in Chapter 1, the Site is situated to the north west of Twickenham town centre, as shown in Chapter 1, **Figure 1.1**. The main college site covers an area of approximately 6ha and the College playing fields south of Craneford Way cover an area of approximately 2.7ha, giving a total area for the existing site of 8.7ha. The OPA Site area is larger, at approximately 9.3ha, as it includes the existing college site and an additional area of 0.6ha for junction improvements on adjacent roads.

3.1.2 The Site is bounded by:

- A316 Chertsey Road to the north;
- Egerton Road and a residential area known as the Heatham Estate, to the east;
- River Crane and Twickenham Rough to the south; and
- Langhorn Drive, Harlequin FC's rugby stadium, Twickenham Stoop, Nuffield Health Club, Challenge Court and Craneford Way West playing fields to the west.

3.1.3 Further west is the Duke of Northumberland's River, which flows northwards past the Site, and to the south west is the Council Depot.

3.1.4 These features are illustrated in **Figure 3.1**.

3.2 SITE CHARACTERISTICS

3.2.1 The OPA Site comprises numerous academic and facilities buildings associated with the existing RuTC, with the northern part of the site occupied by a four-court sports hall with associated facilities, a grass sports pitch and car parking in the north east corner (**Figure 3.2**). The southern part of the Site comprises the College playing fields south of Craneford Way. The RuTC buildings were constructed in the 1930s with further expansion in the 1970s, and vary from one to three storeys in height (with the exception of the five storey tower), with the mass of buildings focussed to the south east corner of the Site.

3.2.2 The Site topography is relatively flat with an average elevation between 9.0m above ordnance datum (AOD) and 8.5m AOD (**Figure 3.2** and **Appendix 3.1**).

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0 100m

Note: All locations are approximate

Drawing Source: HUK Number BK.0302

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Site Context

For Information Only

Figure Number:	Date:
Figure 3.1	June 2015

CASCADE

Richmond Education and Enterprise Campus Development

Environmental Statement

Volume 2 – Environmental Statement

Produced for Richmond upon Thames College

June 2015

In association with:

TPP transport planning practice; entran; RMS ENVIRONMENTAL; nlp Nathaniel Lichfield & Partners Planning. Design. Economics.; waterman; oxfordarchaeology exploring the human journey

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ABBREVIATIONS AND GLOSSARY

AADT	Annual Average Daily Traffic
ADF	Average Daylight Factor
ADMS	Atmospheric Dispersion Modelling System
AGS	The Association of Geotechnical and Geoenvironmental Specialists
AIA	Arboricultural Impact Assessment
AOD	Above Ordinance Datum
APA	Archaeological Priority Area
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
AQOs	Air Quality Objectives
Aquifer	A body of permeable rock which can contain or transmit groundwater.
As	Arsenic
ATCs	Automatic Traffic Counters
AURN	Automatic Urban and Rural Monitoring Network
AVR	Accurate Visual Representation
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BGS	British Geological Survey
BRE	Building Research Establishment
C_6H_6	Benzene
CA	Conservation Area
Cd	Cadmium
CEMP	Construction Environment Management Plan
CFMP	Catchment Flood Management Plan
CHP	Combined Heat and Power
CIEEM	Chartered Institute of Ecology and Environmental Management

CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment
CLP	Construction Logistics Plan
CLR	Contaminated Land Report
CMP	Construction Management Plan
CO	Carbon monoxide
Contaminated Land	The presence of substances in, on or under the land, that have the potential to cause harm, whether this is to the environment (i.e. groundwater or controlled waters) or to human health.
CPZs	Controlled Parking Zones
CRoW	Countryside and Rights of Way
Cumulative Effects	Effects that occur from the combined impacts of changes caused by one or more developments on specific areas or sensitive receptors.
DEFRA	Department for Environment, Food & Rural Affairs
DMP	Development Management Plan
DMRB	Design Manual for Roads and Bridges
DPDs	Development Plan Documents
EA	Environment Agency
EcIA	Ecological Impact Assessment
EFA	Education Funding Agency
Effects	The change experienced by sensitive receptors as a result of impacts.
EFT	Emissions Factors Toolkit
EIA	Environmental Impact Assessment
EIC	Environmental Industries Commission
EPUK	Environmental Protection UK
EQS	Environmental Quality Standards
ES	Environmental Statement
FALP	Further Alterations to the London Plan

FD	Floods Directive
FORCE	Friends of the River Crane Environment
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GAC	Generic Assessment Criteria
GEA	Gross External Area
GEART	Guidelines for the Environmental Assessment of Road Traffic
GLA	Greater London Authority
GLHER	Greater London Historic Environment Record
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GSVs	Gas Screening Values
GVA	Gross Value Added
Hg	Mercury
HGVs	Heavy Goods Vehicles
HSE	Health and Safety Executive
IAQM	Institute of Air Quality Management
IEMA	The Institute of Environmental Management & Assessment
IHT	Institution of Highways & Transportation
ILE	Institution of Lighting Engineers
IRB	International Rugby Board
LAeq	A-weighted, equivalent sound level. A widely used noise parameter describing a sound level with the same energy content as the varying acoustic signal measured.
LAQM	Local Air Quality Management
LBRuT	London Borough of Richmond upon Thames
LDF	Local Development Framework
LEA	Local Education Authority
LEZ	Low Emission Zone
LGVs	Light Goods Vehicles

LLFA	Lead Local Flood Authority
LNRs	Local Nature Reserves
MEDSL	The Mayor's Economic Development Strategy for London
MOL	Metropolitan Open Land
MSOA	Middle Layer Super Output Area
MUGA	Multi Use Games Area
NERC	Natural Environment and Rural Communities
Ni	Nickel
NNRs	National Nature Reserves
NO2	Nitrogen dioxide
NPL	National Physical Laboratory
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	Noise Policy Statement
O_3	Ozone
ONS	Office of National Statistics
OPA	Outline Planning Application - A general application for planning permission to establish that a development is acceptable in principle, subject to subsequent approval of detailed Reserved Matters.
PAHs	Polycyclic aromatic hydrocarbons
Pb	Lead
PEM	Project Environmental Manager
PFRA	Preliminary Flood Risk Assessment
PM_{10}	Particulate Matter up to 10 micrometers in size
$PM_{2.5}$	Particulate Matter smaller than 2.5 micrometers in size
PPV	Peak Particle Velocity
PRoW	Public Rights of Way
PTAL	Public Transport Accessibility Level
PVI	Private, voluntary and independent

RBMP	River Basin Management Plans
REEC	Richmond Education and Enterprise Campus
REMA	Revised Early Minor Alterations
Reserved Matters	Those planning matters for which approval is not being sought as part of the Outline Planning Application, and for which approval will be sought as part of one or more Reserved Matters Applications.
Residual Effects	Effects predicted to remain after the application of mitigation measures.
RFC	Ratio to Flow Capacity
RFRA	Regional Flood Risk Appraisal
RIGS	Regionally Important Geological Sites
Ruderal	Plant species that colonized land where the natural vegetation cover has been disturbed by humans.
RuTC	Richmond upon Thames College
SAC	Special Area of Conservation
Semi-improved grassland	A transition category made up of grasslands which have been modified, and consequently have a range of species which is less diverse and natural than unimproved grasslands.
Semi-natural woodland	Locally native trees and shrubs which generally derive from natural regeneration or coppicing
SEN	Special Educational Needs
SFRA	Strategic Flood Risk Assessment
SINC	Site of Importance for Nature Conservation
SLINC	Site of Local Importance for Nature Conservation
SO_2	Sulphur dioxide
Source-pathway-receptor model	A model that identifies the linkage between the contaminant and who or what it may affect.
SPA	Special Protection Area
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance
SPOGO	A sport and fitness finder, the database brings together the sports and clubs

	(under Sport England) and the fitness and leisure facilities.
SSSI	Site of Special Scientific Interest
STARS	Sustainable Travel: Active, Responsible, Safe
STEM	Science, Technology, Engineering and Mathematics
SUDs	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TEMPro	Trip End Model Presentation Program
TLRN	Transport for London Road Network
TPOs	Tree Preservation Orders
TRICS	Trip Rate Information Computer System
UDP	Unitary Development Plan
VSC	Vertical Sky Component
WFD	Water Framework Directive
WHO	World Health Organisation
ZVI	Zone of Visual Influence

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 This Environmental Statement (ES) has been prepared by Cascade Consulting (Environment and Planning) Ltd on behalf of Richmond upon Thames College (RuTC), the Applicant. It accompanies an Outline Planning Application (OPA) for the Richmond Education and Enterprise Campus (REEC), a proposed mixed use redevelopment of the RuTC site in Twickenham, located in the London Borough of Richmond upon Thames (LBRuT), south London.

1.1.2 The REEC development offers the opportunity to renew the College and introduce a new Science, Technology, Engineering and Maths (STEM) Centre and a new secondary school into the LBRuT; re-provide the Clarendon School (special educational needs (SEN) secondary school) and upgrade the sports facilities and pitches. It integrates these developments within a shared campus on the existing college site, and incorporates a new technical media hub and a separate enabling residential development.

1.1.3 The vision for the REEC development is to create a new campus for education and enterprise; a college working in partnership with employers on site, which will provide access to resources and work opportunities through work experience, apprenticeships and ultimately, jobs. The potential to completely redevelop the site provides RuTC with an opportunity to create a flagship regional centre of excellence, as well as maintaining its strong commitment to the local community.

1.1.4 The ES for the REEC development has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended 2015[1]). It is submitted to LBRuT for consideration alongside the OPA under the Town and Country Planning Act 1990.

1.2 THE SITE

1.2.1 The REEC development site ('the Site') is located to the north west of Twickenham town centre. The Application Site covers an area of 9.4 hectares (ha) and falls within the administrative boundary of LBRuT. A plan showing the location of the Site is provided in **Figure 1.1** and the planning application boundary for the Site is provided in **Figure 1.2**.

[1] *The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations* 2015

N

CASCADE

Not to scale

Note: All locations are approximate

Drawing Source: HoK Number SK-042

Project Title:

Richmond Education and Enterprise Campus Development

Figure Title:

Site Location

For Information Only

Figure Number:	Date:
Figure 1.1	June 2015

Legend

Site Boundary

Existing Buildings

N

CASCADE

Not to scale

Note: All locations are approximate

Drawing Source: HoK Number PL-01

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Planning Application Boundary

For Information Only

Figure Number:	Date:
Figure 1.2	June 2015

1.3 THE APPLICANT

1.3.1 The Applicant is RuTC, who own the existing college site and operate the College. The Applicant is supported through the REEC partnership. The REEC partnership consists of RuTC, LBRuT, Achieving for Children, Haymarket Media Group and Harlequin Football Club FC, and was formed for the purposes of the REEC development. The partnership has signed a collaboration agreement to co-operate in every respect of the REEC development design and operation.

1.4 THE NEED FOR EIA

1.4.1 The Environmental Impact Assessment (EIA) Regulations transpose the requirements of Council Directive 85/337/EEC and its subsequent amendments (codified in Directive 2011/92/EU and amended in Directive 2014/52/EU).

1.4.2 Schedule 2 of the EIA Regulations lists those types of developments that may require an EIA if certain thresholds are met.

1.4.3 Paragraph 10 (b) of Schedule 2 of the EIA Regulations lists the provision of *'urban development projects, including the provision of shopping centres and car parks, sports centres,* leisure *complexes and multiplex cinemas'* as development that may require an EIA provided the threshold and criteria for this type of development are met.

1.4.4 The REEC development was identified as Schedule 2 development likely to require EIA, as it exceeds the area threshold of 0.5ha specified in the 2011 Regulations. This determination stands, because it was made prior to the changes to the EIA regulations in April 2015. However, the REEC development also exceeds the increased thresholds set out in the April 2015 changes to the Regulations[2].

1.4.5 Schedule 3 of the EIA Regulations sets out the criteria for determining whether a Schedule 2 development is EIA development. Given the likely scale of proposed development, the location of the site, and the potential for significant environmental effects, it was recognised that the REEC development constitutes EIA development. As RuTC agreed that an EIA was required, a formal EIA Screening Opinion was not requested from LBRuT.

1.4.6 An EIA Scoping Opinion, to establish the scope and methodology to be followed in the EIA process, was requested from LBRuT in July 2014 and received in February 2015.

[2] (i) The development includes more than 1 hectare of urban development which is not dwelling house development; or (ii) the development includes more than 150 dwellings; or (iii) the overall area of the development exceeds 5 hectares.

1.4.7 In accordance with the EIA Regulations, this ES presents an assessment of the likely significant environmental effects of the REEC development during demolition, construction and operation. Although the design life of the buildings will be approximately 30 years, the buildings will be designed so that they can be adapted for future uses or extended to meet future demand. This, combined with an ongoing need for these land uses in LBRuT, means that a decommissioning phase is not envisaged, and is therefore not considered in this ES.

1.4.8 The cumulative effects of the REEC development are also considered.

1.4.9 Where significant adverse effects on the environment are identified, the ES sets out mitigation measures that should be implemented to prevent, reduce and, where possible, offset these effects. The ES also presents an assessment of the likely residual effects of the REEC development, following implementation of the mitigation measures.

1.5 CONTENTS OF THE ENVIRONMENTAL STATEMENT

1.5.1 The ES comprises three volumes of information as follows:

- Volume 1 – Non Technical Summary
- Volume 2 – Environmental Statement
- Volume 3 – Appendices

1.5.2 Volume 2 (this volume) contains the following chapters:

- Chapter 1 – Introduction
- Chapter 2 – EIA Methodology
- Chapter 3 – Existing Site and Surroundings
- Chapter 4 – Alternatives and Design Evolution
- Chapter 5 – Proposed Development
- Chapter 6 – Demolition and Construction
- Chapter 7 – Planning Policy
- Chapter 8 – Traffic and Transportation
- Chapter 9 – Noise and Vibration
- Chapter 10 – Air Quality
- Chapter 11 – Ground Conditions
- Chapter 12 – Waste
- Chapter 13 – Water Resources and Flood Risk
- Chapter 14 – Daylight, Sunlight and Overshadowing
- Chapter 15 – Ecology
- Chapter 16 – Townscape and Visual

- Chapter 17 – Cultural Heritage
- Chapter 18 – Socio - economics
- Chapter 19 – Summary of Residual Effects

1.5.3 A glossary of technical terms used in this ES is also provided at the beginning of Volume 2.

1.5.4 Volume 3 provides the technical appendices for each chapter, such as data, reports and correspondence, and is provided separately to avoid the main ES becoming excessively long.

Planning Application Documents

1.5.5 The OPA for the REEC development contains a number of other supporting documents including:

- Transport Assessment;
- Flood Risk Assessment;
- Energy Statement; and
- Sustainability Statement.

1.6 THE ENVIRONMENTAL ASSESSMENT TEAM

1.6.1 The ES has been prepared by Cascade Consulting (Environment and Planning) Ltd on behalf of RuTC. Cascade Consulting is an independent practice specialising in multi-disciplinary environmental consultancy and project management, and a founder member of the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme.

1.6.2 The outline design has been prepared by Atkins and HoK, who have also provided information on the Alternatives and Design Evolution chapter of this ES.

1.6.3 The technical chapters of this ES have been prepared by Cascade Consulting and a number of specialist sub consultants as shown in **Table 1.1**.

Table 1.1 Authorship of ES Chapters

Topic	Consultancy
Construction and Demolition	Waterman
Traffic and Transportation	Transport Planning Practice
Noise and Vibration	Anglia Consultants
Air Quality	Entran
Ground Conditions	RMS Environmental
Waste	RMS Environmental
Water Resources and Flood Risk	Cascade Consulting
Daylight Sunlight and Overshadowing	Nathaniel Lichfield and Partners
Ecology	Cascade Consulting
Townscape and Visual Amenity	Nathaniel Lichfield and Partners
Cultural Heritage	Oxford Archaeology
Socio-economics	Nathaniel Lichfield and Partners

1.7 ENVIRONMENTAL STATEMENT AVAILABILITY

1.7.1 All of the content of the planning application will be made available on the LBRuT website at www.richmond.gov.uk and the ES is available to view at the Council Offices during normal office hours or via the following contact, to whom comments may also be sent:

Chris Tankard
Planning Officer
London Borough of Richmond upon Thames
Civic Centre
44 York Street
Twickenham TW1 3BZ

1.7.2 Additional CD copies of the document can be provided on request.

2 EIA METHODOLOGY

2.1 GENERAL APPROACH TO EIA

2.1.1 The EIA process has been devised to assess the likely significant effects of a development on the environment. It provides the determining authority with supporting information during the decision making process for planning applications where EIA is required. The EIA should provide information about both positive and negative significant environmental effects of a development including effects on natural resources such as water, air and soil; conservation of species and habitats; and community issues such as visual effects and impacts on the population. The aim of EIA is also to ensure that the public are given early and effective opportunities to participate in the decision-making procedures.

2.1.2 The EIA process provides a mechanism by which the environmental effects resulting from all stages of a development, from demolition, construction and operation through to decommissioning of the development at the end of its life, can be predicted, allowing them to be avoided or reduced through the inclusion of mitigation measures. It is also a valuable tool to be used in the early stages of project planning and design. Environmental input to the early design stages of a project can help to identify environmental impacts that can be eliminated or reduced through changes to the development's design or layout.

2.1.3 The aim of EIA is not to evaluate all the potential environmental effects of a development, but only those considered likely to be significant. This approach, that delivers a proportionate EIA, is supported by the Institute of Environmental Management and Assessment through its EIA Quality Mark scheme and reflected in the Government's Planning Practice Guidance.

2.1.4 The output of the EIA process is an ES which is required by the EIA Regulations to be submitted with an application for planning permission for EIA development. This allows the Local Planning Authority, in this case LBRuT, to take the potential environmental effects of a development fully into account in the decision-making process.

2.2 LEGISLATIVE BACKGROUND

European Legislation

2.2.1 Council Directive 85/337/EEC sets out the requirements for the preparation of an EIA for certain types of private and public projects where they are likely to have significant effects on the environment. The types of projects that are subject to EIA are described in two Annexes to the Directive – Annex I, covering projects where an

EIA is mandatory, and Annex II where projects require EIA if a threshold is exceeded.

2.2.2 The Directive was subsequently amended three times, with the amendments codified in Directive 2011 / 92 / EU in December 2011. The Directive was amended again in 2014 and the Environmental Impact Assessment (EIA) Directive (2014/52/EU), which sets out the amendments to Directive 2011/92/EU, entered into force on 15 May 2014.

2.2.3 Once the need for an EIA has been established (either through formal EIA screening or through the developer volunteering to produce an ES), the EIA Directive sets out the following steps in the EIA process:

- Request by a developer for an opinion from the competent authority as to the content of the EIA (scoping stage);
- Production of an ES by the developer providing information on the likely significant environmental effects of the project;
- Informing and consulting with the public and environmental authorities; and
- Decision by the competent authority taking any feedback from consultation into consideration.

National Legislation

2.2.4 In England, the EIA Directive is enforced through the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended 2015), hereafter referred to as the 'EIA Regulations'.

2.2.5 The EIA Regulations set out the procedures to be followed in the preparation of an ES, including the process for scoping the topics to be studied (although scoping is not a statutory requirement). The EIA Regulations also explain the overall submission and decision making processes for taking an ES through the town and country planning system.

2.3 EIA SCOPING

2.3.1 Scoping is an important phase of the EIA process and is principally defined through the EIA Directive. The European Commission defines it as follows:

'Scoping is the process of determining the content and extent of the matters which should be covered in environmental information to be submitted to a competent authority for projects which are subject to EIA[1]'.

[1] European Commission (EC) (2001) *Guidance on Environmental Impact Assessment: Scoping*, Office for the Official Publications of the European Communities, Luxembourg.

2.3.2 The purpose of scoping is therefore to establish the scope and methodology to be followed in the EIA process, based on a consideration of the potential environmental effects arising from all stages of the scheme. Scoping gives the planning authority and consultees the opportunity to highlight any areas of concern not already identified, and thereby influence the EIA process and the subsequent ES in the early stages of preparation. The output of the scoping process for the REEC development has therefore informed the preparation of this ES.

2.3.3 An EIA Scoping Report was prepared and submitted to LBRuT for the REEC development in July 2014. Part 4 of the Regulations describes the minimum requirements for inclusion within a request for a Scoping Opinion as being:

- A plan sufficient to identify the land;
- A brief description of the nature and purpose of the development and of its possible effects on the environment; and
- Such other information or representations as the person making the request may wish to provide or make.

2.3.4 The Scoping Report therefore set out the proposed approach to the EIA and the topics it should cover along with details of consultation that had shaped the approach to the baseline. An outline of the REEC scheme description as of July 2014 was provided. A copy of the Scoping Report is provided as **Appendix 2.1** of this ES.

2.3.5 The approach that was taken to determine the topics to be assessed in the ES, and the individual effects within those topics that were considered to be potentially significant and thus required further assessment, was based on the requirements of the EIA Regulations and relevant national, regional and local policy.

2.3.6 LBRuT consulted the following organisations before preparing its Scoping Opinion:

- Environment Agency
- Greater London Authority
- Transport for London
- Natural England
- English Heritage[2] (archaeology)
- English Heritage (built heritage)
- Sport England
- Thames Water
- Network Rail
- Friends of the River Crane Environment (FORCE)
- Heatham Alliance

[2] Note that from 1 April 2015 English Heritage became Historic England.

- Courtway Residents
- Dene Estate Residents Association
- Crime Prevention Officer
- Metropolitan Police
- NHS Richmond
- South West Trains
- Twickenham Town Centre Manager and Board
- Rugby Football Union, Twickenham (RFU)
- Harlequin FC
- Heatham Residents Association
- Friends of Heatham House
- SWLEN/Richmond BioDiversity Partnership

2.3.7 LBRuT issued its Scoping Opinion on 13 February 2015. A copy of their response is provided as **Appendix 2.2** to this ES. RuTC's response to the Scoping Opinion is also provided as **Appendix 2.3**. Individual comments received from consultees on the scope of the assessment have informed the preparation of each topic chapter of this ES.

2.3.8 **Table 2.1** describes the topics scoped into the assessment as agreed during the EIA scoping process including those added into the scope following receipt of the EIA Scoping Opinion.

Table 2.1 Scope of the Assessment

Topic	Effects scoped into the assessment
Traffic and Transportation	• Effect of increase in traffic generated during the demolition and construction phase (Heavy Goods Vehicles (HGVs), staff car movements etc), car parking provision during demolition and construction. • Effect of increase in vehicle movements on the local and wider road networks during operation including capacity at junctions. • Effect of development on public transport network during all development phases. • Effects on local pedestrians, buses, trains, cyclists, cars and other vehicles (to include Depot service vehicles) from demolition, pre and post-construction works. • Effects on walking and cycling accessibility through the development area and on the public highway in the adjacent area and towards Twickenham town centre and rail station.
Noise and vibration	• Effect of new noise and vibration sources during demolition and construction and impacts on receptors both within and around the site. • Effect of changes to the existing noise climate at sensitive receptors located around the site and the access routes associated with operation of the completed development. • Effect of existing noise sources on new sensitive receptors within the development. • Effect on residents from change in recreational use of the College playing fields south of Craneford Way.
Air quality	• Effect of localised changes in levels of road traffic pollutants caused by exhaust

Topic	Effects scoped into the assessment
	emissions from construction traffic, traffic congestion or increased traffic flows on the local road network including diversionary routes during construction. • Effect of dust emissions from construction materials, plant and machinery, and associated nuisance on sensitive receptors. • Effect of localised changes in levels of road traffic pollutants resulting from traffic on routes to and from the site(s) during operation.
Ground conditions	• Potential sources of contamination on site and creation of pathways impacting sensitive receptors. • Impacts of potential contamination left in-situ. • Management of potentially contaminating materials arising from clearance, demolition and construction.
Waste	• Appropriate management and disposal of wastes arising during construction and operation of the development. • Identifying opportunities for waste minimisation and reuse and recycling of materials and waste during construction and operational phase. • Achieving compliance with waste legislation in all phases.
Water resources and flood risk	• Effects of construction activities on water quality and turbidity in surrounding watercourses. • Effects on groundwater flow as a result of below ground works and structures. • Effects on flood risk within the catchment of the River Crane. • Effects on site drainage and runoff patterns from the new operational site and the requirement for Sustainable Drainage Systems (SuDS). • Changes to potable water supply and foul water drainage capacity.
Daylight, sunlight and overshadowing	• Effects of reduction in daylight and sunlight levels at existing residential properties and gardens adjacent to the REEC development. • Effects on daylight and sunlight within new residential element.
Ecology	• Effects of direct habitat loss on ecologically significant habitats. • Mortality or injury to protected or ecologically significant species within the footprint of the site. • Deterioration or fragmentation of surrounding habitats, including locally designated sites. • Disturbance (by noise, lighting, encroachment) of protected or ecologically significant species within surrounding habitats • Effects of increased recreational pressure on designated sites and other ecologically significant habitats. • Opportunities for biodiversity enhancement and gain.
Landscape and visual	• Effects of the development on the townscape character of the site and surrounding areas - appropriateness of the scale, mass and design of the proposed for its townscape context and the effect on trees that play a notable role in the townscape. • Effects of changes in views and visual amenity.
Cultural heritage	• Effects of the development on archaeological sites located within the Crane Archaeological Priority Area (APA). • Effects on as yet unrecorded archaeological features that may exist on the Kempton Park gravels upon which the site is located. • Effects of the development on the setting of Rosecroft Gardens Conservation Area and All Hallows Church, a Grade I Listed Building.
Socio-economics	• Effects on the local labour market, housing market, education and health facilities, and community facilities. • Changes to provision of recreational facilities and open space/playing fields.

2.3.9 **Table 2.2** describes the topics scoped out during the EIA scoping process, including those listed by LBRuT in Section 5 of their Scoping Opinion, and the reason they were excluded from the assessment. Further detail on issues scoped in and out of the assessment is provided in RuTC's response to the Scoping Opinion, in **Appendix 2.3**.

Table 2.2 Topics/Issues Scoped Out of the Assessment

Topic	Reason for Scoping Out
Operational Vibration	• No anticipated sources of operational vibration
Air Quality – Combined heat and power (CHP) plant/Biomass boilers	• A CHP plant/biomass boiler is not part of the outline energy strategy therefore no assessment is required.
LVIA - photomontages	• Photomontages of the outline design scheme could not be provided as there is insufficient information on the final detailed design or proposed materials to be used on the facades. Accurate Visual Representations for a number of views are provided.
Daylight, sunlight and overshadowing – Tech Hub, education and sports buildings	• These buildings rely on artificial lighting and are therefore outside scope of assessment (in accordance with Building Research Establishment guidance).
Microclimate – solar glare and wind	• Facade treatments are not known at outline design, therefore a solar glare study cannot be completed. • Buildings are not sufficiently high or densely packed to create a tunnelling effect. The parameters have been designed to reflect the existing height profiles of the surrounding area i.e. lower in the south east and getting higher to the north west. This, combined with the set backs from existing boundaries, and minimum distances between the building zones considered in the parameter plans, is unlikely to result in significant adverse wind conditions.
Climate change and sustainability	• Climate change is taken into account in topic chapters e.g. flood risk. Sustainability is covered in a separate Sustainability Statement
Health and well-being	• A separate chapter on Health and Well-being was scoped out but these issues are addressed in the Socio-economics chapter
Telecommunications	• Effects on digital communications unlikely and does not raise environmental issues that need to be addressed in EIA
Utilities	• Utilities are addressed in a separate Utilities Statement

2.4 CONTENT OF THE ES

Guidance

2.4.1 Guidance on the preparation of an ES is derived from the Department of Communities and Local Government Planning Practice Guidance[3] which provides general guidance on the EIA process and what an ES should contain. In particular, the guidance states:

'Whilst every Environmental Statement should provide a full factual description of the development, the emphasis of Schedule 4 is on the "main" or "significant" environmental effects to which a development is likely to give rise. The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects'.

2.4.2 Best practice in preparation of an ES has also been produced by IEMA (2004)[4] and

[3] Department of Communities and Local Government 2014. Accessed at http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/

[4] *Guidelines for Environmental Impact Assessment*, Institute of Environmental Management and Assessment, 2004

reviewed in 2011[5], and specific guidance for highways projects - Design Manual for Roads and Bridges[6] (DMRB)– that has been published by the Highways Agency has relevance for other development sectors, including the REEC development.

2.4.3 Additional guidance exists on the preparation of an ES for several environmental topics. Where used, such guidance has been referenced in the relevant topic chapters within this ES.

Schedule 4 Requirements

2.4.4 Part 1 of Schedule 4 of the EIA Regulations sets out the content of an ES, which is outlined in **Table 2.3** considering what is reasonably required to assess the effects of a project, and which the applicant can reasonably be expected to provide. Part 2 of Schedule 4 lists the basic information that an ES must contain.

2.4.5 **Table 2.3** therefore identifies where each of the elements described in Schedule 4, and required by the EIA Regulations, are covered in this ES.

Table 2.3 Schedule 4 Requirements Covered in this ES

Relevant Section of Schedule 4 of the Regulations	Volume / Chapter in this ES
PART 1: Description of the development including in particular: **1.** (a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases; (b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used; (c) An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development	Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 9 – Noise and Vibration Volume 2: Chapter 10 – Air Quality Volume 2: Chapter 11 – Ground Conditions Volume 2: Chapter 13 – Water Resources and Flood Risk
PART 1: **2.** An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects	Chapter 4 – Alternatives and Design Evolution
PART 1: **3.** A description of the aspects of the environment likely to be significantly affected by the development including, in particular, population, flora, fauna, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors	Volume 2: All topic chapters Volume 2: Chapter 20 – Summary of Residual Effects
PART 1: **4.** A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, positive and negative effects of the development resulting from (a) the existence of the development; (b) the use of natural resources (c) the emission of pollutants, the creation of nuisance and the elimination of waste,	Volume 2: All topic chapters

[5] *Special Report – The State of Environmental Impact Assessment Practice in the UK*, Institute of Environmental Management and Assessment, 2011

[6] *Design Manual for Roads and Bridges*: Volume 11, Department for Transport, 2008 (as amended)

Relevant Section of Schedule 4 of the Regulations	Volume / Chapter in this ES
and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment	
PART 1: **5.** A description of the measures envisaged to prevent, reduce and where possible, offset significant adverse effects on the environment	Volume 2: All topic chapters
PART 1: **6.** A non-technical summary of the information provided under paragraphs 1 to 5 of this Part	Volume 1: Non Technical Summary
PART 1: **7.** An indication of any difficulties (technical deficiencies or lack of know how) encountered by the applicant or appellant in compiling the relevant information	Volume 2: Chapter 2 – EIA Methodology Volume 2: All topic chapters
PART 2: **1.** A description of the development comprising information on the site, design and size of the development.	Volume 2: Chapter 3 – Exisiting Site and Surrounding Volume 2: Chapter 5 – Proposed Development Volume 2: Chapter 6 – Demolition and Construction
PART 2: **2.** A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	Volume 2: Chapter 4 - Alternatives and Design Evolution Volume 2: All topic chapters
PART 2: **3.** The data required to identify and assess the main effects which the development is likely to have on the environment	All topic chapters
PART 2: **4.** An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects.	Volume 2: Chapter 4 –Alternatives and Design Evolution
PART 2: **5.** A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.	Volume 1: Non – Technical Summary

2.5 CONSULTATION

2.5.1 Consultation has been undertaken throughout the development of the project with both technical and public consultation being completed. Technical consultation is described in more detail in the topic chapters.

2.5.2 The REEC partnership (see Section 1.1) has been involved throughout the design of the development. The partnership includes adjoining landowners such as Harlequin FC who own Twickenham Stoop and LBRuT who own the Council Depot. Early discussions were also held with Nuffield Fitness Club, who lease their site from Harlequin FC. Consultation with landowners will continue throughout the project.

2.5.3 Pubic consultation has involved meetings, drop-ins and a question and answer session for local residents. The dates of these events are listed in **Appendix 2.4** of this ES. A Local Community Forum was established and has been consulted from the early stages of the design development, with 10 meetings held since June 2014. The organisations involved in the Forum are:

- Dean Estate Residents Association
- Friends of the River Crane Environment (FORCE)
- Heatham Alliance
- Court Way Residents Associations
- Heatham Residents Association
- Heathfield South Neighbourhood Watch
- Chudleigh Road Neighbourhood Watch
- Court Way Residents

2.5.4 Local ward members are also invited to attend.

2.5.5 The consultation process and how feedback from stakeholders has been taken into account is set out in Chapter 4 – Alternatives and Design Evolution and individual topic chapters of this ES. Further information on consultation is provided in the REEC Statement of Community Involvement.

2.6 APPROACH TO OUTLINE PLANNING APPLICATION (OPA)

2.6.1 The REEC development is submitted as an OPA with access in detail. The EIA has therefore been completed in line with the Primary Control Documents for the OPA; a Development Specification, Design Code and Parameter Plans. The Development Specification sets out what is proposed in the outline planning application, and the Design Code sets out what the proposed development is expected to look like. The Parameter Plans and Detailed Access Plans set out the maximum and minimum dimensions for buildings; zones to show the location of each element of the development (which are described in Chapter 5 – Proposed Development); and location of access routes.

2.6.2 In addition to the Parameter Plans, the OPA is supported by an Illustrative Masterplan (see Chapter 5, **Figure 5.1**), which provides an indication of what the proposed development could look like. The Illustrative Masterplan is not submitted for approval, but shows one way in which development of the type and scale proposed could comply with the Development Specification, Design Code and Parameter Plans, for which outline consent is being sought.

2.6.3 For developments that are to be determined as a multi–stage consent, such as the REEC development, the Government's Planning Practice Guidance[7] identifies that assessment of likely significant environmental effects should be provided at the principal decision making stage, in this case the OPA. If there is insufficient information at that stage to fully identify all of the likely significant environmental

[7] Department of Communities and Local Government 2014. Accessed at :http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/

effects, further assessment is required at the subsequent decision making stage, the reserved matters stage.

2.6.4 The guidance requires that to minimise the possibility of further environmental information being required at the later stages of a multi–stage consent, the following is considered:

- Where an application is made for an outline permission with all matters reserved for later approval, the permission should be subject to conditions or other parameters (such as a Section 106 agreement) which 'tie' the scheme to what has been assessed; and
- While applicants are not precluded from having a degree of flexibility in how a scheme may be developed, each option will need to have been properly assessed and be within the remit of the outline permission.

2.6.5 The assessments presented in this ES utilise a 'worst case' scenario and are based on the Parameter Plans submitted as part of the OPA, or where appropriate on the Illustrative Masterplan. Providing the development when taken forward at reserved matters stage remains within the parameters set out in the OPA, the significant environmental effects should be no greater than assessed in this ES.

2.7 BASELINE FOR THE ASSESSMENT

Temporal

2.7.1 Baseline environmental surveys for the REEC development were undertaken in 2014 and at the beginning of 2015. The scope and results are described in each individual topic chapter. This information forms the baseline for the scheme assessment, subject to the assumptions and limitations set out below.

2.7.2 The development will be implemented in a series of independent phases, and so the 'with development' situation has therefore been taken to be the completed development with all residential units in place in 2019. The construction phases and occupancy phases of a number of elements of the development are likely to overlap, and therefore to ensure the worst-case scenarios are assessed, a number of 'timeslices' have been considered in the assessments where appropriate. The development will consist of three main phases, as follows:

- **Phase 1 (2015-2017)** – Construction and commissioning of main College building, Secondary School and SEN School / demolition of existing College buildings;
- **Phase 2 (2017-2018)** – Construction and commissioning of Sports Centre and pitches / STEM Centre / completion of external works / construction of first

phase of residential development and access road / demolition of existing sports facilities and remaining existing College buildings; and

- **Phase 3 (2018-2019)** - Construction of Tech Hub / improvements to A316 Langhorn Drive junction / construction of second phase of residential development / final landscaping works.

2.7.3 For the purposes of the assessment, 'temporary' effects are those that occur for a set period of time and are generally associated with the demolition and construction process. 'Permanent' effects are those which will continue over time and are generally associated with the operational phase, when the various elements of the development (described in Chapter 5 – Proposed Development) are occupied.

Spatial

2.7.4 A description of the geographical area within which the proposed REEC development lies is given in Chapter 3 – Existing Site and Surroundings.

2.7.5 The development will be within the redline boundary shown in Chapter 1, **Figure 1.2**. The redline boundary encompasses the development zones for REEC and an additional area for a proposed junction modification on the highway network to facilitate access.

2.7.6 The spatial extent of each topic assessment has been defined in each topic chapter through the consideration of the location of potentially sensitive receptors and the distance from the site at which environmental effects could occur.

2.7.7 For each chapter the spatial extent of the assessment varies and is based on professional judgement or topic specific guidance.

Assumptions and Limitations

2.7.8 The principal assumptions that have been made, and any limitations that have been identified in undertaking the EIA, are set out below.

- The assessments presented in this ES utilise a 'worst case' scenario and are based on the Parameter Plans submitted as part of the OPA, or where appropriate on the Illustrative Masterplan. The topic chapters provide clarification as to the basis for each assessment;
- The assessment of construction effects is based on the indicative construction information, methodologies and phasing which are presented in Chapter 6 – Demolition and Construction; and
- It is assumed that the that the principal existing land uses adjoining the OPA Site will remain substantially unaltered when the REEC development is operational, with the exception of the cumulative schemes listed in Section 2.8.

2.7.9 Any specific limitations affecting the assessment are considered in each of the topic chapters.

Baseline in the Absence of Development

2.7.10 In the absence of achieving funding and planning for the development, the College would not close, but it would need to go through a sequential process of removing surplus accommodation and review its curriculum offer, as the expense associated with maintaining the outdated buildings is very high. The baseline would thus be similar to that at present but with the potential for removal of some of the existing buildings. Further details on the 'Do nothing' option are provided in Chapter 4 – Alternatives and Design Evolution.

Assessing Significance

2.7.11 No specific guidance exists for the development of significance criteria for the purposes of EIA and it is generally determined through professional opinion or topic specific guidance (such as that prepared for Ecological Impact Assessment by the Chartered Institute of Ecology and Environmental Management (CIEEM)).

2.7.12 As such, in this ES, the approach to the assessment of significant environmental effects has been determined by reference to a series of matrices with modifications to accommodate particular topic requirements. These provide a measure of significance based on the magnitude of the potential impact set against the sensitivity of the receptor. Effects are considered to be either adverse or beneficial.

2.7.13 Individual ES chapters identify any assumptions made about the design, construction or operation that are relevant to their specific assessment and the determination of effect significance.

Definition of 'Effects' and 'Impacts'

2.7.14 The terms 'effects' and 'impacts' are generally used interchangeably within EIA. Broadly, 'impacts' are the result of changes in the environment caused by development activities, with 'effects' the change then experienced by the sensitive receptors. The EIA Regulations refer exclusively to 'effect', and where appropriate this term is used in the ES.

Receptors

2.7.15 Effects therefore occur as a result of impacts on receptors on, adjacent to, or within a certain distance of, a development site. Receptors may be human (such as residents, workers and leisure users), sites with environmental designations (such as protected wildlife or archaeological sites) or individual habitats and species. An assessment is made of the sensitivity of the receptor, and the nature of the effect perceived by each

receptor is then determined using the following judgements:

- Its extent;
- Magnitude;
- Duration;
- Frequency;
- Reversibility;
- Nature (direct or indirect); and
- The effect in addition to other developments (cumulative effect).

2.7.16 Receptor value and sensitivity is generally considered through this ES as a hierarchy from High – Low. This is based on the receptor's characteristics or statutory designation (its value), alongside the ability of a receptor to tolerate and recover from any changes presented by the development (its sensitivity).

2.7.17 In order to provide consistency across the whole of the ES, however, a general approach has been taken to define the level of significance of effects, based on the matrix showing receptor value against its sensitivity to change in **Table 2.5**.

Table 2.5: Significance Criteria

		Receptor Value, Scale and Sensitivity		
		High	**Medium**	**Low**
Magnitude of Effect, including Duration, Frequency and Reversibility	**High**	Major	Major	Moderate or Minor
	Medium	Major	Moderate	Minor
	Low	Moderate or Minor	Minor	Negligible

2.7.18 The levels of significance set out in **Table 2.5** are defined as follows:

- Major – adverse or beneficial effects representing effects of considerable duration, magnitude or extent and therefore represent impacts that are of potential concern;
- Moderate – adverse or beneficial effects considered to have moderate importance to the immediate local environment; and
- Minor – adverse or beneficial effects that are likely to be either slight or very short term.

2.7.19 Negligible effects are not considered significant.

2.7.20 Where major, moderate or minor adverse effects have been identified in this ES, practicable mitigation measures are proposed where feasible to reduce or eliminate the effect. This may be through implementing specific working practices to control potential effects (such as dust suppression measures) or by proposing appropriate

replacements for features that will be permanently lost (such as new tree or hedgerow planting). Where mitigation measures are proposed, the assessment establishes their effectiveness and whether any residual effects will remain once the measures have been applied.

2.7.21 For ease of reference, the remaining residual effects arising from the assessment for all of the topic chapters are presented as a summary in Chapter 19 - Summary of Residual Effects.

2.8 CUMULATIVE EFFECTS

2.8.1 The consideration of cumulative effects is also an integral part of undertaking an EIA and understanding the potential changes perceived by receptors. It plays an important role in determining the full likelihood of significant environment effects that may arise from a proposed development.

2.8.2 Cumulative effects can occur in two ways as a result of development activities:

- Intra-project cumulative effects; and
- Inter-project cumulative effects

Intra-project Cumulative Effects

2.8.3 The IEMA explains in Section 6.4 of its 2011 report 'The State of Environmental Impact Assessment Practice in the UK' that intra-project effects:

'occur between different environmental topics within the same proposal, as a result of the development's direct effects'.

2.8.4 Intra-project effects may arise from two or more scheme-related effects having a combined effect. The EIA process has identified and assessed the likely significant intra-project effects that may arise through the construction or operation of the proposed development.

Inter-project Cumulative Effects

2.8.5 There is also a need to consider the relationship between the REEC development and other off site developments that will occur, or are expected to occur, within spatial or temporal proximity. These types of effects are known as inter-project cumulative effects or in-combination effects.

2.8.6 European Union guidance on the assessment of cumulative impacts is provided in the document *'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions'* (EU May 1999) which describes cumulative effects as:

'Impacts that result from incremental changes caused by past, present or other

reasonably foreseeable actions together with the project'.

2.8.7 As such, for the REEC development, the approach to inter-project cumulative effects has been taken to depend on:

- The location of potential cumulative developments; and
- The scale, nature and timing of potential cumulative developments.

2.8.8 To identify if inter-project cumulative effects are likely in combination with the operation or construction of the REEC development, the following types of development have been considered:

2.8.9 Committed developments, comprising:

- Development projects with planning consent and under construction; and
- Development projects with planning consent but which have not started construction.

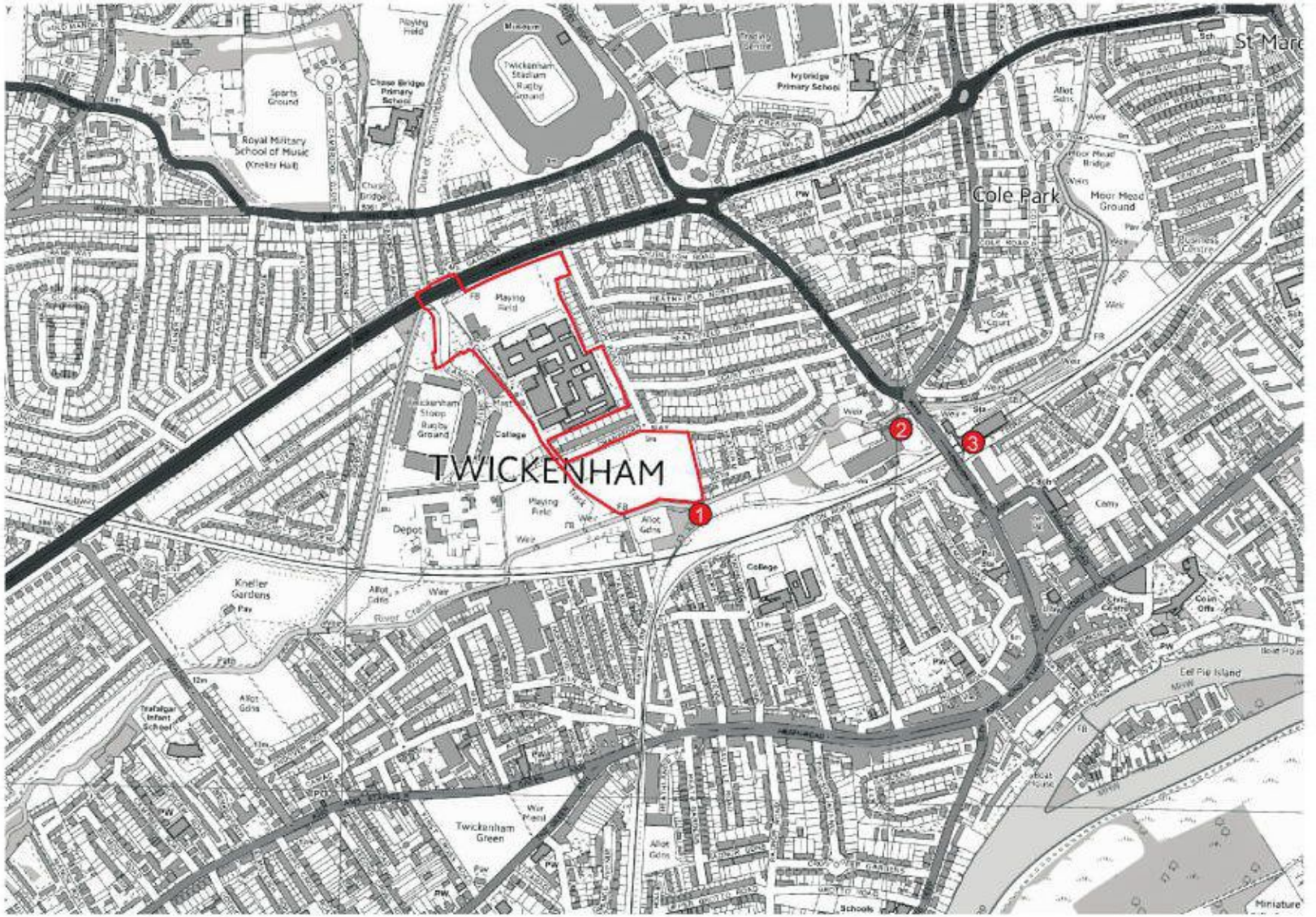
2.8.10 Known planned development, comprising:

- Submitted planning applications awaiting consent at the time of application;
- Development projects likely to be submitted where sufficient information is available for an assessment of cumulative effects to be completed; and
- Development projects and proposals which are promoted through relevant Local Development Plans, where there is sufficient information.

2.8.11 Following a review using the above criteria, the following schemes were identified for inclusion in the assessment of cumulative effects:

- Twickenham Railway Station London Road Twickenham (10/3465/FUL);
- Former Twickenham Postal Sorting Office London Road, Twickenham (12/3650/FUL); and
- Land Known as Twickenham Rough - Open Land West of Twickenham Sorting Office Site (13/1147/FUL).

2.8.12 The locations of these developments are shown on **Figure 2.1**.



Legend

1. Land Known as Twickenham Rough - Open Land West of Twickenham Sorting Office Site
2. Former Twickenham Postal Sorting Sorting Office London Road, Twickenham
3. Twickenham Railway Station London Road Twickenham

N

CASCADE

0 250m

Note: All locations are approximate

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Cumulative Developments

For Information Only

Figure Number:	Date:
Figure 2.1	June 2015

2.8.13 Other potential developments for which allocations are made in the LBRuT local Plan include Harlequin FC's possible redevelopment of Twickenham Stoop and future redevelopment of the Council Depot. Harlequin FC have undertaken some feasibility work on a possible future extension to Twickenham Stoop but no planning application has been prepared and, as a result, there is no clear proposal that can be considered. Similarly, there are currently no clear proposals for the relocation of the existing Council Depot or redevelopment of its site. These developments were therefore excluded due to uncertainty surrounding the likelihood and timing of implementation, and a lack of sufficient detail to enable meaningful assessment to be conducted. If sufficient detail was to be available by the reserved matters stage, further potential cumulative developments could be included at that point.

2.8.14 Where it is considered that inter project cumulative effects could arise for specific topics, this is addressed in the relevant topic chapter.

3 EXISTING SITE AND SURROUNDINGS

3.1 SITE LOCATION

3.1.1 As described in Chapter 1, the Site is situated to the north west of Twickenham town centre, as shown in Chapter 1, **Figure 1.1**. The main college site covers an area of approximately 6ha and the College playing fields south of Craneford Way cover an area of approximately 2.7ha, giving a total area for the existing site of 8.7ha. The OPA Site area is larger, at approximately 9.3ha, as it includes the existing college site and an additional area of 0.6ha for junction improvements on adjacent roads.

3.1.2 The Site is bounded by:

- A316 Chertsey Road to the north;
- Egerton Road and a residential area known as the Heatham Estate, to the east;
- River Crane and Twickenham Rough to the south; and
- Langhorn Drive, Harlequin FC's rugby stadium, Twickenham Stoop, Nuffield Health Club, Challenge Court and Craneford Way West playing fields to the west.

3.1.3 Further west is the Duke of Northumberland's River, which flows northwards past the Site, and to the south west is the Council Depot.

3.1.4 These features are illustrated in **Figure 3.1**.

3.2 SITE CHARACTERISTICS

3.2.1 The OPA Site comprises numerous academic and facilities buildings associated with the existing RuTC, with the northern part of the site occupied by a four-court sports hall with associated facilities, a grass sports pitch and car parking in the north east corner (**Figure 3.2**). The southern part of the Site comprises the College playing fields south of Craneford Way. The RuTC buildings were constructed in the 1930s with further expansion in the 1970s, and vary from one to three storeys in height (with the exception of the five storey tower), with the mass of buildings focussed to the south east corner of the Site.

3.2.2 The Site topography is relatively flat with an average elevation between 9.0m above ordnance datum (AOD) and 8.5m AOD (**Figure 3.2** and **Appendix 3.1**).

N

CASCADE

0 100m

Note: All locations are approximate

Drawing Source: HoK Number SK-042

Project Title:
Richmond Education and Enterprise Campus Development

Figure Title:
Site Context

For Information Only

Figure Number:	Date:
Figure 3.1	June 2015