

## **CHAPTER 6 – APPENDICES**

### CONTENTS

- Appendix 6.1: Outline Construction Environmental Management Plan
- Appendix 6.2: Outline Construction Management Plan
- Appendix 6.3: Outline Construction Logistics Plan
- **Appendix 6.4: Indicative Construction Phasing Plans**
- **Appendix 6.5: Indicative Demolition and Construction Programme**
- Appendix 6.6: 2008 Soiltechnics Ground Investigation Report
- Appendix 6.7: Guidance for Protection of Controlled Waters



# Appendix 6.1: Outline Construction Environmental Management Plan



### OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

### CONTENTS

1	Introduction	. 1
1.1	Background	. 1
1.2	The Proposed Development	. 1
1.3	Policy, Legislation and Best Practice Guidelines	•4
1.4	Objectives of the Outline CEMP	•4
2	Programme and Phasing Works	.6
2.1	Approximate Overall Site Activity Programme	.6
2.2	Sequence, Approximate Programme and Works Summary	.6
3	Management of Demolition, Excavation and Construction Activities	.9
3.2	Responsibilities	.9
3.3	Contact Details for Reporting Incidents	.9
3.4	Actions in Response to Monitoring	10
3.5	Site Induction	10
3.6	Programme and Working Hours	10
3.7	Sensitive Receptors	11
3.8	Communication Strategy	14
3.9	Access and Transport	15
3.10	Site Compound	16
3.11	Resource Efficiency	16
3.12	Management of Dust and Noise	16
3.13	Control of Lighting	17
3.14	Traffic Management	17
3.15	Prevention and Control of Mud on Roads	18
3.16	Prevention and Control of Fires and Burning	18
3.17	Storage of Fuels, Oils and Chemicals	18
3.18	Contaminated Land	18
3.19	Site Waste Management Plan	19
3.20	Water Management Plan	20
3.21	Management of Invasive Non-Native Species	20
4	Environmental Mitigation and Monitoring	21
4.1	Introduction	21
4.2	Transport	21
4.3	Noise and Vibration	22
4.4	Air Quality	23
4.5	Ground Conditions	28
4.6	Waste	31
4.7	Water Resources and Flood Risk	32
4.8	Ecology	35
4.9	Townscape and Visual Amenity	36
4.10	Cultural Heritage	36
4.11	Socio-economics	37



### **1 INTRODUCTION**

#### 1.1 BACKGROUND

- 1.1.1 This document is the outline Construction Environmental Management Plan (CEMP) for the Richmond Education and Enterprise Campus (REEC) development, a proposed mixed use redevelopment by Richmond upon Thames College (RuTC) of its existing site in Twickenham, located in the London Borough of Richmond upon Thames (LBRuT), south London (see location in **Figure 1.1**).
- 1.1.2 A full CEMP will be produced by the principal contractor(s) appointed for the detailed design and build of each element the REEC development. The aim of the CEMP is to ensure that the commitments to environmental protection detailed within the Environmental Statement (ES) accompanying the Outline Planning Application (OPA) for the REEC development are adhered to throughout the demolition and construction stage, and that best practice methods are employed by all contractors and sub-contractors. The following key environmental topics, as identified in the ES, are addressed by the CEMP:
  - Transport;
  - Noise and vibration;
  - Air quality;
  - Ground conditions;
  - Waste;
  - Water resources and flood risk;
  - Ecology;
  - Townscape and visual amenity;
  - Cultural heritage; and
  - Socio-economics.
- 1.1.3 The CEMP should be read alongside the ES which details the significant effects on sensitive receptors which are predicted to arise from the REEC development.

#### **1.2 THE PROPOSED DEVELOPMENT**

1.2.1 The Applicant is seeking an OPA for replacement of the College and upgrading of the sports facilities and pitches; a new Science, Technology, Engineering and Maths (STEM) Centre; a new secondary school; re-provisioning of a special educational needs (SEN) secondary school; a new technical media hub; and a separate enabling residential development. The OPA Site is shown in **Figure 1.2**.









1.2.2 The OPA seeks to establish the principles for the REEC development against which subsequent detailed Reserved Matter Applications, based on detailed design, will be considered. The OPA is accompanied by an ES which identifies mitigation and monitoring requirements to avoid, reduce or reverse environmental impacts from the REEC development, and which will be implemented through this CEMP.

#### **1.3** POLICY, LEGISLATION AND BEST PRACTICE GUIDELINES

- 1.3.1 All mitigation and environmental control measures identified within the CEMP have been derived from relevant best practice guidance, policies and legislation. This includes the Environment Agency Pollution Prevention Guidance<sup>1</sup>.
- 1.3.2 In order to ensure compliance with the environmental requirements identified in the CEMP and to encourage continual improvement in environmental performance, the REEC contractor(s) will be required to have ISO 14001 certification, and to develop and maintain an Environmental Policy.

#### **1.4 OBJECTIVES OF THE OUTLINE CEMP**

- 1.4.1 The purpose of the outline CEMP is to present an overview of the mitigation measures and principles required to minimise and prevent detrimental environmental impacts from the REEC development during the construction phase. The CEMP also outlines responsibilities for implementing the mitigation measures, monitoring their effectiveness, and taking remedial action in the event that an unacceptable impact is identified.
- 1.4.2 The CEMP sits alongside the outline Construction Management Plan and outline Construction Logistics Plan which set out general measures for environmental protection during construction. The CEMP identifies specific measures identified in the ES as being required to avoid detrimental environmental impacts during construction.
- 1.4.3 The CEMP is a live document that will be updated as required throughout the course of the demolition and construction programme. The CEMP will be reviewed and updated by the Principal Contractor following appointment, prior to commencement of site set up and enabling works. In the event that more than one contractor is appointed each will be required to produce a full CEMP. It will then be the contractor's responsibility to regularly update and implement the final CEMP, and ensure that all site personnel are made aware of its contents.
- 1.4.4 Finalisation of the CEMP will entail the following activities:
  - Establish site logistics, access and welfare arrangements;

<sup>&</sup>lt;sup>1</sup> https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg



- Set out site management protocols;
- Prepare detailed Method Statements for construction activities;
- Re-assess site activities which may give rise to environmental impacts;
- Develop a detailed Traffic Management Plan;
- Prepare a detailed Site Waste Management Plan;
- Confirm responsibilities for action and reporting;
- Prepare a log for recording comments from the public and actions made in response; and
- Develop the communications strategy.
- 1.4.5 The contractor will operate under an Environmental Management System (EMS) which complies, as a minimum, to the requirements of BS EN ISO 14001:2004. This standard includes the preparation and use of a CEMP which provides a high level structure to the system that will be implemented for the construction phase of the project. Responsibilities for the control and implementation of the appointed contractor(s) environmental system are detailed in Section 2 of this Plan. The CEMP is to be reviewed regularly by the appointed contractor's Environmental Manager in consultation with the project team to ensure that it remains in line with site, project and external factors.



## 2 PROGRAMME AND PHASING WORKS

#### 2.1 APPROXIMATE OVERALL SITE ACTIVITY PROGRAMME

2.1.1 Given the scale of the REEC development, the current expectation is that the REEC development construction programme would commence in 2015 and be phased over a 4 year period (**Table 2.1**). The date of completion and full operation of the REEC development is programmed for November 2019. Whilst full details of the demolition and construction works are not finalised, it is possible to provide general information about the likely timing of likely activities, as provided below.

#### 2.2 SEQUENCE, APPROXIMATE PROGRAMME AND WORKS SUMMARY

- 2.2.1 The assumed programme of likely works and the overall likely sequence for the demolition and construction activities is divided into three phases. In summary 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.
- 2.2.2 **Table 2.1** sets out the phasing activities in further detail in order of their anticipated sequence, and includes the approximate duration of the works. It should be noted that in order to achieve the demolition and construction programme and due to the complexity and size of the Site, a number of these phases are expected to overlap where works would continue from one stage after commencement of the next. A series of phasing plans showing the sequencing of works is given in **Appendix 6.4** of the ES.
- 2.2.3 The detailed demolition and construction programme up until operation of the completed REEC development, would be determined by the main contractor selected to carry out the works and would be dependent on the construction techniques ultimately employed following detailed design.
- 2.2.4 Leading up to and prior to the start of any construction on-site there would be extensive dialogue with Transport for London, London Underground, London Bus Service and the local highway authority at LBRuT regarding the interface between the



construction site, adjacent property, highway and transport infrastructure to ensure that continuity and safe operation is maintained. Further to this, there would be ongoing dialogue with utility service providers regarding the existing network of utilities on and around the Site.

# Table 2.1 Indicative Demolition and Construction Phases, Activities andAnticipated Duration.

Phase / Sub-	Activities	Anticipated Timescales
Phase		(and Duration)
Phase 1		
1a (enabling works*)	• Existing buildings to be taken out of use (Music, LRC, Science, A block and Z block) and space allocated.	July 2015 (2 weeks)
1b (enabling works*)	<ul> <li>Internal refurbishment of existing Workshop Q and E block</li> <li>Line out two pitches on College playing fields on Craneford Way East</li> <li>College decant to refurbished rooms</li> <li>Construction of haul road and preparation of access off Langhorn Drive and Egerton Road</li> <li>Demolition of Music, LRC, Science, Z block and A block.</li> </ul>	July 2015 - February 2016 (6 months)
10	<ul> <li>Construction of main college building</li> <li>Construction of Secondary and SEN School</li> <li>Removal of hardstanding and seeding of playing fields.</li> </ul>	March 2016 – August 2017 (18 months)
1d	<ul> <li>Phased move of college departments and facilities into the new college blocks and refectory</li> <li>Schools open</li> <li>Installation of temporary changing facilities for the Sports Hall.</li> </ul>	August 2017 (1 month)
1e	<ul> <li>Demolition of KLM, sports changing facility and blocks B, C1, C, D, LSW, T, E and E1, refectory, caretaker building and telephone mast</li> <li>Demolition of outbuildings and pumping station.</li> </ul>	September 2017 – October 2017 (2 months)
Phase 2		-
2a	<ul> <li>Construction of Sports Centre and pitches on main site and College playing fields</li> <li>Construction of STEM and completion of schools external area</li> <li>Marsh Farm lane upgrade commences.</li> </ul>	September 2017 – August 2018 (12 months)
2b	<ul> <li>Commencement of Phase 1 of residential work</li> <li>Construction of residential access road</li> </ul>	October 2017 – September 2018 (12 months)
20	<ul> <li>Decant of Sports Hall and temporary changing buildings into new Sports Centre</li> <li>Decant into STEM.</li> </ul>	October 2018 (1 month)
2d	<ul> <li>Demolition of the existing sports hall and removal of changing rooms</li> <li>Demolition of remaining college workshops / teaching buildings.</li> <li>Temporary access route for Phase 1 residential established.</li> </ul>	October – December 2018 (2 months)
Phase 3		
за	Construction of Tech Hub;	November 2018 –



	<ul> <li>Junction amendments on A316 Chertsey Road and Langhorn Drive road realignment;</li> <li>Completion of Marsh Farm Lane from STEM to Sports Centre</li> <li>External works for Sports Centre car parking and SEN School MUGA pitch.</li> </ul>	September 2019 (10 months)
3p /3c	<ul> <li>Construction of Phase 2 of the residential development</li> <li>Permanent residential access established</li> <li>Marsh Farm Lane upgrade completed.</li> </ul>	December 2018 – November 2019 (12 months)



## 3 MANAGEMENT OF DEMOLITION, EXCAVATION AND CONSTRUCTION ACTIVITIES

3.1.1 This section outlines the general site management for the construction and demolition works. The specific mitigation measures for the REEC development are then set out in Section 4 below.

#### 3.2 **RESPONSIBILITIES**

3.2.1 The CEMP will form part of the demolition, excavation and construction contracts for the site. Implementation of the CEMP will be the responsibility of the Principal Contractor. Environmental support and monitoring of demolition, excavation and construction activities will be provided by an appointed Environmental Manager for each phase where necessary. **Table 3.1** provides an indicative structure outlining individual responsibilities for each technical area. This structure will need to be updated based on the specific contractor's roles and responsibilities. Each role should be designated to ensure that the delivery of the CEMP is effective and efficient in its role as a tool to minimise environmental impacts during demolition, excavation and construction phases.

	-
Designated Role/	Responsibilities
Technical Area	
Project Manager/Construction Design and Management (CDM) Co-ordinator	Responsible for ensuring any planning conditions are adhered to by liaising with Site Manager and Environmental Manager regularly. Responsible for approval of CEMP and Health and Safety Plan.
Site Manager	Overall responsibility on site for the specific construction and demolition activities. Also responsible for producing detailed CEMP and any subsequent updates.
	Monitoring sub-contractors compliance with the CEMP.
	In the event of an environmental incident or emergency, the Site Manager will liaise with the Environmental Manager on demolition/construction activities and enforce any modifications to methods statements or stops to works required.
Environmental Manager	Ensure appropriate environmental monitoring is undertaken, where necessary.
	Liaison will be undertaken with the Site Manager in the event of an environmental incident to advise on actions to be taken. Responsible for Ecological Clerk of Works (EcOW) activities.

#### Table 3.1Roles and Responsibilities

#### 3.3 CONTACT DETAILS FOR REPORTING INCIDENTS

3.3.1 In the event of an emergency, the contractor's Site Manager should be contacted in the first instance. Relevant procedures will then be advised, or the matter referred to the Environmental Manager, if appropriate.



#### **3.4** ACTIONS IN RESPONSE TO MONITORING

3.4.1 In the event that monitoring of the environmental parameters identified in Section 4 of the Outline CEMP shows non-compliance, or action is required due to visual inspection or public complaints, the Site Manager and Environmental Manager will be informed immediately. The Environmental Manager will then review the monitoring data and determine the action to be taken, including informing the Site Manager of any requirements to modify working methods, amend method statements or to suspend work activities. The Site Manager will implement agreed actions and review the demolition or construction works responsible for the environmental incident until the monitored levels are compliant. The roles and responsibilities of site staff are summarised in **Table 3.2**.

# Table 3.2Responsibilities for Environmental Monitoring, Actions and<br/>Reporting

Role	Responsibility
Site Manager	Routine site inspections to check that mitigation measures are in place and effective.
	Liaises with Environmental Manager to determine need to modify working methods or halt works in the event of an environmental non- compliance. Reviews outcome in order to prevent re-occurrence.
	Notifies appropriate environmental regulator and LBRuT of any environmental non-compliances.
Environmental Manager	Routine walkover surveys to check environmental quality compliance. In the event of an identified impact, exceedence of monitored trigger levels or in the event of a public complaint, reviews the site conditions and liaises with the Site Manager on the need to modify working methods or temporarily suspend works activities to prevent impact.

#### 3.5 SITE INDUCTION

- 3.5.1 A site environmental induction relating to the potential environmental impacts of the activities associated with the demolition, excavation and construction stages will be carried out. This will cover issues that site staff and visitors need to be aware of, such as respecting ecologically protected areas and training on mitigation measures.
- 3.5.2 Personnel will be required to sign a record of their Site Induction and these will be kept on file.

#### 3.6 **PROGRAMME AND WORKING HOURS**

3.6.1 A detailed demolition, excavation and construction programme will be produced by the contractor on appointment.



- 6.1.1 Prescribed working hours would be agreed with LBRuT. It is however anticipated that the normal working hours for the demolition and construction works would be as set out below, in accordance with LBRuT's Considerate Contractor's Advice Note<sup>i</sup>:
  - 08:00 18:00 hours Monday to Friday (with a one hour period of mobilisation / demobilisation at the start and end of the day);
  - 08:00 13:00 hours Saturday (with a one hour period of mobilisation / demobilisation at the start and end of the day); and
  - No working on Sundays or Bank Holidays.
- 3.6.2 If a specific requirement arises to work outside this then LBRuT's EHO will be contacted in order to discuss and confirm their agreement (e.g. plant breakdown, power switchover, abnormal loads).

#### **3.7** SENSITIVE RECEPTORS

3.7.1 Sensitive receptors likely to be affected by construction activities (from dust, fumes, noise, sound, vibration, light, pollution, etc) and other environmental impacts are listed in **Table 3.3**. Figure 3.1 provides an overview of the nearby surroundings and identifies some of these receptors.



# Table 3.3PotentiallySensitiveReceptorstoDemolitionandConstruction Activities

Receptor	Nearest approximate
	distance from the Site
Desidents in the immediate significant of the Cite in the line the	Boundary
Heatham Estate properties on Craneford Way, Challenge	Gardens of properties on Egerton
Court Depe Estate and properties north of the A216 Chertsey	Way to the south are immediately
Road	adjacent to the Site boundary
Existing Site users who will remain on Site during construction	On-site
as part of the 'decant' strategy.	
Future on Site schools staff and students, residents and	On-site
workforce in the Tech Hub	
Vehicle and cycle users of the adjacent road network, including	10m (the Site is located adjacent
Egerton Road, Craneford Way, Langhorn Drive, and the wider	to and west of Egerton Road)
Strategic network, including A316 Chertsey Road.	10.100m
Council depot	10-10011
Network of Public Rights of Way (PRoW) cycle networks and	The Craneford Way playing fields
nearby open spaces.	(designated Metropolitan Open
	Land) and Craneford Way West
	playing fields and the area south
	east of Challenge Court (both
	public open space) are adjacent to
	the Site boundary to the south and
	south west.
	A PRoW (Marsh Farm Lane) runs
	down the western boundary of the
	Site and provides access to the
	River Crane to the south of the
	Site
Users of College Playing Fields	On-site
LBRuT Air Quality Management Area (AQMA)	On-site
The Site overlies Kempton Park Gravel shallow principal	The Site is located adjacent to and
aquifer and is in proximity to the River Crane and Duke of	north of the River Crane and
	approvimately 20m east from the
Northumberland's River.	approximately 2011 cast from the
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land	Duke of Northumberland's River
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of	Duke of Northumberland's River (near the A316)
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College	Duke of Northumberland's River (near the A316)
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1000	Duke of Northumberland's River (near the A316)
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding).	Duke of Northumberland's River (near the A316)
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including	Duke of Northumberland's River (near the A316)
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation	10m north-west of Twickenham Junction Rough Sites of Local
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough	Duke of Northumberland's River (near the A316) 10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Northumberland's River, River Crane at St Margaret's	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough).	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road Twickenham Green Queen's Road Amyand	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature <u>Conservation (Twickenham Junction Rough)</u> . Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside.	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a	10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a Registered Park and Garden.	approximately 20m cast from the Duke of Northumberland's River (near the A316)10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.490m
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a Registered Park and Garden. Locally listed views and protected vistas	approximately 20m cast from the Duke of Northumberland's River (near the A316)10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.490mNone in proximity. The nearest
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a Registered Park and Garden. Locally listed views and protected vistas	approximately 20m cast from the Duke of Northumberland's River (near the A316)10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.490mNone in proximity. The nearest protected vista is between Importance in
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a Registered Park and Garden. Locally listed views and protected vistas	approximately 20m cast from the Duke of Northumberland's River (near the A316)10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.490mNone in proximity. The nearest protected vista is between Richmond Park and St Paul's Stream
Northumberland's River. The majority of the Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river flooding in any one year). A portion of the College playing fields on Craneford Way East is located in Flood Zone 2 (land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding). Non-statutory designated conservations sites, including Sites of Metropolitan Importance for Nature Conservation (Crane Corridor) (Grade 1, 2 and Local), Sites of Borough Importance for Nature Conservation (Duke of Northumberland's River, River Crane at St Margaret's Borough) and Sites of Local Importance for Nature Conservation (Twickenham Junction Rough). Rosecroft Gardens Conservation Area and in the wider area Hamilton Road, Twickenham Green, Queen's Road. Amyand Park, Pope's Avenue and Twickenham Riverside. Grade 1 Listed All Hallows Church and Pope's Garden, a Registered Park and Garden. Locally listed views and protected vistas	approximately 20m cast from the Duke of Northumberland's River (near the A316)10m north-west of Twickenham Junction Rough Sites of Local Importance for Nature Conservation to 450m north-west of Crane Corridor Sites of Metropolitan Importance for Nature Conservation 50m to Rosecroft Gardens Conservation Area.490mNone in proximity. The nearest protected vista is between Richmond Park and St Paul's Cathedral to the east of the Site.





3.7.2 The CEMP should be read alongside the ES which details the significant effects on sensitive receptors which are predicted to result from the REEC development.

#### 3.8 COMMUNICATION STRATEGY

- 3.8.1 The Contractor will be proactive in facilitating communication with local stakeholders and in particular sensitive receptors. The Environmental Manager will ensure that the Site Manager is fully aware of any particular potential effects of the upcoming works, and the Site Manager will advise REEC accordingly.
- 3.8.2 The contact details for the Site Manager will be provided to all sensitive receptors, included with all correspondence, and displayed at the site entrances. The telephone number will be publicised as a mechanism for the public to communicate any queries or complaints to the Site Manager. A copy of the latest version of the CEMP will also be kept in the Site Office.
- 3.8.3 A programme for resolving any complaints received will be notified by the Site Manager to REEC at the earliest opportunity, and in any event within two working days of receiving the complaint. The resolution will be implemented within two working days of REEC and the Site Manager confirming their acceptance of the measure. The Site Manager will produce a monthly report of complaints and actions taken and issue it to REEC and the Environmental Manager.
- 3.8.4 The Site Manager will ensure that the adopted resolution is maintained for the duration of the works, or until such time as it is deemed redundant as a result of the overall progress of the works.
- 3.8.5 The Principal Contractor will establish a community engagement strategy for example advising of activities through newsletters, public meetings and open dialogue. REEC will continue to inform local residents, particularly those affected along the access road leading to the site, of progress through regular liaison. REEC will notify residents of any forthcoming works which may for example be particularly noisy, and will listen to any concerns to address any actual or perceived problems.
- 3.8.6 Information regarding the construction works will be provided for all neighbours affected by the work via information mail drops and the REEC website, and through the Local Community Forum, with contact details of the Principal Contractor's appointed community liaison manager.
- 3.8.7 Contact details will be posted on external facing hoardings for contacting the site team.
- 3.8.8 Full and regular updates will be provided throughout the project regarding programming and site activities.



#### **Considerate Contractor's Scheme**

3.8.9 The Project will be registered with the National Considerate Constructors Scheme. The construction team will endeavour to achieve the highest standards for recognition at national level. The Considerate Constructors Scheme carries out regular site audits.

#### 3.9 ACCESS AND TRANSPORT

- 3.9.1 The A316 would be used as the main approach for all demolition and construction delivery vehicles. The main site access would be from Langhorn Drive and a limited amount from the northern end of Egerton Road. Temporary access for the residential Phase 1 development will be provided past the Sports / STEM block and to the most southern point of the site to the rear of the existing Q block. Due to the mix of residential and construction traffic, management systems will be put in place to ensure construction traffic does not affect the residential traffic. The permanent residential access will be provided following the completion of the residential Phase 2 development.
- 3.9.2 For the development of the College playing fields on Craneford Way East and the second phase of the residential development, there will be some minor use of Craneford Way which will be accessed and egressed from Langhorn Drive using the vehicular link with some localised traffic management.
- 3.9.3 Vehicular access routes to the Site would be regularly monitored and reviewed during the course of the demolition and construction works. All vehicles would be required to keep to designated routes and follow instructions issued by the main contractor appointed on-site.
- 3.9.4 Modern construction management methods allow 'just-in-time' deliveries ensuring that relatively constrained sites operate efficiently with limited on-site storage of materials. This leads, where appropriate, to the use of smaller delivery vehicles and shorter delivery times.
- 3.9.5 Construction access routes would be implemented to take into account current legislation, Police, Fire Authority and HSE Guidance, Local Authority Transport Schemes and Neighbourhood Lorry Restrictions.
- 3.9.6 Construction personnel would be encouraged to travel to the Site by public transport and limited car parking would be provided on-site for on-site contractors and associated LGVs.



#### 3.10 SITE COMPOUND

3.10.1 The location of site compound and material stockpiles will be determined by the appointed contractor according to measures detailed in the Construction Method Statement (see **Appendix 6.2** of the ES).

#### 3.11 **RESOURCE EFFICIENCY**

3.11.1 The contractor(s) full CEMP will detail the approach for a range of resource efficiency principles including locally sourcing materials and services, auditing materials to demonstrate environmental performance and options for the re-use of supplies. The CEMP will be implemented alongside a carbon foot printing procedure that will minimise carbon demands of the development during the construction phase, identify the use of renewable resources of energy and incorporate efficient energy supply and low carbon technologies where feasible.

#### 3.12 MANAGEMENT OF DUST AND NOISE

- 3.12.1 This section provides generic best practise measures for the management of noise and dust nuisance. Further details specific to the REEC development are provided in Section 4.3 and 4.4.
- 3.12.2 All demolition activities will be carried out using methods which minimise dust and noise with regard to the impact on the local community.

#### Dust

- 3.12.3 Dust and emissions from the construction of the REEC development have the potential to reduce air quality and impact upon sensitive receptors including ecological and residential receptors. Dust suppression will be considered for each construction activity and will be specifically detailed in the related method statement, which will include the measures contained in this CEMP as a minimum (see Section 4.4).
- 3.12.4 Dust suppression measures; only plant modern demolition plant equipped with water spray nozzles located on the back acting booms will be used. Stockpiles will also be damped down as necessary. Dustbuster spray equipment will also be used.

#### Noise

- 3.12.5 Works on site will follow the Code of Practice BS 5228: 1997 Noise Control on Construction and Open Sites which provides specific detail on suitable noise mitigation measures.
- 3.12.6 The best practicable means, as defined in section 72 of the Control of Pollution Act



1974, to reduce noise to a minimum shall be employed at all times.

- Where practical electrically powered Plant / tools will be used.
- All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers.
- All compressors shall be "sound reduced" models fitted with properly-lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, and all ancillary pneumatic percussion tools shall be fitted with mufflers or silencers of a type recommended by the manufacturers.
- Machines in intermittent use shall be shut down in the intervening periods between work or, where this is impractical, shall be throttled to a minimum.
- All plant and machinery shall be maintained in good and efficient working order.
- No plant shall be left running when not in use.

#### 3.13 CONTROL OF LIGHTING

- 3.13.1 Site lighting shall be kept to a minimum necessary for adequate security and safety. To minimise the potential for nuisance, lighting shall not be located or directed towards neighbouring or adjoining properties.
- 3.13.2 External illumination of the Site to walkways and working areas will be controlled and located such that neighbours are not inconvenienced outside working hours. Time clocks and PIR sensors will be used in addition to site management checking at the end of each working day.
- 3.13.3 To minimise potential habitat fragmentation and deterioration impacts associated with inappropriate lighting, all external lighting and illumination associated with the construction and demolition process will be in accordance with guidance provided by the Institution of Lighting Engineers (ILE) and International Commission on Illumination. This will include, but not be limited to:
  - Provision of minimum light levels necessary for safe working conditions;
  - Avoidance of unnecessary light spillage through appropriate direction of lighting towards the area of works and shielding if necessary; and
  - Inclusion of a period of darkness to allow bat species to commute across the Site.

#### 3.14 TRAFFIC MANAGEMENT

3.14.1 An Outline Construction Logistics Plan has been established to ensure the safety of pedestrians, minimise nuisance from deliveries and site traffic. It also addresses parking for site personnel and visitors to avoid parking nuisance to the local community.



#### 3.15 PREVENTION AND CONTROL OF MUD ON ROADS

- 3.15.1 The contractor shall take all necessary steps to prevent vehicles entering or leaving the Site from depositing mud and other debris on the surface of any roads, and shall remove expeditiously any materials so deposited.
- 3.15.2 Mechanical wheel washing equipment will be set up close to the site entrances and will be manned; should a breakdown or incident occur a road sweeping company who can supply plant at short notice will be contacted in the unlikely event this is required.

#### 3.16 PREVENTION AND CONTROL OF FIRES AND BURNING

- 3.16.1 The Site Manager will be responsible for ensuring that fire fighting equipment and procedures are in place. Fire fighting equipment (e.g. beaters, sand buckets) and fire extinguishers are to be located at key places around the Site, such as offices and fuel storage areas, and carried on fuel bowsers. Specific training is to be given to key site personnel in the use and maintenance of the fire fighting equipment. No fires are to be allowed and fire prevention and fire action posters shall be displayed around the Site, on view to all employees.
- 3.16.2 All employees must ensure that fire exits, fire fighting equipment and extinguishers are always readily accessible. Any defects should be reported immediately to the Site Manager.
- 3.16.3 A fire assembly point will be located in the car park area and employees will be informed of the location during their induction.

#### 3.17 STORAGE OF FUELS, OILS AND CHEMICALS

3.17.1 Storage of all fuels and chemicals will conform to Government regulations and best practice guidance issued by the Environment Agency. Site storage areas will not be located near to sensitive receptors (such as water courses). Site spill kits will be appropriately located.

#### 3.18 CONTAMINATED LAND

3.18.1 All excavations will be controlled so as to maximise the opportunity for classification and disposal of inert and non-hazardous waste. A watching brief on contaminated land will be undertaken by members of the contractor's site team during site preparation and excavation in order to identify any unforeseen contamination that may arise during the works which was not identified as part of the site investigation work done to date. Section 4.7 sets out the arrangements for this in more detail, including liaison with regulatory bodies.



#### 3.19 SITE WASTE MANAGEMENT PLAN

- 3.19.1 A Site Waste Management Plan (SWMP) will be produced to identify waste streams likely throughout the project including waste disposed of by sub-contractors. The SWMP will ensure that waste production is minimised and that recycling and re-use is maximised through monitoring, recording, sorting and separating construction waste wherever practicable.
- 3.19.2 The SWMP will ensure compliance with the statutory waste management Duty of Care, which requires that waste is stored and handled in a manner that prevents its escape. Waste producer records will be kept which cover the transfer of waste to registered waste carriers and its management and disposal at a licensed or permitted facility.
- 3.19.3 The SWMP will be based on implementing the following waste hierarchy throughout all phases of the proposed development:
  - Avoid the generation of waste;
  - Minimise the generation of waste;
  - Reuse and/or recycle materials within the proposed development;
  - Reuse and/or recycle materials for beneficial use on other sites; and
  - Dispose of material at permitted sites.
- 3.19.4 The following measures will be taken to minimise the production and avoid disposal of waste:
  - 'Just-in-time' procurement to minimise the chance of damage to materials;
  - Storage in an appropriately dedicated area to prevent spoilage, damage and contamination;
  - Training of construction teams on the importance of correct ordering of materials so as to avoid excess materials;
  - Use of standard materials where possible that can be used elsewhere if necessary;
  - Ensuring that deliveries are correct before accepting them on site;
  - Review of packaging requirements where possible to avoid, reduce and reuse;
  - Maximising use of offsite manufacturing;
  - Development of a materials inventory of construction material, equipment and plant for the purposes of identifying reuse options across the project; and
  - General training of site personnel on waste issues.
- 3.19.5 The SWMP will identify key roles and responsibility within the project team, measures for minimising waste, waste storage, transport and disposal, measures for dealing with potentially hazardous waste, monitoring, reporting and record keeping,



training and periodic review.

#### 3.20 WATER MANAGEMENT PLAN

3.20.1 A Water Management Plan (WMP) will be produced which describes the mitigation measures and pollution prevention controls which the contractor(s) will implement during the construction phase of the REEC development. These will ensure the construction work follows industry best practice for water management and complies with regulatory and policy requirements.

Surface water discharges to a watercourse, from runoff or dewatering, will be subject to a discharge permit which will set flow and quality limits to avoid impacts on the receiving water courses. Section 4.7 sets out the arrangements for this in more detail.

#### 3.21 MANAGEMENT OF INVASIVE NON-NATIVE SPECIES

Species identified on the site which are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) will be managed appropriately. It is an offence, under this legislation, to plant these species or otherwise cause them to grow in the wild. A method statement for the removal or long-term management/eradication of wall cotoneaster should be developed for the construction phase and retained postdevelopment by the site operator. See also Section 4.8.



## 4 ENVIRONMENTAL MITIGATION AND MONITORING

#### 4.1 INTRODUCTION

- 4.1.1 The demolition and construction phase of the REEC development has the potential to cause adverse impacts on sensitive receptors, as identified in the Environmental Statement and listed in **Table 2.2**. The impacts have been assessed in the Environmental Statement which accompanies the OPA.
- 4.1.2 The CEMP will ensure that potential pollution risks and all aspects of site work which may impact on the environment will be systematically identified along with preventative measures and mitigation. Each section of the outline CEMP below sets out what measures are to be implemented by the contractor and how the effectiveness of the measures in reducing impacts is to be monitored.

#### 4.2 TRANSPORT

#### **Mitigation Measures**

- 4.2.1 Pedestrians formed of the general public, local residents and employees associated with other existing uses across the site will be kept separate from the demolition and construction activities at all times used appropriate hoarding.
- 4.2.2 During construction works, existing pedestrian routes and footpaths crossing will be maintained at all times. If temporary closures are required, i.e. for the erection of scaffolds or incoming services connections, permissions and licences will be obtained for the rerouting of pedestrian rights of way.
- 4.2.3 The proposed construction vehicle access routes avoid using the minor roads as far as possible and have specifically avoided residential roads adjoining the site to the east. These measures will ensure that construction vehicles have minimal impact on the residential roads surrounding the site. In addition, waiting vehicles will be avoided through strict management of delivery times by the use of a regulated on-line booking system controlled by the Principal Contractor (see Outline CLP in **Appendix 6.3** of the ES). The form of construction vehicle management will be set out at the tender stage and reinforced on-site.
- 4.2.4 On-site parking for construction workers will be restricted to an absolute minimum as there will be a general policy of not providing any car parking on the site. Parking on local residential roads to the east of the site is prohibited by the existing Controlled Parking Zones (CPZs). The construction workers will be encouraged to use the nearby public transport modes of bus and rail. Provisions will be made



within the site for essential on-site parking if required for emergencies and for a minibus set down point.

- 4.2.5 Section 106 contributions will be provided to fund a study to establish whether residents would like the operation times of CPZ 'R' to the north of the site to be extended from the existing operation times. If the residents deem the extension of the CPZ operation times to be required, sufficient funds commuted through the Section 106 will be used to implement the extended operation times including infrastructure such as signing.
- 4.2.6 To encourage the use of cycles by contractors, secure cycle parking and changing facilities with showers will be provided.
- 4.2.7 To minimise the likelihood of congestion during the demolition and construction period, strict monitoring and control of vehicles accessing and egressing, and travelling across the site will be implemented. All on-site construction vehicle trips will be pre-arranged and pre-booked as part of the efficient operation of construction work. The use of a booking system and having the delivery times agreed with each contractor means that vehicles are not caused to wait prior to entering the site.
- 4.2.8 Delivery schedules will be produced in order to obtain the profiles of future construction vehicle trips to regulate deliveries and eliminate bottle necks. A holding area has been identified close to Sunbury Cross on the A316 which may be used to control the number of construction deliveries coming into close proximity of the site. Construction vehicles may be held in the off-site holding area until the site is ready to receive the vehicle. The site traffic marshal will communicate by mobile phone call or text with the construction vehicle drivers to inform them when they can proceed to the site. Specific time slots will be allocated to contractors for the use of cranes and hoists to ensure that the main plant will be utilised efficiently. An on-line delivery booking system will be operated whereby suppliers can book delivery slots well in advance. Construction vehicle drivers will be issued with a project route map to prevent unnecessary routing mistake to and from the site and to avoid particular routes.

#### Monitoring

4.2.9 No specific monitoring requirements have been identified.

#### 4.3 NOISE AND VIBRATION

#### **Mitigation Measures**

4.3.1 Measures will be adopted to keep noise and vibration to a minimum in accordance with best practicable means, as defined in Section 72 of Control of Pollution Act. No



noisy plant will be allowed to commence work before 08.00 hours or continue working after 18.00 hours, Mondays to Fridays and between 08.00 hours and 13.00 hours on Saturdays, except in cases of emergency where safety is an issue, or as agreed under a dispensation to a Section 61 agreement of the Control of Pollution Act.

- 4.3.2 All plant brought on-site will comply with the relevant EC / UK noise limits applicable to that equipment or will be no noisier than would be expected based the noise levels quoted in BS 5228:1997. Plant will be properly maintained and operated in accordance with manufacturer's recommendations. Electrically powered plant will be preferred, where practicable, to mechanically powered alternatives.
- 4.3.3 Where feasible, all stationary plant will be located so that the noise effect at all occupied residential and commercial properties is minimised and, if practicable, every item of static plant when in operation will be sound attenuated using methods based on the guidance and advice given in BS 5228.
- 4.3.4 Areas of the Site where particularly noisy works are required, such as demolition and piling works, will be surrounded where practicable by a 2.4m hoarding, and will provide some acoustic shielding at ground level. The hoarding will consist of plywood sheets or similar, with all knotholes, cracks and other joints sealed to minimise the escape of noise. It may be moved from time to time to suit the progress of the works. Typical locations are shown in **Figure 4.1**.
- 4.3.5 Residents living in locations identified as noise sensitive receptors (see **Figure 4.2**) will be kept informed of the progress of the construction works and will be contacted by letter prior to any activities which are likely to cause noise disturbance (see also Section 3.6).

#### Monitoring

4.3.6 Noise monitoring is not considered necessary unless complaints are received by the contractor or local authority, in which case levels will be measured in order to establish the cause of any deviation from the predicted levels.

#### 4.4 AIR QUALITY

#### **Mitigation Measures**

4.4.1 The Air Quality assessment conducted as part of the preparation of the ES identified multiple sensitive receptors surrounding and within the REEC OPA Site. These are illustrated in **Figure 4.3**.



