

# **Construction Method Statement Phases 1a and 1b**

**Great Wilsey Park  
Haverhill  
Suffolk  
Redrow Homes**

**West Suffolk Council**

**Doc Ref: 8511/CMS/North**

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Issue	Initial	Date
1	GC	08/12/18
2	RF	29/07/19
3	RF	18/09/19
4	RF	04/10/19
5	RF	20/12/19
6	RF	25/06/20

## INTRODUCTION

The Great Wilsey Park development was granted Outline Planning Permission (OPP) by St. Edmundsbury Borough Council on 15<sup>th</sup> August 2018 under reference DC/15/2151/OUT.

The outline planning permission is for the creation of a residential development of up to 2,500 units (within classes C2/C3): two primary schools; two local centres including retail, community and employment uses (with use classes A1/A2/A3/A4/A5, B1 and D1/D2; open space; landscaping and associated infrastructure.

The development is proposed to be delivered and marketed as two discrete developments as follows:

- The northern element known as 'Phase 1' is proposed to comprise approximately 1,080 residential units, a mixed-use local centre, a two-form primary school and community allotment gardens. The majority of the residential elements will be delivered by Redrow Homes through the construction of homes on land parcels A1, A2, A3, A5, A6, A7, A8 and A16. The remaining Phase 1 land parcels A4, B1, D1 and E1 will be delivered by a third party.
- The southern element of the site known as 'Phase 2' is proposed to comprise the residual residential units, a single-form primary school, a mixed use local centre and a Country Park. This element will be delivered by a third party.

Condition 12 of the planning approval states the following:

*"No development shall take place within any phase or reserved matters application, including any works of demolition, until a Construction Method Statement (CMS) has been submitted to, and approved in writing by, the Local Planning Authority. The approved Statement shall provide for:*

- I. The parking of vehicles of site operatives and visitors*
- II. Loading and unloading of plant and materials*
- III. Site set-up including arrangements for the storage of plant and materials used in constructing the development and the provision of temporary offices, plant and machinery.*
- IV. The erection and maintenance of security hoarding including external safety and information signage, interpretation boards, decorative displays and facilities for public viewing where appropriate.*
- V. Wheel washing facilities*
- VI. Measures to control the emission of dust and dirt during construction*
- VII. A scheme for recycling / disposing of waste resulting from demolition and construction works*
- VIII. Hours of construction operations including times for deliveries and the removal of excavated material and waste.*

- IX. *Noise method statements and noise levels for each construction activity including piling and excavation operations*
- X. *Access and protection measures around the construction site for pedestrians, cyclists and other road users including arrangements for diversions during the construction period and for the provision of associated directional signage relating thereto.*
- XI. *Surface water management plan detailing how surface water and storm water will be managed on site during construction*
- XII. *Identification of biodiversity, hedge and tree protection zones, use of protective fences, exclusion barriers and warning signs.*
- XIII. *Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts on habitats and species during construction (this may be provided as a set of method statements).*
- XIV. *The location and timing of sensitive works to avoid harm to biodiversity features including but not exclusively site clearance.*
- XV. *The times during construction when specialist ecologists need to be present on site to oversee works. Responsible persons and lines of communication and the role and responsibilities on site of an ecological clerk of works (ECoW) or similarly competent person.*

## **Overview**

The CMS covers specific legislative requirements; compliance with British Standards and general aspects of the construction works potentially affecting local residents and the environment. Phase 1 of the development will be constructed over a series of sub-phases (Phases 1a – 1f), as set out in the submitted Phasing Strategy document. This CMS document covers construction Phases 1a and 1b only, which broadly cover the initial section of infrastructure road, the Haverhill Road roundabout, the units in parcel A1 and a small number of show home units in parcel A2.

The requirement to meet the obligations of the CMS will be placed by Redrow Homes Limited on all contractors through their building contracts. The Principal Contractor for each project, i.e. the contractor with overall responsibility for the construction site and works, will be responsible for ensuring the implementation of the CMS.

In this CMS, the term ‘construction’ relates to all activities carried out on the site, relating to all intrusive ground investigations, site preparation, excavations, materials delivery, spoil disposal and removal, waste removal and all related engineering and construction activities.

In this CMS the term ‘Contractor’ will be either Redrow Homes or a nominated contractor / sub-contractor working on their behalf.

The contractor(s) appointed for this scheme shall hold and maintain, for the duration for a project, a CMS certified to the international standard ISO14001. It has been agreed that the system would be adopted for implementation during the construction period.



The CMS would fall within the scope of the Contractor's externally certified international environmental management system, and as such would be subject to regular independent audits by the Contractor's certification body. A draft of the CMS would be circulated to all Statutory Authorities prior to works commencing for information and comments. All works on site would be undertaken in compliance with the CMS.

The CMS will remain in place for the duration of the construction project and the protocol set out in this document will be observed during all construction operations, unless otherwise agreed with West Suffolk Council.

The CMS forms part of the overall project management of the scheme's construction and the measures set out will be integrated with relevant environmental and health and safety management processes and legislation.

### **Structure of this Document**

This CMS is set out in the following sections:

- Section 1 provides background information relating to the CMS and its enforcement;
- Section 2 sets out site arrangements such as:
  - Site access
  - Site Management team contact details
  - Hours of working
  - Welfare facilities
    - Car parking provision /temporary hardstanding
  - Site security
  - Traffic Management
  - Community liaison
- Section 3 sets out the minimum standards of construction practice and the mitigation measures for the following:
  - dust and air quality
  - traffic and accessibility;
  - wheel washing facilities
  - noise;
  - ground conditions / contamination
  - groundwater / surface water management;
  - landscape and visual;
  - ecology / biodiversity
- Section 4 provides details of how the demolition /site clearance will be undertaken
- Section 5 sets out how the contractors employed on site will be registered

- Section 6 provides details on the relevant legislation and guidance applicable at the time of writing.

## **1.0 Commitment to Standards of Implementation**

Redrow Homes Ltd are committed to best practice standards of implementation to ensure safe and secure implementation of the project with the minimum possible environmental harm. These commitments are set out generally in the sections below. Project-specific environmental commitments have been made public in the Sustainability Statements accompanying the planning.

We will closely monitor the environmental and health and safety performance of all sub-contractors subject to compliance with the CMS through all normal electronic and written media, telephone conversation and at least weekly visits.

We will seek remedy within the law in relation to any breach of the requirements of this document by any sub-contractor.

### **1.1 Sustainable Development Policies**

Our aim is to deliver a long term sustainable development in accordance with the respective companies' mission statement. A suite of policies have been developed with the guidance and assistance of stakeholders. Details of the following policies are found within this section:

- Environmental Policy
- Climate Change Statement

### **1.2 Environmental Policy**

Redrow is one of the UK's most successful house builders. As well as maintaining and delivering the highest quality products to customers, we aim to be a responsible business with a focus on positive engagement with other key stakeholders.

This policy focuses on the environmental aspect of responsible business and is the cornerstone of our environmental management system, setting out our broad aims and objectives, complemented by our Climate Change Statement.

### **1.3 Our over-arching principles are to:**

- Limit pollution from our activities
- Comply with current environmental legislation and be proactive in anticipating forthcoming requirements.
- Focus on improving resource efficiency.
- Continually monitor and improve our environmental performance.
- Place environmental issues at the core of our business culture through effective communication of environmental issues, both internally and externally.

More specifically we will:

- Reduce the amount of waste we generate, both through product design and on-site management.
- Reduce energy and water use from our activities.
- Provide a continuous programme of communication, information and training for staff, to ensure that they are aware of their responsibilities and their successes.
- Work with sub-contractors and suppliers to ensure they comply with our policies and help them reduce their impact on the environment.
- Continue our strategy of developing land opportunities involving regeneration of brown field sites,
- Implement procedures to protect and enhance biodiversity.
- Reduce the environmental impact of our homes throughout their design construction, use and final disposal.

We will monitor our progress through the setting and reviewing of objectives and targets and publish an annual environmental performance review.

#### **1.4 Climate Change Statement**

Redrow Homes recognises that there is convincing evidence to support the reality of climate change, and that one of the primary influencing factors highlighted by science is the build-up of “greenhouse gases”, which arise from human activities across the globe.

We understand that we have a part to play in ensuring that our businesses and our products have minimum impact on the environment and climate and that we must work towards reducing reliance on fossil fuels, reducing energy demands, carbon emissions and maximising our efficient use of natural resources.

We are meeting these challenges on a number of fronts, from the perspective of our business activity and our products. In both these areas we are setting performance targets and through the efforts of Redrows dedicated Research and Sustainability Team we are ensuring that all our staff are aware of our aims and can play their own part in reducing the impact of our business on the environment.

Development of our products is a continuous process, with full involvement of the Executive Board and the Chairman.

As the Government’s energy strategy has unfolded, we have undertaken significant and invaluable development work in reducing energy demands in the home, which has informed industry and contributed to the shaping of current and future regulation and standards. We continue to build upon the foundations of this work in all aspects of sustainability, developing solutions to enable our core product to meet the demanding performance levels which move us towards the carbon emission targets of 2019 and through our committed and proactive

engagement with Government, related industry task groups, our colleagues in the industry and through response to consultation. At the same time we strive to deliver the highest quality homes consistent with the demands of our customers.

We understand the value of engagement with our supply chain to ensure that we minimise our environmental impact and expect our suppliers and sub-contractors to demonstrate their commitment to the environment through their own codes of practice. These expectations cover issues such as sourcing of materials, transportation and delivery, packaging, health and safety, workforce competency, training and welfare as well as payment and pricing terms. It is incumbent upon supply chain partners that they are compliant with Redrow's Customer Service and Supplier Service Agreements.

Where possible, we specify products and materials which generate the least environmental impact, including timber from properly managed, certified plantations, key materials from our supply partners closest to specific sites and non-toxic paints.

We have an Environmental Policy underpinned by an Environmental Management System based around the themes of resource efficiency, preventing pollution and ensuring legal compliance which incorporates a robust internal auditing system for all sites, where these issues are examined on a regular and continuous basis and the performance of each of our regional Divisions is reported monthly to the Main Board.

To assist us in targeting improvements in our performance we have committed to set benchmarks in the following key areas which complement our Environmental Policy:-

- Our carbon footprint
- Water consumption in our offices and on our sites
- Waste management and recycling
- The products and materials we specify

### **1.5 Purpose of the CMS**

The purpose of this statement is to define the minimum standards of construction practice that are required of the appointed Contractor in so far as they affect the environment, amenity, safety and wellbeing of local residents, the general public and employees of local businesses. It aims to assure local residents and affected parties that potential impacts to the environment will be mitigated in accordance with recognised best practice, guidance and legislative standards.

The CMS will be adopted by the Contractor through discussions with West Suffolk Council and other statutory bodies in particular the Environment Agency. It will apply throughout the construction period.

### **1.6 Compliance with Relevant Standards, Legislation and Guidance**

There are numerous Codes, Standards and Acts of Parliament which cover environmental and related matters and these are referred to as applicable in this CMS. Notwithstanding those

references, compliance with this CMS will not absolve the Contractor or its sub-contractors from compliance with all legislative requirements applicable at the time of construction activities. Wherever this Statement makes reference to Legislation, Standards or Codes it shall be the Contractor's responsibility to ensure that the current versions are used at all times. Examples of key relevant legislation include:

- The Control of Pollution Act 1974;
- Health and Safety at Work Act 1974;
- Environmental Protection Act 1990;
- The Construction (Design and Management) Regulations 2015;
- Management of Health and Safety at Work Regulations 1999;
- Control of Substances Hazardous to Health Regulations 1999.

### **1.7 Responsibilities and Incident Reporting Procedures**

The appointed Contractor will nominate a senior member of staff to supervise the activities on the construction site at all times when the site is operational. The appointed person will be responsible for ensuring the CMS is adhered to and will hold meetings with Redrow, West Suffolk Council and statutory bodies as necessary.

Regular audits would be completed to verify that the project is compliant with the established CMS, contractual requirements and legislation. The project would also fall within the Contractor's ISO14001 Registration and as such would receive regular independent audits by the certification body.

This person must also inform the management teams of any incidents of non-compliance with the CMS as soon as reasonably practicable. Redrow have ultimate responsibility in the event of non-compliance by a Contractor in respect of constructing the development but may apply by contract disclaimers that it would be for a court of law to determine.

The designated person from the Contractor will be the first point of contact for members of the public in the event that there are complaints or disturbance. Contact details should be clearly displayed on hoardings around the site. All complaints must be logged and appropriate action taken within two days. A written response must be provided within 5 days.

## Site Arrangements

### 2.0 Site Access

The overall development site is located to the north east of Haverhill with approved access locations from the A143 (Haverhill Road) to the north and Chalkstone Way to the south. Both accesses are situated within the Phase 1 development area.

The development site is currently used for agriculture and contains significant areas of mature woodland and a substantial more recently planted tree belt. The site predominantly falls from north and south into a central valley in which an Ordinary Watercourse flows from the north western boundary to the south eastern boundary. The overall site is split into a number of individual fields which are divided by small watercourses and hedgerows / mature trees.

A temporary vehicle crossover from Haverhill Road has been granted by Suffolk County Council to provide construction access to the northern element of Phase 1 as well as site welfare facilities, compound and parking. This access will facilitate the construction of the Haverhill Road roundabout, initial internal road infrastructure, show house area within parcel A2 and initial units within parcel A1.. This temporary access is situated immediately to the east of the proposed site access through the vendors retained land.

A separate temporary vehicle crossover licence from Haverhill Road has also been granted by Suffolk County Council and this will be utilised for a temporary sales cabin prior to the completion of the permanent sales area. This temporary access is situated immediately to the north of Parcel A1 and to the west of the proposed site access.

Once constructed the consented roundabout site access will be utilised as a joint construction, sales and residents access.

### 2.1 Construction Overview / Traffic Management

The residential development will be constructed over a number of years. The Phase 1a works will comprise development of Parcels A1 (part), A2 (sales area units) and the initial section of internal infrastructure road. Phase 1b will follow shortly afterwards and comprise the construction of the Haverhill Road roundabout as well as the remaining units within parcel A1. Prior to the opening of the permanent sales area or occupation of any dwelling, the Haverhill Road roundabout and initial internal road infrastructure will be completed. Once these works have been completed the two temporary vehicle crossovers will be removed.

A Traffic Management Plan will be developed during the course of construction which will set out the development's pedestrian and plant segregation and illustrate other key information to all personnel visiting and working on the development. The traffic management plan will be a live document made available at key locations within the site to enable all site personnel and visitors to view on a daily basis.

Pedestrian and cyclist safety around the development will be paramount and as such signage will be situated at entrance and exit points to the site to ensure any traffic entering or leaving the site are aware of potential pedestrians and cyclist. During the Phase 1a works construction workers arriving to site via foot or bicycle will access the development via the existing Public Right of Way situated along the western boundary where a secure gate will be installed in the boundary / protection fencing. Any visitors arriving at the temporary sales cabin by foot or bicycle will utilise the existing footpath situated on the northern side of Haverhill Road. During Phase 1b works pedestrian access for construction workers or visitors to the permanent sales area can utilise the footpaths provided as part of the Haverhill Road roundabout works and internal infrastructure road. Wherever the pedestrian route crosses the internal estate road a suitable crossing facility will be provided.

The contractor shall ensure that a traffic marshal or banksman is utilised when necessary.

## **2.2 Site Management team contact details**

At the time of writing this CMS the Site Manager for the development has yet to be appointed. Until such appointment is made any representations should be directed to the following personnel:

Jason Adams (Area Construction Manager –Redrow Homes) – 07780 655368

## **2.3 Hours of Working**

The working hours on site will be as follows:

- Monday to Friday 08:00 to 18:00 hours
- Saturdays 08:00 to 13:00 hours.

No works are to be undertaken on Sundays or bank holidays unless in exceptional circumstances, for example for highway or health & safety reasons. These works where practicable will be agreed prior to being carried out with West Suffolk Council.

Where piling works are required these operations will only take place between the hours of 09:00 to 18:00 on weekdays.

## **2.4 Welfare facilities**

Portable cabins providing temporary offices, rest rooms, lockers, showers and toilets will be provided as part of the compound facilities. Also included will be secure storage containers for materials. Plant and machinery will be locked behind secured gates within the compound following the completion of each day.

A single compound is proposed for the northern development parcels. The location and size of the compound is shown on the Phase 1a/1b Site Strategy/Compound layout drawing provided at Appendix A.

The compound will be connected to the on-site FW drainage system once this has been established. In the interim a tank will be installed that will hold the effluent and be emptied as and when necessary.

The Contractor shall ensure that the risk of infestation by pests or vermin is minimised by adequate arrangements for the disposal of food waste or other material attractive to pests. If infestation occurs the Contractor shall take such action to deal with it as required by the local authorities.

Hardstanding for contractors car parking will be provided adjacent to the compound facility. As a minimum the hardstanding will consist of compacted stone over a layer of geotextile to provide a clean and firm base suitable for cabins and heavy traffic.

On completion of the project, the Contractor shall clear and clean all working areas and accesses as work proceeds and when no longer required for the works.

All surplus soil and materials, plant, sheds, offices and temporary fencing shall be removed when they are no longer required on site.

## **2.5 Site Housekeeping**

A 'good housekeeping' policy shall be applied on the site at all times. This shall include, but not necessarily be limited to, the following requirements:

- All working areas to be kept in a clean and tidy condition.
- All working areas shall be no-smoking.
- Open fires shall be prohibited at all times.
- All necessary measures shall be taken to minimise the risk of fire and the Contractor shall comply with the requirements of the local fire authority.
- Audio equipment (radios), other than for communication purposed shall not be operated on site.
- Waste is to be stored in designated and enclosed containers and removed at frequent intervals.
- Toilet facilities will be provided for all site staff.
- Food waste will be removed frequently.
- Working areas will be inspected frequently and Redrow Homes will carry out site inspections at any time without prior notice.
- Boundaries will be inspected regularly and appropriate warning signs erected indicating emergency and out of hours contracts

## **2.6 Site Security - Fencing and Hoardings**

The Contractor shall ensure that all working areas are sufficiently and adequately fenced off from members of the public and to prevent animals from straying on to the working area. Temporary hoardings will be erected as shown on the Build Strategy Plan and will consisting of either:



- a wire mesh fence, where appropriate for minimum security needs; or
- a 2.4 m minimum height, plywood faced, timber framed boundary hoarding or other hoarding providing equivalent security and noise attenuation, in the vicinity of noise sensitive neighbours.

All hoardings shall be maintained in a neat and tidy condition and will be regularly inspected for damage and security integrity. Any damage will be repaired without delay. All fencing and hoarding shall be removed as soon as reasonably practicable after completion of works.

Trees as indicated on the Tree Protection Plan will be fenced off in accordance to BS standards BS5837

There are a number of Public Rights of Way (PROW) that cross the development and will remain in operation throughout the construction process. Adequate protection will be provided along the route of the PROW with designated crossing points as required to ensure that members of the public are kept away from the construction area (See Appendix D). These measures have been discussed and agreed with the Public Rights of Way Manager on site at a meeting on 12<sup>th</sup> December 2019. As agreed at that meeting the existing surface will be maintained in its current condition and the route safeguarded for the public via the installation of protective fencing. No additional lighting is proposed to the current route.

## **2.7 Lighting and Security**

Construction equipment and lighting shall be sited so as to minimise visual intrusion and light spillage at nearby residential properties, in so far as is consistent with site safety.

Site lighting shall be positioned and directed to minimise nuisance to residents and disturbance to wildlife.

The Contractor shall comply with the Institute of Lighting Engineers document Guidance Notes on Reduction of Light Pollution (2000) in so far as is reasonably practicable and applicable to the construction works.

Adequate security shall be exercised by the Contractor to prevent unauthorised entry to or exit from the site. Site gates shall be closed and locked when there is no site activity and site security measures shall be implemented. Lighting for security purposes will be sited so as to minimise visual intrusion and light spillage.

## **2.8 Site Safety**

The Contractor shall prepare and maintain a set of Emergency Procedures and Contacts which should be prominently displayed on the site at all times. Such procedures must be followed in the event of a site emergency.

They shall contain emergency phone numbers and the method of notifying emergency services. Copies of the Procedures will be issued to West Suffolk Council, the Fire Brigade, the Police, the Ambulance Service and the relevant statutory bodies.

Special precautions in relation to contaminated material (including asbestos) shall be displayed on a Safety Information Sheet to be prominently displayed in rest/mess rooms and wash rooms covering hygiene, work practices, clothing requirements etc. Further information concerning disposal of contaminated materials is described in Section 3.5.

All site work will be carried out under the provisions of the Health and Safety at Work Act 1974. Health and Safety briefings will be made to all staff before they enter the development, through signage and all workers and visitors will be specific site inducted.

## **2.9 Community liaison**

As noted within section 1.7 the Site Manager will be the first point of contact for members of the public in the event that there are complaints or disturbance. All complaints will be logged and appropriate action taken within two days. A written response will be provided within 5 days where possible.

### **3.0 MANAGING THE ENVIRONMENTAL IMPACT OF CONSTRUCTION**

#### **3.1 Introduction**

This section sets out the mitigation measures that are proposed in relation to the development in order to minimise and to manage the potential environmental impact of construction.

#### **3.2 Dust and Air Quality**

Measures to reduce the levels of dust and prevent the deterioration of local air quality are included in a CMS as best practice and ensure that levels do not become significant.

##### **Dust**

The Contractor shall take all necessary measures to avoid creating a dust nuisance during construction. Best Practicable Means will be used to minimise the creation and emission of dust, the following measures take into account guidance prepared by the Buildings Research Establishment (BRE) on the Control of Dust from Construction and Demolition Activities. These include:

- water suppression or dust extraction technology to be fitted to drilling and grinding equipment;
- where appropriate, drilling and excavation surfaces will be wetted;
- during dry conditions, debris piles will be kept watered as necessary so that no dust nuisance may be caused;
- The orientation, shape and location of any stockpiles are to be controlled to minimise risk of dust rising through wind action.
- suitable measures will be taken during the construction period to prevent the deposition of mud and dirt on the public roads and to prevent the propagation of dust from the site;
- sheeting of lorries during transportation of construction materials and spoil export; and
- all containers will be totally enclosed or covered by tarpaulins to prevent escape of dust or waste materials during loading and transfer from site.
- Maximum speed limit of 6 mph is to be enforced over all unmade surfaces

##### **Local Air Quality**

The Contractor shall take precautions to prevent the emission of smoke or fumes from construction vehicles, site plant and stored materials including volatile substances. Vehicles and plant shall be well maintained and measures shall be taken to ensure that engines and motors are not left running for long periods when not in use.

The Contractor shall comply with the provisions of the Environment Act 1995, the Clean Air Act 1993 and the Health and Safety at Work Etc. Act 1974.

The Contractor shall comply with the Control of Substances Hazardous to Health Regulations (COSHH) 1999 and Health and Safety Executive (HSE) Guidance Notes EH 40/90 and EH 40/97 on Occupational Exposure Limits.

The Contractor shall take precautions to prevent the occurrence of smoke emissions or fumes from site plant or stored fuel oils. Plant shall be well maintained and measures shall be taken to ensure that it is not left running for long periods when not in use. There will be no burning of waste on site.

### **3.3 Traffic and Accessibility**

The predicted traffic generation associated with the construction works is not expected to result in significant impacts on existing traffic on the surrounding road network. To ensure this, a number of mitigation measures will be implemented to minimise the effects of construction traffic movements, particularly HGVs, as far as possible. These include the following:

- Material deliveries and the removal of excavated materials / waste will be restricted, where possible, to non-peak traffic periods and will be scheduled to avoid the school opening / closing times.
- All loading and unloading of vehicles will take place under supervision within the site.
- There will be sufficient space for HGVs to turn around within the site and exit in forward gear. In the unlikely event that it is necessary for a vehicle to reverse out of the site, this manoeuvre will be overseen by a qualified marshal working from a position outside the vehicle.
- Scheduled construction shift times will be outside of normal weekday peak traffic periods where possible to minimise potential traffic impacts on the surrounding road network;
- Where possible, heavy and special loads, will be delivered to the site during off peak hours subject to agreement with the Council and providing this does not give rise to additional levels of construction noise;
- Materials and equipment will be stored securely on site to minimise unnecessary traffic movements;
- The Contractor will ensure that delivery and construction vehicles do not park on, or obstruct the highway;
- The contractors will have sufficient parking on site to accommodate the expected number of workers and visitors will utilise the dedicated sales car parking provision.

Contractors will be encouraged to introduce car sharing schemes. The CTMP document confirms that the maximum workforce of 110 personnel is expected on site (both northern and southern parcels) at any one time and the northern compound provides for 83 car parking spaces.

- The contractors will be encouraged to use sustainable modes of transport and the compound will contain secure cycle storage, and shower facilities as well as up to date information on public transport services.
- Vehicle access will be controlled using a gateman / Banksman who will be responsible for the vehicle movement in and around the gate area when deemed necessary.

Specific measures relating to mud on roads will be implemented across the site, these include:

- The provision of easily cleaned hardstanding's for vehicles entering, parking and leaving the site;
- The provision of wheel washing facilities; consisting of a manned Jetwash within an designated wheel wash area, with all run off captured within an onsite attenuation basin via an interceptor.
- The Gateman will sweep the road immediately of any loose debris,
- The routine use of a mechanical road sweeper to clean the site of hardstanding and any mud or debris deposited by the site vehicles on roads or footpaths in the vicinity of the site.
- The adequate sheeting of each lorry load of spoil removed, to prevent spoil falling off during its journey.

The local residents / public will be kept informed of any site activities that may affect them (i.e.) Footpath Closures and temporary diversions with leaflet drops. The Hoarding will also display a contact telephone number in the case of Emergency or general information requirements.

### **3.4 Noise and Vibration**

Unacceptable impacts arising from construction noise are not expected on the site. In general, 'Best Practicable Means' as defined in Section 72 of the Control of Pollution Act, 1974 will be employed to minimise noise and vibration, furthermore, the guidance provided in British Standard 5228-1:2009 - Code of practice for noise & vibration control on construction & open sites-Part 1: Noise will be followed. Such measures control the noise at source by using effective acoustic enclosures, screens and barriers and ensuring regular maintenance of vehicles. The following measures will be implemented:

- Agreed working hours will be 08:00 to 18:00 hours Monday to Friday and 08:00 to 13:00 hours on Saturdays, with no works taking place on Sundays or bank holidays.

- The Contractor will use only the most environmentally acceptable and quietly operating plant and equipment compatible with the safe and efficient execution of the works.
- Noise emitted by plant items should not exceed the limits quoted in either the relevant EC Directive, UK Statutory Instrument or BS 5228-1:2009.
- Items of plant operating on site will be shut down in intervening periods of use.
- Compressors brought onto the site will be silenced or sound reduced models fitted with acoustic enclosures.
- All pneumatic tools will be fitted with silencers or mufflers
- The excavation and demolition of the onsite buildings / site clearance will, wherever possible be undertaken without pneumatic breakers; hydraulic attachments will be used in preference to breakers. Where the use of impact hammers is necessary, their attachment to larger and heavier excavators can often reduce the level of vibration.
- Care will be taken during the erection of scaffolding to avoid impacts from banging steel.
- Deliveries will be programmed to arrive during working hours only. Care will be taken when unloading vehicles and construction vehicles will be routed on major roads only.

In addition, liaison with the Environmental Health Officer at West Suffolk Council will be maintained throughout the construction period.

### **3.5 Ground Conditions**

#### **General**

All materials used in the construction must be of clean, inert composition. No material that may be a source of significant potential contamination must be introduced into the site.

If during development, in areas where contaminated land may be present, the ground must be engineered in such a way as to minimise risk to potential receptors (humans, animals and plants). This may require the removal of contaminated material to a location where it can be safely treated, in situ treatment/remediation or encapsulation in accordance with a remediation strategy.

#### **Contaminated Land**

A Geo-Environmental Desk Study and Site Investigation Report has been produced which researched the history and reviewed data for the site and the surrounding area in order to identify factors that may impact on any proposed site development for residential uses.

The conceptual site model and preliminary risk assessment identified herbicides / pesticides (including DDT and dieldrin), localised spillages of fuel from machinery and historically imported / fly tipped material as potential contamination sources. However, the chemical analysis undertaken as part of the strategic phase 2 ground investigation did not identify any concentrations of contaminants above the relevant critical levels. The report therefore indicates that the contamination linkages to vulnerable receptors to be low to negligible.

In the unlikely event of ground conditions being encountered during the excavation phase of construction that are suspected to contain localised contaminated sources then work in the particular area should cease immediately. The situation should then be reported to the geotechnical consultant who will arrange for the material to be sampled and analysed to confirm the most appropriate course of action.

The risk to construction works can be mitigated through adequate personal protective equipment and compliance to the various policy and legislation.

The contractor will comply with the provisions of the Environmental Protection Act 1990, and the Special Waste Regulations 1996 (as amended). The removal and disposal of contaminated materials will be conducted under a strict consignment note system. Disposal sites will be agreed with the Environment Agency.

The Environmental Protection Act 1990 (s.34) imposes a Duty of Care on any person who produces, imports, carries, keeps, treats or disposes of controlled waste. The Contractor will comply with this duty as set out in the Waste Management; the Duty of Care - Code of Practice March 1996.

The contractor will comply with the Control of Substances Hazardous to Health Regulations (COSHH) 1999 and HSE Guidance Note EH 40/99, Occupational Exposure Limits 1999, to ensure that contaminated excavated materials are handled and disposed of safely and properly.

In undertaking work on contaminated sites, useful information concerning the safe operation and redevelopment of contaminated sites may be found in HS(G)66 Protection of Workers and the General Public during the Development of Contaminated Land 1991. Precautions include:

- Protective clothing including overalls, hand protection, head protection and safety boots to be worn at all times;
- If it is necessary to remove contaminated material from site, then lorries or skips used for the removal of the material should be fully covered.
- Detailed records of disposal should be discussed and agreed with the Environment Agency. Only licenced skip providers will be utilised on this project and all waste will be disposed at licenced waste disposal sites.

### **3.6 Groundwater**

Construction methods employed within the scheme will be designed to prevent significant short-term and residual impact to both the groundmass and groundwater conditions on the site. Where sub-surface structures are constructed, such as piles, the techniques employed should be developed in accordance with the guidance provided in National Groundwater and Contaminated Land Centre report NC/99/73, Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution and Prevention. The results of the site investigation will be taken into account to ensure that the most appropriate method of construction is designed.

### **3.7 Surface Water Management**

Prior to the commencement of works the Principal Contractor will provide a method statement detailing the control measures to be implemented to manage the groundwater / surface water run-off during the construction period to prevent the siltation of the drainage systems (direct and indirect discharge). An Environmental plan has been prepared (See Appendix C) which details where and how mitigation measures will be employed on the site.

The roads and drainage on the development are to be established as primary works to retain surface water overland flow in exceedance events.

In addition the following measures are proposed in accordance with Environment Agency Pollution Prevention Guidelines (PPGs). Pollution Prevention Guidance comprises a set of guidance notes aimed at providing developers and contractors with a set of best practice methods to minimise impacts on the water environment, specifically PPG5: Works in, Near or Liable to Affect Watercourses.

- The Environment Agency will be notified in advance of all works to allow pollution prevention and emergency procedures to be agreed.
- Exposed ground and stockpiles will be minimised to reduce silty runoff - if necessary, geotextiles will be used to shield spoil mounds.
- Concrete, cement and silt laden run off will be prevented from entering the watercourses and stockpiles of materials will be kept away from river and canal side locations.
- Spill kits etc. will be available in the unlikely event of a spill, and site personnel will be trained in their use.
- Potentially contaminative liquids such as oils and lubricants will be stored in bunded and lockable oil storage tanks, with hoses and gauges kept within the bund; the capacity of the bund will be equal to 110% of the storage tank volume.
- Adequate provision for the collection, treatment and disposal of sewage from site offices and accommodation should be provided.



- Earth moving operations that have the potential to give rise to contaminated drainage will be undertaken in compliance with British Standard Code of Practice for Earthworks, BS 6031, 1987.

### **3.8 Landscape and Visual**

To reduce landscape and visual impacts throughout the construction phase, the following mitigation measures will be implemented:

- materials and machinery will be stored tidily during the works - tall machinery will not be left in place for longer than required for construction purposes, in order to minimise its impact in views;
- lighting of compounds and works sites will be restricted to agreed working hours and that which is necessary for security;
- roads providing access to site compounds and works areas will be maintained free of dust and mud, as will the access road to the south of the site;
- contractors' compounds will be located away from sensitive receptors eg nearby residential properties, watercourses';
- on completion of construction works, all remaining construction materials will be removed from the site; and

### **3.9 Ecology and Nature Conservation**

To ensure potential impacts on terrestrial ecology and biodiversity are reduced to a practical minimum protection and mitigation will be undertaken strictly in accordance with the recommendations contained in the Biodiversity Monitoring Strategy and Ecological Implementation Strategy Mitigation prepared by Ecology Solutions and submitted to the LPA relative to the approval of conditions 42 and 45. This document can be found at Appendix B.

### **3.10 Site Waste Management Plan**

For the residential development Redrow will establish a dedicated Waste Management Coordinator (the Site Manager) who will be tasked with overseeing the removal of all waste from site. A recycling regime for materials and packaging will be put in place to achieve a minimum of 80% recovery. The waste management coordinator will compile a report quantifying the materials recovered.

It is planned that site waste will be reduced through segregation and recycling.

Redrow intends to segregate the following materials in the material recovery programme;

- Wood
- Brick and Rubble
- Metal
- Plasterboard
- Mixed Waste
- Hazardous Waste

Dedicated skips will be provided for the collection of the listed materials about the site.

All contractors working on the site will be supplied with refuse bins by waste management coordinator. Once the bins are filled the waste management team will consolidate the waste and remove it from the site.

The consolidated waste will be collected from site by licensed waste carrier. Waste materials fall into three categories for management, these are;

- Reuse
- Recycle
- Landfill (disposal)

Reused – If surplus materials can be used in the permanent works they are classified as materials, which have been reused. If they are surplus to requirements and need to be removed from the site and they can be removed and used in their present form, they can be removed from the site for subsequent reuse. For example the material from any hardstanding's could be reused as crushed material for roads onsite.

Recycling – if a surplus material cannot be reused in its present form but could be used in a different form, it is sent for recycling. An example is recycled timber to make chipboard.

Landfill – If either of the above cannot be satisfied then the only option left is to send the waste materials to landfill. Landfill is only a last resort.

Waste certificates will be collated for all waste deposited at Environmentally Controlled Waste Reception Centres. Copies of all waste transfer notes will be kept for two years. Records will be gathered about the waste gathered on site including volume, type and cost - including how it was packaged, when it was transferred, where it went to and who it was transferred to. These are all requirements of the duty of care.

Any hazardous waste that is removed from the site will be monitored and tracked to record compliance with the site waste management plan.

**Site Security:** Redrow Homes Limited will take reasonable steps to ensure site security measures are in place to prevent the illegal disposal of waste.

**Monitoring:** Skips need to be monitored continuously to ensure that contamination of segregated waste does not occur. During this monitoring we will regularly update on how the waste management system is working.

A record will be kept to continually review the type and amount of surplus material being produced and where possible/practical alter the site set up to maximise on reuse or recycling to maintain the use of disposal as a last resort.

The plan shall be communicated to the whole project team prior to commencement and at every revision stage. Business wide updates including the KPI'S (Key Performance Indicator's) will be communicated and discussed at Management meetings.

#### **4.0 DEMOLITION / SITE CLEARANCE AND WASTE PROTOCOL**

There are no existing structures at the site, so demolition works are not required. The site will be cleared to facilitate the proposed scheme development shown on approved drawings.

As set out in Redrow's environmental policy Redrow will aim to reduce the amount of waste we generate, both through product design and on-site management. Any waste that is produced through the construction of units will be carefully segregated and recycled wherever possible and where it cannot be recycled it will be disposed of in the correct manner.

We will set up a waste management plan for this development which will monitor and record all waste movement.

## 5.0 CONSIDERATE CONSTRUCTORS SCHEME

The site will be registered under the Considerate Constructor's Scheme; it is Redrow's aim to exceed the standard level of considerate constructors. Details of the scheme registration number and site manager contact details will be displayed at the site entrance.

The Site Code of Considerate Practice forms the basis of all the Scheme's requirements. Which include;

**Considerate:** All work is to be carried out with positive consideration to the needs of traders and businesses, site personnel and visitors, and the general public. Special attention is to be given to the needs of those with sight, hearing and mobility difficulties.

**Environment:** Be aware of the environmental impact of your site and minimise as far as possible the effects of noise, light and air pollution. Efforts should be made to select and use local resources wherever possible. Attention should be paid to waste management. Reduce, reuse and recycle materials where possible.

**Cleanliness:** The working site is to be kept clean and in good order at all times. Site facilities, offices, toilets and drying rooms should always be maintained to a good standard. Surplus materials and rubbish should not be allowed to accumulate on the site or spill over into the surroundings. Dirt and dust from construction operations should be kept to a minimum.

**Good Neighbour:** General information regarding the Scheme should be provided for all neighbours affected by the work. Full and regular communication with neighbours, including adjacent residents, traders and businesses, regarding programming and site activities should be maintained from pre-start to completion.

**Respectful:** Respectable and safe standards of dress should be maintained at all times. Lewd or derogatory behaviour and language should not be tolerated under threat of severe disciplinary action. Pride in the management and appearance of the site and the surrounding environment is to be shown at all times. Operatives should be instructed in dealing with the general public.

**Safe:** Construction operations and site vehicle movements are to be carried out with care and consideration for the safety of site personnel, visitors and the general public. No building activity should be a security risk to others.

**Responsible:** Ensure that everyone associated with the site understands, implements and complies with this Code.

**Accountable:** The Considerate Constructors Scheme poster is to be displayed where clearly visible to the general public. A site's contact details should be obvious to anyone affected by its activities.

## 6.0 RELEVANT LEGISLATION, STANDARDS AND GUIDANCE

### Legislation

- The Control of Pollution Act 1974
- Health and Safety at Work Act 1974
- Wildlife and Countryside Act 1981
- Environmental Protection Act 1990
- Water Resources Act 1991
- Clean Air Act 1993
- The Construction (Design and Management) Regulations 2007
- Special Waste Regulations 1996 (as amended)
- Management of Health and Safety at Work Regulations 1999
- Control of Substances Hazardous to Health (COSHH) Regulations 1999
- Pollution Prevention and Control (England and Wales) Regulations 2000
- Countryside and Rights and Way Act 2001
- Traffic Regulations and General Direction 2002 (as amended)

### Standards

- BS 5228-1:2009 - Code of practice for noise & vibration control on construction & open sites-Part 1: Noise
- BS 5837 – Guide for Trees in Relation to Construction
- BS 6031 – Code of Practice for Earthworks
- BS 6472 – Guide to Evaluation of Human Exposure to Vibration in Buildings
- DoE Advisory Leaflet 72 – Construction Noise Limits Applicable at Residential Locations During daytime hours.

### Guidance

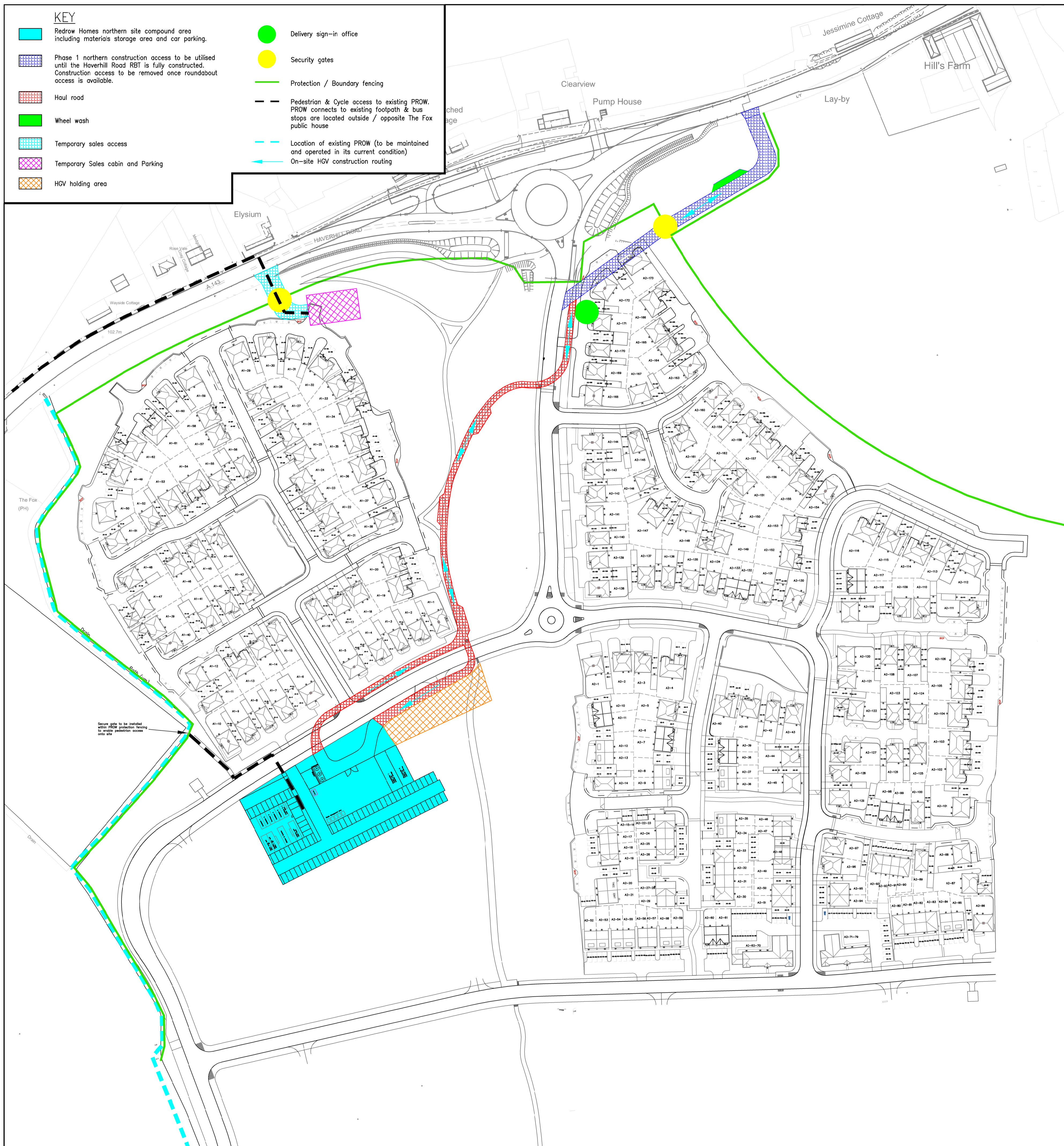
- Building Research Establishment – Control of Dust from Construction and Demolition Activities
- Environment Agency Pollution Prevention and Guidance Notes
- National Planning Policy Framework (2012)
- PPG01 – General Guide to Water Pollution Prevention
- PPG02 – Above Ground Oil Storage Tanks
- PPG05 – Works In, Near or Liable to Affect Watercourses
- PPG21 – Pollution Incident Response Planning
- PPG24 – Planning and Noise
- BS5228: Part 1: 2009 – Noise control
- HSE Guidance Notes EH40/90 and 40/97 – Occupational Exposure (1999)
- HSE Guidance Note MS 13 – Asbestos (1991)
- HSE Guidance Note HS(G) 66 - Protection of Workers and the General Public during Development on Contaminated Land (1991)
- Lighting Engineers - Notes on Reduction of Light Pollution (2000)

- National Groundwater and Contaminated Land Centre Report NC/99/73 – Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination; Guidance on Pollution and Prevention

## APPENDIX A

# Phase 1a and 1b Site Strategy / Compound Layout





**KEY**

- Redrow Homes northern site compound area including materials storage area and car parking.
- Phase 1 northern construction access to be utilised until the Haverhill Road RBT is fully constructed. Construction access to be removed once roundabout access is available.
- Haul road
- Wheel wash
- Temporary sales access
- Temporary Sales cabin and Parking
- HGV holding area
- Delivery sign-in office
- Security gates
- Protection / Boundary fencing
- Pedestrian & Cycle access to existing PROW. PROW connects to existing footpath & bus stops are located outside / opposite The Fox public house
- Location of existing PROW (to be maintained and operated in its current condition)
- On-site HGV construction routing



**KEY**

- Contractor parking
- Site Management team parking
- Site visitors parking
- Material storage
- Delivery Unloading area
- Visitors sign-in area

INSET (1/500)

Examples of typical Redrow Compound



Rev	Date	Details	By
C	24.05.20	Updated to latest strategy. Dwg separated into build stages.	RF
B	02.12.19	Updated following highway comments	RF
A	26.05.19	Updated to suit latest build strategy	RF
<p>Development: <b>Great Wilsey Park</b></p> <p>Location: <b>Haverhill</b></p> <p>Marketing Name:</p> <p>Drawing Title: <b>Northern Site Strategy Phase 1a</b></p> <p>Drawing Number: <b>8511-RED-ZZ-DR-C-003/1</b></p> <p>Revision: <b>C</b> Scale @ A1: 1:1000</p> <p>Drawn By: - Date Started: June 2019</p> <p>Checked by: - Date:</p>			

  
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Legal Disclaimer TBC  
 This layout has been designed after due consideration of our Context & Constraints Plan





Examples of typical Redrow Compound



Rev	Date	Details	By
C	24.05.20	Updated to latest strategy. Dwg separated into build stages.	RF
B	02.12.19	Updated following highway comments	RF
A	26.05.19	Updated to suit latest build strategy	RF

Development	<b>Great Wilsey Park</b>
Location	Haverhill
Marketing Name	
Drawing Title	Northern Site Strategy Phase 1b
Drawing Number	<b>8511-RED-ZZ-DR-C-003/2</b>
Revision	<b>C</b> Scale @ A1 1:1000
Drawn By	- Date Started June 2019
Checked by	- Date

  
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## APPENDIX B

# Biodiversity Monitoring Strategy and Ecological Implementation Strategy Mitigation by Ecology Solutions



**ECOLOGY**SOLUTIONS

Part of the ES Group

GREAT WILSEY PARK,  
HAVERHILL:  
INFRASTRUCTURE  
RESERVED MATTERS  
APPLICATION

**Biodiversity Monitoring  
Strategy**

Pursuant to Condition 45 of  
DC/15/2151/OUT

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## PLANS

PLAN ECO1	Site Location and Ecological Designations
PLAN ECO2	Ecological Features
PLAN ECO3	Approach to Bat Surveys
PLAN ECO4	Approach to Bird Surveys

## 1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Redrow Homes in October 2018 to prepare materials to address the requirements of planning conditions for the development at Great Wilsey Park as shown on Plans ECO1 and ECO2 (reference: DC/15/2151/OUT).
- 1.2. Condition 45 requires that a Biodiversity Monitoring Strategy be submitted and approved prior to commencement of development. The condition states:

**Within any phase or reserved matters application, no development shall take place (including demolition, archaeological investigation, ground works and vegetation clearance), until a biodiversity monitoring strategy for that phase has been submitted to, and approved in writing by, the local planning authority. The purpose of the strategy shall be to monitor existing and new habitats on the site including hedges, attenuation ponds and adjacent areas, and protected and priority species mitigation including skylark, hazel dormice, reptiles and [REDACTED]. The content of the Strategy shall include the following:**

- a) Aims and objectives of monitoring to match the stated purpose.
- b) Identification of adequate baseline conditions prior to the start of development as appropriate.
- c) Appropriate success criteria, thresholds, triggers and targets against which the effectiveness of the various conservation measures being monitored can be judged.
- d) Methods for data gathering and analysis.
- e) Location of monitoring.
- f) Timing and duration of monitoring.
- g) Responsible persons and lines of communication.
- h) Review, and where appropriate, publication of results and outcomes.

**A report describing the results of monitoring shall be submitted to the local planning authority at intervals identified in the strategy. The report shall also set out (where the results from monitoring show that conservation aims and objectives are not being met) how contingencies and/or remedial action will be identified, agreed with the local planning authority, and then implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. The monitoring strategy will be implemented in accordance with the approved details.**

**Reason: Monitoring is required at the appropriate time to ensure that that the proposed development delivers the fully functioning biodiversity outcomes set out in the Environmental Statement.**

- 1.3. This document forms part of a Reserved Matters Application (RMA) for the Infrastructure of the Redrow scheme (which includes extensive landscaping and green infrastructure).
- 1.4. The stated purpose of the strategy is *“to monitor existing and new habitats on the site including hedges, attenuation ponds and adjacent areas, and protected and priority species mitigation including skylark, hazel dormice, reptiles and [REDACTED]”*. This has been interpreted to extend to all existing and proposed habitats, and protected and priority species for which mitigation and enhancement measures are proposed. While the names features and species are referenced, the monitoring strategy is not limited to them.

## 2. WOODLAND AND SCRUB

### 2.1. Monitoring Objectives

To assess effectiveness of habitat establishment and management.  
To use the findings to guide remedial action where appropriate.

### 2.2. Baseline Conditions

#### *Great Field Plantation*

- 2.2.1. Overall, while Great Field Plantation does offer opportunities to wildlife, it is of limited intrinsic nature conservation interest. The understorey is virtually absent and the field layer is very impoverished, with little light penetrating to the woodland floor. The aims of management will therefore be to facilitate a gradual conversion to a more naturalistic woodland with greater structural diversity, focusing on native species as opposed to introduced conifers.

#### Conversion of Even-aged Plantation to Uneven-aged System

- 2.2.2. The principal advantage of the phased removal of conifers and the introduction of native broadleaves is that disruption to wildlife is minimised. A phased approach is therefore favoured over a clear-fell approach, which would have an adverse effect on protected and notable species, and is in any case unacceptable from a landscape and visual standpoint.
- 2.2.3. Three glades will be established in the woodland by felling conifer species. New understorey planting will be undertaken using native species. Existing broadleaved species will be encouraged to grow to maturity.
- 2.2.4. Felled timber will be cut into logs and set into 'loggeries' and more informal log piles to encourage saproxylic invertebrates. Felled trees will not be shredded or mulched.
- 2.2.5. New planting will exclusively be locally native species e.g. Oak *Quercus robur*, Hazel *Corylus avellana*, Hornbeam *Carpinus betulus*, Field Maple *Acer campestre*, Holly *Ilex aquifolium*, Guelder Rose *Viburnum opulus*, Hawthorn *Crataegus monogyna*, Spindle *Euonymus europaeus*, Honeysuckle *Lonicera periclymenum*, Dog Rose *Rosa canina*, Silver Birch *Betula pendula*, Cherry *Prunus avium*, Bird Cherry *Prunus padus*, Crab Apple *Malus sylvestris* and Rowan *Sorbus aucuparia*. The aim will be to encourage strong growth of these species to canopy and understorey layer as appropriate.

#### Coppicing

- 2.2.6. Existing Hazel stools will be coppiced on a 15-year rotation to encourage greater structural diversity, and layered to produce new coppice stools and expand the understorey. Cut wood will be used to diversify the habitat through establishment of wood piles.



### Ground Flora

- 2.2.7. Though the intention will be to encourage natural regeneration, if this proves difficult consideration will be given to the introduction of plug-planted locally native species.

### Public Use and Recreation

- 2.2.8. Public use of the woodland will be monitored and management operations adapted where necessary. Generally it is envisaged that fencing will be avoided. Where it is necessary to dissuade the public from accessing certain areas (for example around the Badger setts and where new planting has been undertaken) this will be by means of dead hedging or planting thorny species. If fencing must be used it will be suitable for the area, e.g. natural woven Willow or Hazel hurdles.

### *Southern Plantation*

- 2.2.9. The woodland in the south of the site is currently a mixed plantation, with a good proportion of native species, though largely even-aged. Long term management will encourage growth of native species and diversification of the habitat. Non-native conifers will be selectively felled to introduce habitat diversity, with timber retained as for Great Field Plantation.
- 2.2.10. An appropriate coppicing regime will be introduced on a 15-year rotation to encourage a vigorous understorey.
- 2.2.11. Bat and Dormouse 'hop-overs' will be established using trees approximately 6m in height at edges of new accesses.

### *Stour Brook Tributary*

- 2.2.12. Generally the woodland along the watercourse is more semi-natural than that of the plantations, with mature broadleaved trees and a good understorey and field layer. At this stage it is considered that minimal intervention is necessary. Enhancements will focus on the provision of dead wood piles for habitat diversification.

## 2.3. **Success Criteria and Targets**

1. All new woodland and scrub established and sustainable.
2. Established 15-year Hazel coppice cycle.
3. Great Field Plantation to have 30% understorey cover in five years.
4. Observable woodland ground flora within two years.
5. Public access to Great Field Plantation established and effectively managed.
6. Where required, dead hedges and fencing established and maintained.
7. Replacement of all conifers in Southern Plantation within five years.

8. Dead wood piles established and undisturbed.
9. Observed use of new and existing features by wildlife.

#### 2.4. **Methods for Data Gathering and Analysis**

- 2.4.1. Existing and newly established habitats will be subject to an annual walkover survey. The success or otherwise of habitat establishment and management will be noted. Areas where hedgerows or individual trees or shrubs have failed to establish successfully or where management is not proving effective will be recorded.
- 2.4.2. The walkover survey will be the responsibility of the management company, with input from the project ecologist and landscape architect as necessary. The project ecologist will advise on
- 2.4.3. Species monitoring to be undertaken as set out in the following sections will establish to what extent existing and new attenuation features are being used by wildlife.

#### 2.5. **Location of Monitoring**

- 2.5.1. Monitoring will take place across the retained and newly established woodland and scrub within the site.

#### 2.6. **Timing and Duration**

- 2.6.1. A walkover survey of all habitats will be undertaken on an annual basis by the management company. This will be an ongoing commitment that will extend beyond the lifetime of this strategy.

#### 2.7. **Contingencies and Remedial Action**

- 2.7.1. Any habitats failing to establish will be subject to attention by the management company.
- 2.7.2. Watering will be required during periods of drought to ensure satisfactory establishment. Watering will be undertaken as required to maintain healthy plant growth.
- 2.7.3. Dead or diseased plants will be removed and replaced with the same species during the next growing season (i.e. October to March inclusive).
- 2.7.4. All remedial action will be the responsibility of the management company.

### **3. HEDGEROWS AND TREES**

#### **3.1. Monitoring Objectives**

To assess effectiveness of habitat establishment and management.  
To use the findings to guide remedial action where appropriate.

#### **3.2. Baseline Conditions**

- 3.2.1. The existing hedgerow network is a key green infrastructure asset and is to be retained and enhanced wherever possible.
- 3.2.2. Unless otherwise stated on the Hedgerow Removal Plan 5055-L-112 rev C accompanying the outline application, new gaps established will generally be a maximum of 12m to allow for Dormouse dispersal. Gaps in existing hedgerows will be reinforced with native species.
- 3.2.3. Hedgerows will continue to be managed, with the aim to ensure continued good structure. Hedgerows will be cut on rotation, so that not all are cut in any one year. This will encourage greater availability of winter forage for birds. Hedgerows will be laid on rotation to encourage greater structural diversity.
- 3.2.4. A scheme of new tree and shrub planting is to be undertaken throughout the green infrastructure as shown on the landscape proposals.
- 3.2.5. Existing trees outwith woodlands will be retained and safeguarded.

#### **3.3. Success Criteria and Targets**

- 1. All new hedgerows established and sustainable.
- 2. All existing hedgerows successfully laid in rotation and sustainable.
- 3. All new trees and shrubs established.
- 4. Observed use of new and existing features by wildlife.

#### **3.4. Methods for Data Gathering and Analysis**

- 3.4.1. Existing and newly established habitats will be subject to an annual walkover survey. The success or otherwise of habitat establishment and management will be noted. Areas where hedgerows or individual trees or shrubs have failed to establish successfully or where management is not proving effective will be recorded.
- 3.4.2. The walkover survey will be the responsibility of the management company, with input from the project ecologist and landscape architect as necessary.

- 3.4.3. Species monitoring to be undertaken as set out in the following sections will establish to what extent existing and new attenuation features are being used by wildlife.

### 3.5. **Location of Monitoring**

- 3.5.1. Monitoring will take place across the retained and newly established hedgerows, trees and shrubs within the site.

### 3.6. **Timing and Duration**

- 3.6.1. A walkover survey of all habitats will be undertaken on an annual basis by the management company. This will be an ongoing commitment that will extend beyond the lifetime of this strategy.

### 3.7. **Contingencies and Remedial Action**

- 3.7.1. Any habitats failing to establish will be subject to attention by the management company.
- 3.7.2. Watering will be required during periods of drought to ensure satisfactory establishment. Watering will be undertaken as required to maintain healthy plant growth.
- 3.7.3. Dead or diseased plants will be removed and replaced with the same species during the next growing season (i.e. October to March inclusive).
- 3.7.4. All remedial action will be the responsibility of the management company.

## **4. GRASSLAND**

### **4.1. Monitoring Objectives**

To assess effectiveness of habitat establishment.  
To use the findings to guide remedial action where appropriate.

### **4.2. Baseline Conditions**

- 4.2.1. The existing field margins are recognised to be of relatively higher botanical interest. These are to be retained and subject to ongoing management to maximise their botanical interest.
- 4.2.2. New areas of wildflower grassland are to be established throughout the Green Spine and Linear Park. These areas are currently principally intensive arable and improved grassland respectively. In conjunction with the drainage strategy, areas of dry and wet grassland will be established.

### **4.3. Success Criteria and Targets**

1. All new grassland areas established and sustainable.
2. Botanical interest of existing field margins retained.
3. Observed use of new and existing features by wildlife.

### **4.4. Methods for Data Gathering and Analysis**

- 4.4.1. Existing and newly established habitats will be subject to an annual walkover survey. The success or otherwise of habitat establishment and management will be noted. Areas where the habitats have failed to establish successfully or where management is not proving effective will be recorded.
- 4.4.2. The walkover survey will be the responsibility of the management company, with input from the project ecologist and landscape architect as necessary.
- 4.4.3. Species monitoring to be undertaken as set out in the following sections will establish to what extent existing and new attenuation features are being used by wildlife.

### **4.5. Location of Monitoring**

- 4.5.1. Monitoring will take place across the retained and newly established grassland areas within the site.

### **4.6. Timing and Duration**

- 4.6.1. A walkover survey of all habitats will be undertaken on an annual basis by the management company. This will be an ongoing commitment that will extend beyond the lifetime of this strategy.

#### **4.7. Contingencies and Remedial Action**

- 4.7.1. Any habitats failing to establish will be subject to attention by the management company.
- 4.7.2. Watering will be required during periods of drought to ensure satisfactory establishment. Watering will be undertaken as required to maintain healthy plant growth.
- 4.7.3. Dead or diseased plants will be removed and replaced with the same species immediately after identification.
- 4.7.4. All remedial action will be the responsibility of the management company.

## 5. ATTENUATION FEATURES

### 5.1. Monitoring Objectives

To assess effectiveness of habitat establishment.  
To use the findings to guide remedial action where appropriate.

### 5.2. Baseline Conditions

- 5.2.1. The attenuation features of the site as proposed comprise a combination of existing drainage ditches and new attenuation basins. The existing drainage ditches are largely dry most of the time, and are associated with hedgerows and consequently generally overshadowed.
- 5.2.2. For the most part the new and enhanced existing features will not be permanently wet, but some areas will be designed to retain water. The design of the attenuation basins throughout the linear park include small ponds designed to hold water, and a variety of shallow scrapes and channels, as well as embayments and spits. This diversity of slopes and banks offering varying water depths and retention will create a variety of micro-habitats for wildlife.
- 5.2.3. This will diversify the habitats present. Locally native aquatic and emergent species will be planted to encourage early naturalisation. Swales to be planted with appropriate mix of native species.
- 5.2.4. Newly established basins will be seeded with native damp grassland and tussocky grassland species mixes and managed appropriately.
- 5.2.5. Wetter areas will be planted with marginal species.

### 5.3. Success Criteria and Targets

- 1. Damp and dry grassland established and sustainable.
- 2. Marginal vegetation established and sustainable.
- 3. Observed use of new and existing features by wildlife.

### 5.4. Methods for Data Gathering and Analysis

- 5.4.1. Existing and newly established habitats will be subject to an annual walkover survey. The success or otherwise of habitat establishment and management will be noted. Areas where the habitats have failed to establish successfully or where management is not proving effective will be recorded.
- 5.4.2. The walkover survey will be the responsibility of the management company, with input from the project ecologist and landscape architect as necessary.

- 5.4.3. Species monitoring to be undertaken as set out in the following sections will establish to what extent existing and new attenuation features are being used by wildlife.

#### **5.5. Location of Monitoring**

- 5.5.1. Monitoring will take place across the retained and newly established attenuation features within the site.

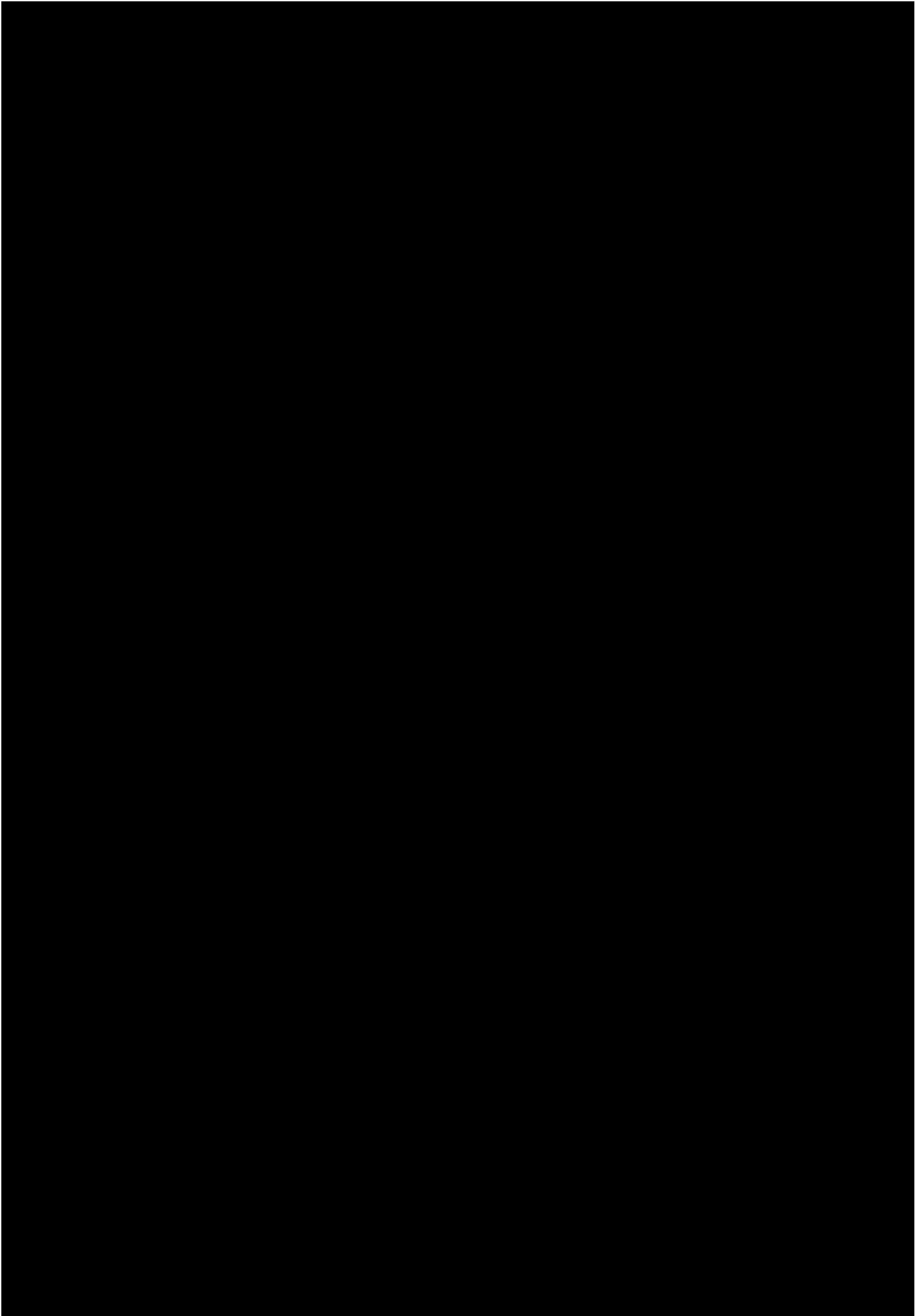
#### **5.6. Timing and Duration**

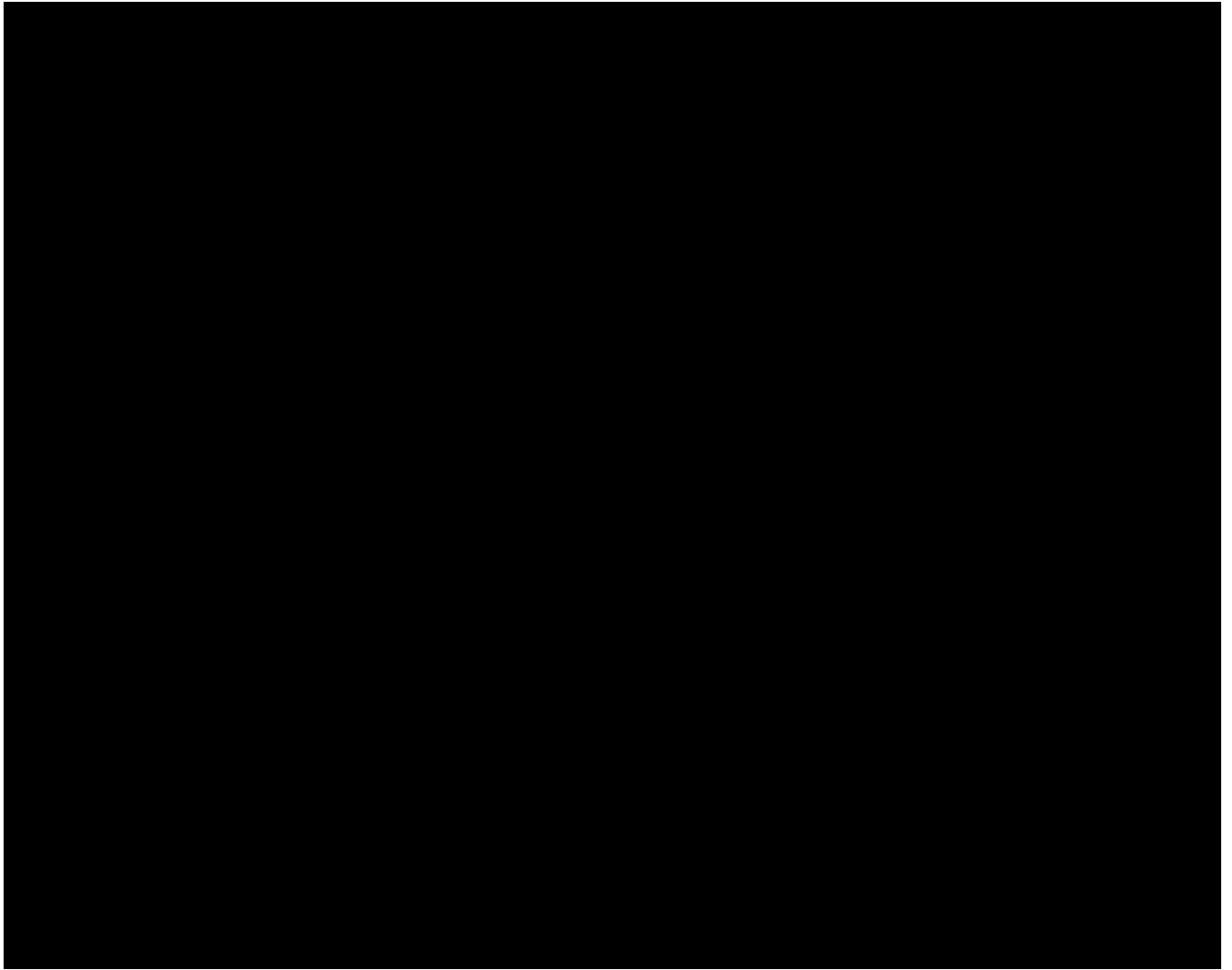
- 5.6.1. A walkover survey of all habitats will be undertaken on an annual basis by the management company. This will be an ongoing commitment that will extend beyond the lifetime of this strategy.

#### **5.7. Contingencies and Remedial Action**

- 5.7.1. Any habitats failing to establish will be subject to attention by the management company.
- 5.7.2. Watering will be required during periods of drought to ensure satisfactory establishment. Watering will be undertaken as required to maintain healthy plant growth.
- 5.7.3. Dead or diseased plants will be removed and replaced with the same species immediately after identification.
- 5.7.4. All remedial action will be the responsibility of the management company.







## 7. BATS

### 7.1. Monitoring Objectives

To assess changes in bat activity following establishment of new landscaping, infrastructure and public access.

To monitor status of known existing bat roosts.

To monitor use of new bat boxes.

To use the findings to guide remedial action where appropriate.

### 7.2. Baseline Conditions

7.2.1. Bat activity surveys completed in October 2018 and April to October 2019 across the Redrow site recorded a generally low level of activity. Areas shown to be of greater interest for bats are Great Field Plantation and Hedgerow H4, crossing the south of the site. Species recorded during the activity surveys include Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius' Pipistrelle *Pipistrellus nathusii*, Noctule Bat *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri*, Serotine Bat *Eptesicus serotinus*, Brown Long-eared Bat *Plecotus auritus*, *Myotis* sp. and Barbastelle *Barbastella barbastellus*. The results of the activity surveys completed by to inform the ES in 2014 and 2015 across the wider site recorded a similar assemblage.

7.2.2. Several trees with potential roost features were identified by in 2014, three of which were found to contain roosts. A single Pipistrelle species hibernation roost was identified within tree T28. Trees T44 and T49 were identified as having bat roosts but the species were not identified from eDNA testing. Nocturnal surveys concluded that T49 was used as a roost by Soprano Pipistrelle.

7.2.3. An emergence survey of the bat roost trees mentioned above was completed in September 2019. No emergence was observed but early registrations for Common Pipistrelle and Soprano Pipistrelle recorded by trees T28 and T49 would suggest that roosts for these species are present close by.

7.2.4. The 2018/19 dataset, combined with the information from the outline ES, provides a robust baseline from which to assess the effectiveness of mitigation and enhancement measures. As far as possible, future monitoring surveys will replicate the approach taken for the 2018/19 work.

### 7.3. Success Criteria and Targets

1. Existing bat species diversity maintained.
2. No significant decline in bat activity levels.
3. Recorded use of dark corridors.

4. Recorded use of bat hop-overs.
5. Continued use of known existing roosts.
6. Recorded use of new bat boxes.

#### 7.4. Methods for Data Gathering and Analysis

- 7.4.1. A series of transect surveys, static detector deployments and bat roost surveys will be undertaken, following the established procedures of the outline ES and the updated surveys being undertaken by Ecology Solutions in 2018 / 2019.
- 7.4.2. Field surveys will be undertaken with regard to best practice guidelines issued by Natural England (2004<sup>1</sup>), the Joint Nature Conservation Committee (2004<sup>2</sup>) and the Bat Conservation Trust (2016<sup>3</sup>).
- 7.4.3. Monthly surveys will be completed from April to October in odd years during the operation of this strategy, i.e. Years 1, 3 and 5 following completion of the landscaping works and ecological enhancements associated with the Infrastructure RMA.

##### *Activity Transects*

- 7.4.4. Activity surveys will be undertaken across a set route which covers the majority of the site. This will include the designated dark corridors as defined in the *Lighting Strategy for Bats* produced under Condition 44 and, as far as possible, replicate the transect routes for Ecology Solutions' updated surveys in 2018/19 (see Plan ECO3).
- 7.4.5. A series of point counts will be included in the transects. Point counts will include but not be limited to the location of new bat hop-overs in the landscape. The locations of these are shown on the landscape drawings produced by Exterior Architecture (as referenced in the Ecological Implementation Strategy and Landscape and Ecological Management Plan) and shown on the plan accompanying the *Lighting Strategy for Bats*.
- 7.4.6. The transects will commence at sunset and continue for two to three hours in order to maximise the encounter rate of bats i.e. both early and late emerging species. The echolocation calls of bats will be recorded on iPads paired with Echo Meter Touch 2 Pro bat detectors and analysed using Kaleidoscope software (or equivalent equipment and software).
- 7.4.7. The surveyors will observe the behaviour of any bat recorded, i.e. foraging or commuting, together with noting the species present and number of bats present at that location.
- 7.4.8. Surveys will be conducted when the night-time temperature are above 10°C. The insectivorous diet of bats means there is little or no food available

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<sup>1</sup> Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

<sup>2</sup> Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3<sup>rd</sup> edition. Joint Nature Conservation Committee, Peterborough.

<sup>3</sup> Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Edition. The Bat Conservation Trust, London.

when temperature falls below this level and consequently levels of activity are low and may not accurately reflect the value of the site for bats. The weather conditions for the surveys will be recorded and any limitations noted.

#### *Static Detector Deployments*

- 7.4.9. Static bat detectors (SM4 or equivalent) will be deployed in the locations shown on Plan ECO3, i.e. the locations in which detectors have been deployed for Ecology Solutions' updated surveys in 2018/19, as far as is reasonable possible given security considerations. This will allow for more or less direct comparison between activity levels from before and after completion of landscaping works. Detectors will be deployed for a minimum of five nights per month between April and October inclusive. Accumulated data will be analysed using Kaleidoscope (or equivalent).

#### *Emergence Surveys*

- 7.4.10. Emergence surveys of existing known bat roosts (the trees noted above) will be undertaken on three occasions during the period from May to August / September inclusive. Trees will be observed from fifteen minutes before sunset until two hours after sunset. Surveyors will use SM4 detectors to record data, which will again be analysed using Kaleidoscope or equivalent. Records of bats emerging will be compared to the baseline data.
- 7.4.11. Where considered appropriate or useful, and where safe to do so, bat workers holding the necessary tree climbing qualifications will assess use of particular features.

#### *Bat Boxes*

- 7.4.12. Bat boxes will be checked by a licensed bat worker using a ladder in August annually for five years. Species and numbers present will be recorded. Where droppings are present these will be sent for DNA analysis if necessary. Each box will be numbered to allow accurate recording of data and comparison between years. A further check will be undertaken in March each year to ensure the box remains in situ.

### **7.5. Location of Monitoring**

- 7.5.1. Monitoring will take place across the retained and newly created habitats within the site, focusing on the dark corridors as set out above.

### **7.6. Timing and Duration**

- 7.6.1. Monitoring surveys will be completed monthly from April to October in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA.
- 7.6.2. Bat boxes will be checked in August annually for signs of occupation by bats. A further check will be undertaken in March annually to see that the box remains in situ. These checks will be undertaken for the lifetime of this strategy (five years).

## 7.7. Contingencies and Remedial Action

- 7.7.1. Bat species diversity and activity levels will be monitored as set out above, with a particular focus on the dark corridors. Should significant changes be observed, such as loss of species or declines in activity, steps will be taken where possible to address potential contributing factors. The lighting strategy is considered to be robust, but if unexpected adverse effects are being experienced lighting units will be investigated and repaired, modified or replaced if necessary.
- 7.7.2. Dispersal through bat hop-overs will be monitored. Should these not prove effective then remedial steps will be taken where possible. This may involve modification or replacement of lighting columns in the vicinity, new planting and / or replacement of existing planting.
- 7.7.3. Any damage to the vegetation comprising a bat-hop will be made good through replacement planting in the next planting season (i.e. October to March).
- 7.7.4. Similarly, any damage to vegetation in dark corridors will be made good during the next planting season.
- 7.7.5. Any damage or lighting columns, or malfunctions that affect the light spill, particularly where these are located close to foraging areas or dispersal routes, will be made good by the appointed contractor as soon as reasonably practicable.
- 7.7.6. It is accepted and understood that bats will move on to new roosting opportunities, and so if existing roosts are not found to be occupied in every year this should not necessarily be taken as evidence of an adverse effect. Nonetheless, if no occupation is observed in consecutive years, possible reasons for this will be considered and appropriate measures taken.
- 7.7.7. If bat boxes are found to be damaged they will be replaced as soon as reasonably practicable.
- 7.7.8. It is understood that bat boxes can take time to be found and used. If bat boxes are found to have no signs of use in the Year 2 check they will be relocated to a suitable tree under the supervision of a licensed bat worker.

## 8. OTTERS AND WATER VOLES

### 8.1. Monitoring Objectives

To monitor any use of the site by Otters.  
To monitor any use of the site by Water Voles.

### 8.2. Baseline Conditions

- 8.2.1. No evidence of use by Otters or Water Voles has been recorded in the existing waterbodies across the Redrow site and the wider site, but this species is known to be present in the River Stour, and the Stour Brook south of the site.

### 8.3. Success Criteria and Targets

1. Recorded use of the site by Otters.
2. Recorded use of the site by Water Voles.

- 8.3.1. It is noted that no specific measures for Otters and Water Voles were defined the outline ES, simply that maintaining open watercourses could encourage their colonisation in time.

### 8.4. Methods for Data Gathering and Analysis

- 8.4.1. Otter surveys will be undertaken in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA. Surveys for Otters can be undertaken at any time of year, but generally this work will be undertaken in concert with that for Water Voles (see below). A suitably qualified ecologist will survey watercourses to identify field signs:
- Spraint – Irregular, sometimes short, rounded segments containing fish bones, scales or crayfish parts;
  - Footprints of otters in soft substrates along the watercourse typically 8cm wide and 10cm long;
  - Holts and couches on the banks of the watercourse; and
  - Slides on the banks of the watercourse.
- 8.4.2. Surveys for Water Voles will be undertaken in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA, with surveys carried out from mid-April to the end of June and July to September inclusive.
- 8.4.3. As Water Voles are rarely seen, the surveys will be based around the identification of characteristic signs. The surveys will follow guidance by Natural England and consist of a close examination of all watercourses, waterbodies and banks up to two metres from the water's edge.

8.4.4. The following signs will be sought:

- Faeces - 8-12 mm long and 4-5 mm wide with blunt ends;
- Latrines - Water Voles will deposit the majority of their droppings at points of their territory boundary;
- Feeding Stations – Water Voles often bring pieces of cut vegetation to favoured feeding stations close to the water's edge;
- Burrows - Typically 4-8 cm in diameter and found in the river / ditch bank;
- Footprints of Water Vole in soft substrates along the ditches; and
- Water Voles that may be observed directly.

8.4.5. The condition of newly established and existing habitats will be monitored. Water levels in the Stour Brook tributary will be noted during survey work.

8.5. **Location of Monitoring**

8.5.1. Monitoring will take place across the retained and newly established waterbodies, watercourses and associated habitats across the site.

8.6. **Timing and Duration**

8.6.1. Monitoring surveys for Otters and Water Voles will be undertaken in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA. Surveys for Water Voles will be carried out from mid-April to the end of June and July to September inclusive, with checks for Otters carried out at the same time.

8.7. **Contingencies and Remedial Action**

8.7.1. Otters and Water Voles are currently not present within the site. Any signs of their presence would be viewed as a significant benefit of the scheme.

8.7.2. New planting will be replaced if damaged or failing, in the next available planting season.

8.7.3. In the unlikely event that water level of the Stour Brook are seen to have changed significantly from previously observed levels, a civil engineer will be instructed to determine the cause and to take such remedial action as necessary to return the levels to their former position. This would be to ensure that the opportunity for colonisation by these species remains available.



## 9. DORMICE

### 9.1. Monitoring Objectives

To monitor any use of the site by Dormice.  
To monitor use of new Dormouse nest boxes.  
To use the findings to guide remedial action where appropriate.

### 9.2. Baseline Conditions

- 9.2.1. A Dormouse nest was recorded in a survey tube along Hedgerow H13, west of Great Field Plantation during a survey undertaken in April 2019. No other evidence of Dormice has been recorded within the Redrow site. A partial Dormouse nest was recorded in the south-east of the wider site in 2015 during surveys to inform the outline ES.

### 9.3. Success Criteria and Targets

1. Recorded use of the site by Dormice in nest tube surveys.
2. Recorded use of Dormouse boxes.
3. Establishment and maintenance of habitats to encourage Dormice.

- 9.3.1. It is noted that no specific measures for Otters and Water Voles were defined the outline ES, simply that maintaining open watercourses could encourage their colonisation in time.

### 9.4. Methods for Data Gathering and Analysis

- 9.4.1. Monitoring surveys for Dormice will be undertaken in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA.
- 9.4.2. The survey technique involves the installation and checking of nest tubes and nest boxes within all habitats considered to be species-rich or of potential value to Dormice. The Dormouse nest tubes / boxes utilised will be those approved as standard by the Mammal Society.
- 9.4.3. Nest tubes / boxes will be placed in accordance with the guidance provided by the Mammal Society and Natural England. Typically, tubes are placed within scrub, hedgerows and woodland approximately every 20 metres where suitable locations can be identified. Nest boxes are placed at lower densities but in similarly selected locations as for nest tubes. The nest tubes will be attached with wire ties underneath suitably sturdy horizontal branches and positioned approximately 1.5 metres above ground level on average.
- 9.4.4. The survey will be scored for effort according to the method developed from the South West Dormouse Project and carried through in the second edition

of *The Dormouse Conservation Handbook* (English Nature, 2006<sup>4</sup>). The system provides an overall score that reflects the chances of Dormice being discovered if present, and thus provides an indicator of the ‘thoroughness’ of a survey. This score is based on the number of tubes used and the number of months the tubes are in place.

- 9.4.5. The months of the year are weighted according to the likelihood of recording Dormice, as set out in Table 10.1 below.

Month	Weighting
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

**Table 9.1.** Monthly Score Weighting for Dormouse surveys.

- 9.4.6. Generally speaking, the index of effort is calculated based on the use of 50 nest tubes as a standard minimum.
- 9.4.7. A score of 20 (or above) is deemed a thorough survey and a score of 15 to 19 may be regarded as adequate where circumstances do not permit more time or more tubes (particularly if other survey methods have also given negative results).
- 9.4.8. Dormouse nest tubes will be collected following completion of each survey round. Nest boxes will remain in situ. The locations of nest boxes will be carefully considered to avoid interference by the public.
- 9.4.9. New and existing hedgerows, woodland and scrub will be checked and made good where necessary through new planting in the next planting season.

## 9.5. Location of Monitoring

- 9.5.1. Monitoring surveys will take place across suitable retained and newly created habitats within the site, i.e. hedgerows, woodland and scrub.

## 9.6. Timing and Duration

- 9.6.1. Monitoring surveys will take place in Years 1, 3 and 3 following completion of the landscaping works associated with the Infrastructure RMA. Surveys will be undertaken from May to September inclusive to meet the threshold index of probability score.

<sup>4</sup> English Nature (2006). *The Dormouse Conservation Handbook*. English Nature, Peterborough.

- 9.6.2. Nesting boxes will be checked annually in March by a suitably experienced ecologist for the first five years following installation, to ensure that they are still in situ and are not damaged.

#### **9.7. Contingencies and Remedial Action**

- 9.7.1. Dormice are currently not present within the site. Any signs of their presence would be viewed as a significant benefit of the scheme.
- 9.7.2. New planting will be replaced if damaged or failing, in the next available planting season.
- 9.7.3. If bat boxes are found to be damaged they will be replaced as soon as reasonably practicable. Regard will be had to possible interference from the public.

## 10. BIRDS

10.1. Condition 45 specifically cites Skylarks as a species to be monitored, though it extends coverage to protected and priority species. The strategy therefore extends to all bird species, albeit there will be a particular focus on Skylark and other priority species.

### 10.2. Monitoring Objectives

To monitor use of the site by Skylark.

To monitor use of the site by other priority species.

To monitor use of the site by bird species in general.

To monitor use of bird boxes, including Swift towers.

To use the findings to guide remedial action where appropriate.

### 10.3. Baseline Conditions

10.3.1. Four wintering bird surveys were completed by Ecology Solutions in November and December 2018, and in January and February 2019. A total of 47 species were recorded, including 17 species that are listed as NERC species of principal importance, Suffolk LBAP and / or on the UK Birds of Conservation Concern Red and Amber list, as set out below:

Song Thrush <i>Turdus philomelos</i>	Dunnock <i>Prunella modularis</i>
Skylark <i>Alauda arvensis</i>	Mistle Thrush <i>Turdus viscivorus</i>
Yellowhammer <i>Emberiza citrinella</i>	Starling <i>Sturnus vulgaris</i>
Kestrel <i>Falco tinnunculus</i>	House Sparrow <i>Passer domesticus</i>
Linnet <i>Carduelis cannabina</i>	Reed Bunting <i>Emberiza schoeniclus</i>
Redwing <i>Turdus iliacus</i>	Fieldfare <i>Turdus pilaris</i>
Stock Dove <i>Columba oenas</i>	Mallard <i>Anas platyrhynchos</i>
Black-headed Gull	Lesser Black-backed Gull
<i>Chroicocephalus ridibundus</i>	<i>Larus fuscus</i>
Bullfinch <i>Pyrrhula pyrrhula</i>	

10.3.2. Four wintering bird surveys were undertaken between November 2014 and February 2015 to inform the outline ES, recording a similar complement of species.

10.3.3. Three breeding bird surveys were undertaken by Ecology Solutions in April, May and June 2019.

10.3.4. Fifty species were recorded within or immediately adjacent to the site, including 18 species that are listed as NERC species of principal importance and / or on the UK Birds of Conservation Concern Red and Amber list, as follows:

Song Thrush <i>Turdus philomelos</i>	Dunnock <i>Prunella modularis</i>
Skylark <i>Alauda arvensis</i>	Mistle Thrush <i>Turdus viscivorus</i>
Yellowhammer <i>Emberiza citrinella</i>	Starling <i>Sturnus vulgaris</i>
Kestrel <i>Falco tinnunculus</i>	House Sparrow <i>Passer domesticus</i>
Linnet <i>Carduelis cannabina</i>	Reed Bunting <i>Emberiza schoeniclus</i>

Herring Gull *Larus argentatus*  
Stock Dove *Columba oenas*  
Black-headed Gull  
*Chroicocephalus ridibundus*  
Bullfinch *Pyrrhula pyrrhula*

Fieldfare *Turdus pilaris*  
Willow Warbler *Phylloscopus trochilus*  
Lesser Black-backed Gull  
*Larus fuscus*  
Tawny Owl *Strix aluco*

- 10.3.5. Of these species, singing males of Dunnock, Linnet, Yellowhammer, Skylark, Stock Dove, Reed Bunting, Song Thrush and Willow Warbler were all recorded within the site and are therefore categorised as possible breeders. The three gull species that were recorded were observed flying over the site and do not use the site itself to a significant degree, and there is no suitable breeding habitat for these species.
- 10.3.6. The only bird species that has been confirmed to successfully breed on site are Great Tits *Parus major*, with two nest sites recorded within Great Field Plantation. A pair of Yellowhammers were also seen mating in Hedgerow H17 indicating attempted breeding of this species within this area of the site.
- 10.3.7. Families of Great Tit, Blue Tit *Cyanistes caeruleus*, Jackdaw *Corvus monedula*, Bullfinch, Magpie *Pica pica*, Goldfinch *Carduelis carduelis*, Whitethroat *Sylvia communis*, Blackbird *Turdus merula* and Long-tailed Tit *Aegithalos caudatus* were recorded on site during the survey completed in June.
- 10.3.8. Confirmed breeders immediately adjacent to the site include Rooks *Corvus frugilegus*, Blue Tits, Common Moorhen *Gallinula chloropus* and Starlings. There is a large Rookery of approximately 33 nests within the deciduous woodland
- 10.3.9. Information from the breeding bird surveys is that a maximum of three Skylarks were recorded singing during any one survey. It is therefore taken that three territories are being held during the breeding season.

#### 10.4. Success Criteria and Targets

1. Maintain three Skylark breeding territories.
2. Increase Skylark breeding territories to five.
3. Maintain existing species complement in breeding and wintering periods.
4. Occupation of Swift towers by this species.
5. Occupation of other bird boxes.

#### 10.5. Methods for Data Gathering and Analysis

##### *Breeding Birds*

- 10.5.1. Three breeding bird surveys will be undertaken during suitable weather conditions between April and June in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA.

10.5.2. As far as is practicable, transects will follow the same route as used for the breeding bird surveys (see Plan ECO4), to allow for direct comparison.

10.5.3. All birds seen or heard within the survey area will be identified and recorded, as will their behaviour. Binoculars and a telescope will be used when necessary.

#### *Wintering Birds*

10.5.4. Four monthly wintering bird surveys will be undertaken between November and February in Years 1, 3 and 5 (or equivalent) following completion of the landscaping works associated with the Infrastructure RMA. Again, the transect route will follow that used for the most recent surveys as far as practicable (see Plan ECO4).

10.5.5. The surveys will commence at or soon after sunrise and will be performed in suitable weather conditions. The transect route will be chosen so that the entire site is covered and all features likely to support wintering birds are surveyed.

### **10.6. Location of Monitoring**

10.6.1. Monitoring will take place across the retained and newly created habitats within the site. Transect routes will closely follow those used for the most recent surveys.

### **10.7. Timing and Duration**

10.7.1. Monitoring will take place in Years 1, 3 and 5 following completion of the landscaping associated with the Infrastructure RMA.

10.7.2. Bird boxes will be checked periodically (at least once a year in March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Swift towers will be checked with binoculars in June.

### **10.8. Contingencies and Remedial Action**

10.8.1. Any damage to new planting will be made good through replacement during the next planting season.

10.8.2. If bird boxes are found to be damaged they will be replaced as soon as reasonably practicable.

10.8.3. It is not expected that long term declines in Skylark numbers would be observed, but if so consideration will be given to fencing off particular areas of tussocky grassland to encourage greater use during the breeding season.

## 11. REPTILES

### 11.1. Monitoring Objectives

To assess changes in reptile population sizes and distribution.  
To use the findings to guide remedial action where appropriate.

### 11.2. Baseline Conditions

- 11.2.1. A presence / absence survey for reptiles has been completed from April to June 2019. The results of the surveys show that low populations of Grass Snake and Common Lizard are present, with the main areas of interest being Hedgerow H4 and the southern edge of the new plantation in the south of the site. The field margins to the north of Great Field Plantation were also seen to support small numbers of Common Lizard. These results are similar to those of surveys undertaken to inform the outline ES in 2014. That work also identified Slow Worm in the wider survey area, though not within the Redrow site.

### 11.3. Success Criteria and Targets

1. Maintain presence of Grass Snake and Common Lizard within the site.
2. Increase populations of Grass Snake and Common Lizard.
3. Record Slow Worm within the site in sustainable numbers.

### 11.4. Methods for Data Gathering and Analysis

- 11.4.1. Specific surveys for reptiles will be carried out in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA. Work will be undertaken between April and September inclusive. The methodology that will be utilised is principally derived from guidance given in Froglife Advice Sheet 10<sup>5</sup>, the *Herpetofauna Workers' Manual*<sup>6</sup> and the Herpetofauna Groups of Britain and Ireland's (HGBI) advisory note<sup>7</sup>.
- 11.4.2. Areas of suitable habitat will be surveyed for the presence of reptiles using artificial refugia ("tins"), 0.5m x 0.5m roofing felt tins will be placed within areas of suitable reptile habitat within the site.
- 11.4.3. The tins provide shelter and heat up more quickly than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature which allows them to forage earlier and later in the day.

<sup>5</sup> Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

<sup>6</sup> Gent, T and Gibson, S. (2003). *Herpetofauna Workers' Manual*. JNCC, Peterborough.

<sup>7</sup> Herpetofauna Groups of Britain and Ireland (HGBI). (1998). *Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards*.

11.4.4. To determine presence / absence the tins will be checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England and other guidance. Optimum weather conditions for reptile surveying are temperatures between 10°C and 17°C, intermittent or hazy sunshine and little or no wind.

11.4.5. The status of new and existing grassland habitats, and of newly established hibernacula, will be checked on an annual basis for the five years covered by this strategy.

#### **11.5. Location of Monitoring**

11.5.1. Monitoring will take place across the retained and newly created habitats within the site.

#### **11.6. Timing and Duration**

11.6.1. Monitoring surveys will be undertaken in Years 1, 3 and 5 following completion of the landscaping works associated with the Infrastructure RMA.

11.6.2. Hibernacula will be checked annually for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged.

#### **11.7. Contingencies and Remedial Action**

11.7.1. Should tussocky grassland not establish appropriately the landscape contractor will address the matter through examining ground conditions and re-sowing as necessary.

11.7.2. Hibernacula will be replaced or repaired as soon as reasonably practicable if found to be damaged. If damage persists then consideration will be given to relocating the feature to a less obvious location – this will be at the discretion of the project ecologist and the management company.



## 12. AMPHIBIANS

### 12.1. Monitoring Objectives

To monitor any use of the site by Great Crested Newts.  
To monitor use of the site by other amphibians.

### 12.2. Baseline Conditions

- 12.2.1. No Great Crested Newts *Triturus cristatus* were recorded during earlier survey work in 2015. Additionally, there are no records for Great Crested Newts in the local area. Common Toads *Bufo bufo* and Smooth Newts *Lissotriton vulgaris* were recorded during Great Crested Newt surveys completed in 2014 and 2015. Ponds within the site and those within 500m were subject to eDNA testing in 2019 where permission was granted. The results of the eDNA testing were returned as negative.

### 12.3. Success Criteria and Targets

1. Maintain presence of Common Toads and Smooth Newts within the site.
2. Record Great Crested Newts within the site in sustainable numbers.

### 12.4. Methods for Data Gathering and Analysis

- 12.4.1. A single evening presence / absence survey will be undertaken of existing and newly established ponds during the peak Great Crested Newt survey season from mid-April to mid-May. Given the absence of existing records from the locality and negative recent survey results it is considered unlikely that they will be recorded, but this survey would allow assessment of the distribution of Common Toad and Smooth Newt populations.
- 12.4.2. The survey would take the form of an evening visit to survey the ponds will high-powered torches and deploy bottle traps. The following morning the traps would be checked and an egg search undertaken. These are the standard methods following guidance in *Great Crested Newt Mitigation Guidelines* (English Nature, 2001)<sup>8</sup>.

### 12.5. Location of Monitoring

- 12.5.1. Monitoring will take place across the retained and newly created waterbodies within the site.

### 12.6. Timing and Duration

- 12.6.1. Monitoring surveys will take place in Years 1, 3 and 5 following completion of the landscaping works and attenuation features associated with the Infrastructure RMA. The survey will be undertaken during the peak Great Crested Newt survey season of mid-April to mid-May.

<sup>8</sup> English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough,.

## 12.7. Contingencies and Remedial Action

- 12.7.1. Any problems identified with water levels in existing ponds will be discussed with the management company and steps taken where appropriate to maintain their status.
- 12.7.2. In general no further remedial actions for amphibians are likely to be necessary.

## **13. INVERTEBRATES**

### **13.1. Monitoring Objectives**

To check new invertebrate features for signs of use, damage or disturbance, and take remedial action as necessary.

### **13.2. Baseline Conditions**

- 13.2.1. Given the habitats present, it is likely an assemblage of common invertebrate species utilises the site, though the intensive arable management of the majority of the land will limit variety. There is no evidence to suggest that any rare or notable species would currently be present.

### **13.3. Success Criteria and Targets**

1. Maintain new invertebrate habitats.
2. Encouraging greater invertebrate diversity.

### **13.4. Methods for Data Gathering and Analysis**

- 13.4.1. Specific invertebrate survey work is not proposed, rather the focus of monitoring will be on qualitative observations of new invertebrate nesting features, in terms of their use by invertebrates.
- 13.4.2. The status of new and existing grassland habitats, and of newly established hibernacula, will be checked on an annual basis for the five years covered by this strategy.

### **13.5. Location of Monitoring**

- 13.5.1. Monitoring will take place across the retained and newly created habitats within the site.

### **13.6. Timing and Duration**

- 13.6.1. New invertebrate nesting features will be monitored on at least an annual basis during other survey visits to the site.
- 13.6.2. Newly established and existing habitats will be monitored as previously described.

### **13.7. Contingencies and Remedial Action**

- 13.7.1. Should new wildflower grassland not establish appropriately the landscape contractor will address the matter through examining ground conditions and re-sowing as necessary.

- 13.7.2. Nesting features will be replaced or repaired as soon as reasonably practicable if found to be damaged. If damage persists then consideration will be given to relocating the feature to a less obvious location – this will be at the discretion of the project ecologist and the management company.

## **14. RESPONSIBLE PERSONS AND COMMUNICATION**

- 14.1. Redrow Homes has ultimate responsibility for implementation of this monitoring strategy. The individual currently leading for Redrow Homes is Richard Franks, Senior Engineering Manager, and the responsibility for implementation will be his or that of his appointed successor.
- 14.2. It is the responsibility of the appointed individual at Redrow Homes to instruct appropriate experienced ecologists and / or landscape contractors to check the status of the various existing and proposed habitats and features described in this report.
- 14.3. Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.
- 14.4. Redrow and the landowner will establish a joint management company to manage and maintain the public landscape areas of Great Wilsey Park. The management company will be responsible for the ongoing maintenance of areas of soft landscaping within public open spaces, attenuation basins and Great Field Plantation.

## **15. REVIEW AND PUBLICATION OF RESULTS**

- 15.1. An annual monitoring report will be produced for five years following completion of landscaping works associated with the Infrastructure RMA. This will be delivered in November of each year.
- 15.2. The report will set out the findings of the monitoring work, which will be judged against the success criteria. Details of any remedial work undertaken will be set out, together with any revised objectives for the following year.
- 15.3. This Biodiversity Monitoring Strategy covers the first five years following completion of the landscaping and ecological enhancement works associated with the Infrastructure RMA. Following submission of the Year 5 monitoring report, further discussion will be held with the Local Planning Authority to determine the need for further monitoring work.
- 15.4. This is intended to be an iterative document. Objectives and success criteria will be reviewed annually and amended if required following discussion and agreement with the Local Planning Authority.