

# Riverside Energy Park

---

## Biodiversity Accounting Report

---

VOLUME NUMBER:

**08**

PLANNING INSPECTORATE REFERENCE NUMBER:

**EN010093**

---

DOCUMENT REFERENCE:

**8.02.09**

---

May 2019 | Revision 0 (Deadline 2) | APFP Regulation 5(2)(q)

---

Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

## Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>1 Introduction .....</b>	<b>4</b>
1.1 Overview .....	4
1.2 Biodiversity Metric Context .....	5
1.3 Net Gain Principles .....	5
1.4 Report Aims .....	6
<b>2 Biodiversity Metric: Background, Legislation and Policy Framework .....</b>	<b>7</b>
2.1 Introduction .....	7
2.2 Supporting National Policy and Legislation: Biodiversity Net Gain .....	8
2.3 Supporting Regional Policy .....	10
2.4 Supporting Local Policy .....	11
2.5 The Environment Bank .....	11
<b>3 Scheme Design Evolution .....</b>	<b>12</b>
<b>4 Metric Assumptions .....</b>	<b>14</b>
4.1 Overview .....	14
4.2 Common Metric Assumptions .....	15
4.3 Realistic Worst Case Overall Route (Submission Stage) .....	17
4.4 Realistic Best Case .....	18
4.5 Single Electrical Connection Route for Deadline 2 .....	18
<b>5 Summary Results of Metric Calculations .....</b>	<b>20</b>
<b>6 Next Steps .....</b>	<b>22</b>
6.1 Preliminary Offset Search .....	22
6.2 Biodiversity Offsetting Standards .....	22
6.3 Biodiversity Offset Confirmation .....	23
6.4 Mechanism for Securing Offset Through DCO .....	24
<b>7 Conclusion .....</b>	<b>26</b>
<b>8 References .....</b>	<b>27</b>

## Appendices

Appendix A Biodiversity Accounting Assessment and Compensation Requirement Review  
(Environment Bank)

## Executive Summary

PBA was commissioned by Cory Environmental Holdings Limited (trading as Cory Riverside Energy (Cory or the Applicant)) to work with the Environment Bank to undertake a Biodiversity Accounting Assessment and Compensation Requirement Review of proposals for the Riverside Energy Park (REP), an integrated Energy Recovery Facility (ERF), from here on referred to as the Proposed Development.

In line with planning policy, the design has sought to incorporate the mitigation hierarchy to avoid, mitigate and, as a last resort, compensate for impacts to biodiversity receptors. Due to the limited area of the REP site, it is not possible to avoid or mitigate all impacts through temporary and permanent loss of habitats. Compensation, or biodiversity offsetting, will be provided to offset residual effects resulting from the loss of habitats, and to ensure biodiversity net gain is achieved. This will be delivered by the Environment Bank through a financial contribution from the Applicant, with a legal agreement for the financial contribution to provide habitat creation or enhancement outside the Application Site (the Order Limits), in order to achieve net biodiversity gain.

The Environment Bank has undertaken a Biodiversity Accounting Assessment using a biodiversity metric to calculate the value of any habitat losses and gains associated with the Proposed Development and to calculate the value of the required offset and net gain requirements in terms of Biodiversity Units (BU). The metric calculations have been undertaken with reference to two impact scenarios, as follows:

- **“Realistic Worst Case Overall Route (Submission Stage)”**: This scenario provided for the worst case overall route, including through Crossness Local Nature Reserve (LNR), Erith Marshes Site of Importance for Nature Conservation (SINC), the River Cray Public Open Space and SINC, and running within the Dartford Marshes Local Wildlife Site (LWS).
- **“Realistic Best Case”**: This scenario provided for the impacts that are likely to represent the effects when the Proposed Development is delivered, based on the understanding of design evolution and practicalities of implementation at the time of the setting of the assumptions. The “Realistic Best Case” avoids Crossness LNR, the River Cray Public Open Space and SINC and the majority of the Dartford Marshes LWS.

The scenarios were derived prior to completion of further route analysis by UK Power Networks (UKPN), which has resulted in a single Electrical Connection route being chosen as set out in the Electrical Connection Summary Report (8.02.07) comprising part of the submission for Deadline 2. The scenarios represented the realistic cases at either end of a range of potential metric outcomes, to inform the commencement of the site search process. “Realistic” cases were chosen, which do not comprise the combination of all reasonable worst or best case outcomes, such that likely (rather than extreme) scales of metric were obtained.

The Applicant's recently updated single Electrical Connection route (as per the **Works Plans (2.2, Rev 1)**), predominantly follows the Realistic Best Case assumptions. However, there are a few differences, explained in **Section 4** of this report, which mean

that the metric outcome for the revised Order Limits would likely result in effects between the two scenarios. However, it should be remembered that the revised Order Limits, whilst reducing the optionality for the Electrical Connection still retains some flexibility for the detailed design and engineering stage of the Electrical Connection, which means it is likely to still be larger than the final area than would be affected. It is for this reason that the final metric will not be known until the detailed design stage.

In addition, at Deadline 2 the Applicant has moved the Main Temporary Construction Compound from its original location northwards to land owned by the Cory group and which has planning permission for a data centre. This has only just been become an option following a change in the delivery programme of the data centre. Accordingly, the metric calculation is based on the original location for the Main Temporary Construction Compound. However, the original location of the Main Temporary Construction Compound and the Data Centre Sites currently support very similar Biodiversity Value (in terms of habitat area, type (distinctiveness) and condition, as measured by the Defra Metric). Therefore, it is anticipated that in Biodiversity Unit terms the metric value of either of these two areas being temporarily affected, and subsequently restored through the Proposed Development, will be very similar.

The Biodiversity Accounting Assessment identified that the Proposed Development under the Realistic Best Case scenario will result in a residual loss of habitat value equivalent to -30.46 BU and a residual linear loss of -3.11 linear BU.

The Proposed Development along the Realistic Worst Case Overall Route (Submission Stage) scenario would have resulted in the loss of habitat value equivalent to -35.62 BU and a residual loss of -6.11 linear BU. As the Order Limits have now been revised and excludes land that is comprised in the Realistic Worst Case Overall Route, this loss of habitat value cannot be realised given the land is now not part of the DCO Application. However, the value is shown to demonstrate the reduction in effects achieved by the Applicant through design evolution following submission of the DCO Application.

Both scenarios were found to have residual impacts on Habitats of Principal Importance for nature conservation in England including open mosaic habitat on previously developed ground, swamp and broad-leaved woodland.

The Applicant has confirmed that a Biodiversity and Landscape Mitigation Strategy, delivered through **Requirement 5 of Schedule 2** to the **dDCO (3.1, Rev 1)**, will be prepared prior to commencement and will include the final results of a Biodiversity Accounting Assessment which will confirm the value of the required offset and net gain requirements (in accordance with local and national policy), with a preference to deliver the biodiversity creation or enhancements in the local area, targeting the enhancement and restoration of Habitats of Principal Importance. The Requirement states that the final Biodiversity and Landscape Mitigation Strategy must set out the mechanism for securing this value (**Requirement 5(1)(d)**) and sub-paragraph (2)) then requires the Applicant to implement the approved strategy. Accordingly, the delivery of the offset and net gain requirements is secured through the Development Consent Order. The Applicant has also committed to delivering a minimum of 10% biodiversity net gain.

The Applicant is committed to ongoing exploration with UKPN to further minimise environmental effects, where practicable, at the implementation stage. As stated above, the revised Order Limits still retains some flexibility for the detailed design and engineering stage of the Electrical Connection, which means it is likely to still be larger than the final area that would be affected. Accordingly, the likelihood is that the final metric will be close to or at the Realistic Best Case. What is certain, is that the final metric cannot be the Realistic Worst Case following the changes to the Order Limits.

# 1 Introduction

## 1.1 Overview

- 1.1.1 Peter Brett Associates, now part of Stantec (PBA), working with the Environment Bank were commissioned by Cory Environmental Holdings Limited (trading as Cory Riverside Energy (Cory or the Applicant)) to produce a Biodiversity Accounting Report for proposals for the Riverside Energy Park (REP), an integrated Energy Recovery Facility (ERF), from here on referred to as the Proposed Development. The purpose of the report is to provide a transparent measure of habitat value losses and gains, in order to demonstrate the Proposed Development can meet planning policy requirements relating to biodiversity net gain.
- 1.1.2 The REP site is located within the administrative areas of the London Borough of Bexley (LBB) and the Electrical Connection route is located within both LBB and Dartford Borough Council (DBC). The original site extents are shown on **Figure 1.1 Site Location Plan**, and **Figure 1.2 Application Boundary of the Environmental Statement (ES) (6.2, APP-056)**. Through the detailed update on the status of the Electrical Connection, as provided in the **Electrical Connection Progress Report (8.02.07)**, submitted at Deadline 2 comprising part of the submission for Deadline 2, the Electrical Connection has now been refined to a single overall route corridor from the REP site to the Electrical Connection Point at the Littlebrook substation. This refinement is reflected in updated submissions of the **Works Plans (2.2, Rev 1)**, **Land Plans (2.1, Rev 1)**, **Access and Public Rights of Way Plans (2.3, Rev 1)**, **Book of Reference (4.3, Rev 1)**, **Statement of Reasons (4.1, Rev 1)** and the **draft Development Consent Order (dDCO (3.1, Rev 1))** submitted at Deadline 2.
- 1.1.3 The parallel timescales of the UK Power Networks (UKPN) studies which resulted in a single Electrical Connection route, mean that the metric calculation was progressed on the basis of two scenarios, including the submitted Application. In addition, at Deadline 2 the Applicant has moved the Main Temporary Construction Compound from its original location northwards to land owned by the Cory group and which has planning permission for a data centre. This has only just become an option following a change in the delivery programme of the data centre. Accordingly, the metric calculation is based on the original location for the Main Temporary Construction Compound. However, the original location of the Main Temporary Construction Compound and the Data Centre Sites currently support very similar Biodiversity Value (in terms of habitat area, type (distinctiveness) and condition, as measured by the Defra Metric). Therefore, it is anticipated that in Biodiversity Unit terms the metric value of either of these two areas being temporarily affected, and subsequently restored through the Proposed Development, will be very similar.
- 1.1.4 An assessment of impacts and effects from REP on ecological features has been undertaken and can be found in **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**. The assessment identifies that development of REP will result in the loss or disturbance of habitats of ecological value.

1.1.5 **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** is accompanied by an **Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**, the purpose of which is to set out the key measures required to avoid, mitigate and compensate for impacts and effects to terrestrial biodiversity and landscape from the construction and operation of REP. The OBLMS makes a commitment that any unavoidable loss or damage to habitats will be compensated within the Application Boundary (i.e. the Order Limits), or where that is not possible, through an offset, as well as providing an overall net gain to biodiversity. The OBLMS confirms that effects to habitats through loss or damage during construction, along with creation, reinstatement or enhancement of habitats, will be assessed using a 'biodiversity metric'.

1.1.6 The Applicant has commissioned the Environment Bank to work with PBA to run the biodiversity metric, to calculate the likely value range of the required offset and net gain requirements, and to develop the options to provide the offset.

## 1.2 Biodiversity Metric Context

1.2.1 Biodiversity is complex and so it is impossible to measure in its entirety. Therefore metrics, which incorporate measures of different biodiversity attributes, are used to provide surrogate measures of overall biodiversity.

1.2.2 The use of a biodiversity metric assumes the principles of the mitigation hierarchy<sup>1</sup> have been adopted and used when developing measures to address impacts on biodiversity receptors. The principles of the mitigation hierarchy are that, in order of preference, impacts on biodiversity should be subject to avoidance, mitigation, and compensation.

1.2.3 Where possible effects from REP have been avoided or mitigated (see **Section 3**). However, due to the limited area of the REP site, it is not possible to avoid or mitigate all impacts through temporary and permanent loss of habitats. Compensation, or biodiversity offsetting, will be provided to offset residual effects resulting from the loss of habitats within the REP site, and to ensure biodiversity net gain is achieved. This will be delivered through a financial contribution from the Applicant to the Environment Bank, with a legal agreement for the financial contribution to provide habitat creation or enhancement outside the Application Site, in order to achieve net biodiversity gain. This process is secured via **Requirement 5 of Schedule 2 to the dDCO (3.1, Rev 1)**.

## 1.3 Net Gain Principles

1.3.1 Biodiversity Net Gain: Good Practice Principles for Development published by CIEEM *et. al.* (2016) states that delivering biodiversity net gain goes beyond balancing relative gains and losses. It also involves doing everything to avoid biodiversity losses in the first instance (mitigation hierarchy). The application of the Defra Metric (Defra, 2012) detailed in the **Biodiversity Accounting**

---

<sup>1</sup> CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Section 6. Chartered Institute of Ecology and Environmental Management, Winchester.

**Assessment and Compensation Requirement Review**, completed by the Environment Bank (**Appendix A**) further supports the Proposed Development in to adopt this approach by:

- providing a habitat balance sheet which can be used to identify those habitats with the greatest value and subsequently those with the greatest impacts if lost;
- supporting and incentivising the mitigation hierarchy by quantifying the benefits of avoiding and mitigating impacts on high value features;
- promoting the value of biodiversity enhancements and demonstrating the potential for additionality on retained habitats;
- providing a balance of losses, enhancements or on-site compensation to determine if a measured net gain contribution can be achieved;
- providing transparent, robust and credible evidence to help inform the best possible site options for biodiversity; and,
- ensuring that any residual offsite compensation required (e.g. through biodiversity offsetting) is proportionate to the impacts and can secure a measurable net gain contribution for biodiversity overall.

## 1.4 Report Aims

1.4.1 This report aims to:

- Set out the Legislation and Policy Framework for use of the Biodiversity Metric;
- Confirm the steps undertaken through scheme design evolution to implement the mitigation hierarchy, prior to consideration of the Biodiversity Metric;
- Set out the assumptions used within this Report, in the application of the Biodiversity Metric to the Proposed Development;
- Provide a summary of the results of the Biodiversity Metric calculations, with reference to the detail presented within the Environment Bank's Biodiversity Accounting Assessment and Compensation Requirement Review Report provided at **Appendix A**; and
- Confirm the next steps for the Biodiversity Accounting process and the mechanism of securing biodiversity net gain through the Requirements of the REP DCO.



## 2 Biodiversity Metric: Background, Legislation and Policy Framework

### 2.1 Introduction

- 2.1.1 This report uses the 'Defra Metric' (Department of Environment, Food and Rural Affairs, 2012), which was designed by Natural England to define the biodiversity impacts and compensation requirements associated with development proposals. The metric works by providing a comparative measure of each habitat on site in 'biodiversity units' by multiplying its area (hectares), distinctiveness (habitat type) and current condition (quality). The relative impacts (habitat loss) of the development, taking into account any additional on-site habitat creation, can then be calculated to determine if a measurable biodiversity net gain will be achieved on site. The calculations within a metric use a standardised and transparent methodology and are intended as an aid to decision-making. Details of the assumptions used to inform the use of the Defra Metric for the Proposed Development can be found in **Section 4** of this report, whilst the detailed methodology for the Metric is described in **Appendix A**.
- 2.1.2 The biodiversity Metric is a simple, powerful and transparent tool. The system allows evaluation of both biodiversity loss through development and biodiversity gain through avoidance, mitigation and, where necessary, compensation (e.g. through a biodiversity offset scheme). This system gives predictable, accountable and coherent outcomes for biodiversity and contributes to sustainable development as set out within the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019) (NPPF). It delivers ecological accountability for development. Biodiversity accounting and offsetting are used by Local Planning Authorities across the country as a robust and fair method of assessing and delivering biodiversity net gain.
- 2.1.3 Biodiversity offsets are the last step of the mitigation hierarchy (first avoid, then reduce, and finally, compensate), and 'offsetting' – creating or restoring new wildlife habitat in a different place to where it was lost – is an effective way of ensuring biodiversity loss is properly compensated. Typical standards for offsets are that it delivers a minimum of no net loss to biodiversity, with net gain preferred and mandated in some local authorities, and that the offset is measurable, additional, long-term, properly funded, monitored and enforceable.
- 2.1.4 The metric does not assume offsite biodiversity compensation will be required and can, in fact, demonstrate on site biodiversity gain has been achieved. Applying the metric can offer guidance to avoid the most valuable biodiversity on site and increase the quality of onsite mitigation so that there may be no residual impact to be offset – hence, strengthening adherence to the mitigation hierarchy. If, however, offsite compensation is required, the same metric is used to evaluate the predicted gains at biodiversity compensation sites so that no net loss, and preferably net gain, of biodiversity is achieved.

## 2.2 Supporting National Policy and Legislation: Biodiversity Net Gain

- 2.2.1 In the UK, the Government's Natural Environment White Paper: The Natural Choice: securing the value of nature (HM Government 2011) introduced several policies to conserve the environment, one policy included the system of accounting, termed biodiversity offsetting.
- 2.2.2 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019) sets out a broad framework of policies for the planning system in England and how they should be applied. Underpinning the framework is the principal aim of Sustainable Development which is to be pursued through the fulfilment of interdependent economic, social and environmental objectives.
- 2.2.3 Chapter 15 of the NPPF details core policy principles with respect to conserving and enhancing the natural environment. Securing 'net gains' for biodiversity, in accordance with the Government's 'A Green Future; Our 25 Year Plan to Improve the Environment' paper is a key theme running through the Chapter whereby planning decisions are required to contribute to and enhance the natural environment by "*minimising impacts and providing net gains for biodiversity*" and plans should "*identify and pursue opportunities for securing measurable net gains for biodiversity*". The Chapter also places planning decisions in the context of the mitigation hierarchy where, if impacts on biodiversity cannot be avoided, mitigated, or as a last resort compensated for, then planning permission should be refused.
- 2.2.4 In addition, Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. Section 41 of the Act defines Habitats and Species of Principal Importance to nature conservation in England which should be considered by all public bodies, including Local Planning Authorities, when carrying out their Section 40 duties. 'Planning Practice Guidance for the Natural Environment' (Planning portal 2014) and the British Standard for biodiversity in planning (BS 42020:2013) both recommend the system of biodiversity offsetting as an appropriate mechanism of delivering biodiversity compensation.

### National Policy Statement for Energy EN-1

- 2.2.5 National Policy statements (NPS) for Energy set out the Government's policy on the delivery of major energy infrastructure. They inform decision making by the Secretary of State about energy proposals that fall under the scope of the NPS. National Policy Statements for Energy comprise an Overarching NPS and technology specific NPSs. Those relevant to this scheme are detailed below. Paragraphs 5.3.3 and 5.3.4 of NPS EN-1, Biodiversity and geological conservation, states that:

*"Where the development is subject to EIA the applicant should ensure that the ES [Environmental Statement] clearly sets out any effects on internationally, nationally and locally designated sites of ecological or*

*geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity...*

*The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.”*

2.2.6 The NPS goes on, at paragraph 5.3.5, to reiterate the Government’s biodiversity strategy with its aim to ensure:

*“a halting, and if possible a reversal, of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems; and*

*the general acceptance of biodiversity’s essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.”*

2.2.7 The NPS then says at paragraph 5.3.7:

*“...development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives... where significant harm cannot be avoided, then appropriate compensation measures should be sought.”*

2.2.8 Paragraph 5.3.15 of NPS EN-1 also refers to biodiversity within developments stating:

*“Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design.”*

2.2.9 With regards to mitigation, paragraph 5.3.18 states:

*“The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:*

- *during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;*
- *during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements;*
- *habitats will, where practicable, be restored after construction works have finished; and*

- *opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals.”*

## **2.3 Supporting Regional Policy**

2.3.1 Regional policy supporting the approach to biodiversity offsetting and net gain within the London region is set out below.

### **London Plan: Policy 7.19 (Biodiversity and access to nature)**

*“C - Development Proposals should:*

*Wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity;*

*Prioritise assisting in achieving targets in biodiversity action plans (BAPs), and/or improving access to nature in areas deficient in accessible wildlife sites;*

*Not adversely affect the integrity of European sites and be resisted where they have significant adverse impact on European or nationally designated sites or on the population or conservation status of a protected species or a priority species or habitat identified in a UK, London or appropriate regional BAP or borough BAP.*

*E - When considering proposals that would affect directly, indirectly or cumulatively a site of recognised nature conservation interest, the following hierarchy will apply:*

- 1. Avoid adverse impact to the biodiversity interest*
- 2. Minimize impact and seek mitigation*
- 3. Only in exceptional cases where the benefits of the proposal clearly outweigh the biodiversity impacts, seek appropriate compensation”*

### **Draft New London Plan (July 2018) -**

Policy G6 – Biodiversity and access to nature

*“C Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:*

- 1) avoid damaging to the significant ecological features of the site*
- 2) minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site*

*3) seek appropriate compensation off-site based on biodiversity offsets, or other appropriate metric*

*D Development proposals should aim to secure net biodiversity gain and be informed by the best available ecological information which should be considered from the start of the development process.*

*E Proposals which reduce deficiencies in access to wildlife sites should be considered positively.”*

## **2.4 Supporting Local Policy**

### **London Borough of Bexley Core Strategy (2012): Policy CS18 Biodiversity and geology**

*“The Council will protect and enhance its biodiversity and geological assets, whilst complying with national and regional policy and guidance by:*

*...protecting and enhancing the natural habitat as far as practicable, seeking biodiversity enhancements and improved access to nature, particularly in areas of deficiency, through new development, including new residential development and projects that help deliver the Open Space Strategy. Preference will also be given to enhancements which help to deliver the targets for habitats and species set out in the London Plan and Bexley Biodiversity Action Plan...”*

## **2.5 The Environment Bank**

2.5.1 The Applicant has employed the Environment Bank to run the biodiversity metric, to calculate the value of the required offset and net gain requirements, and to develop options to provide the offset. The Environment Bank has been established to help the planning system deliver effective and transparent benefits to biodiversity and simplify development planning. They broker habitat creation at a large scale, funded by developments to make them compliant with net gain requirements.

2.5.2 The Environment Bank uses the Defra biodiversity metric to calculate losses and gains across the life of the project. During ongoing consultation, Natural England have indicated their support for use of the Environment Bank to undertake the biodiversity accounting, through use of the Defra metric, and deliver biodiversity net gain.

## 3 Scheme Design Evolution

- 3.1.1 In line with the NPS EN-1, the NPPF, and regional and local planning policy, the design has sought to incorporate the mitigation hierarchy to avoid, mitigate and, as a last resort, compensate for impacts to biodiversity receptors. This has included seeking alternative options where impacts to biodiversity cannot be avoided.
- 3.1.2 The Proposed Development does not include any works to the existing jetty or within the River Thames. These had been proposed in an earlier stage of the design process and had the potential to affect the River Thames SINC and associated aquatic habitats and species. In addition, trenchless techniques have been incorporated into the Electrical Connection route, to avoid impacts where the route crosses water courses and no alternative economic and efficient solution is available. Specific commitments in respect of where only trenchless works can occur at the River Darent crossing (to mitigate effects on Dartford Marshes and as discussed with Ingrebourne Valley Limited), will be set out in the **OBLMS (7.6; APP-107)** to be updated and submitted at Deadline 3.
- 3.1.3 The OBLMS sets out a range of principles designed to mitigate impacts to sensitive receptors, such as sensitive lighting, and construction noise mitigation measures, including measures to address impacts on protected or notable species. The OBLMS identifies that compensation for loss of habitats of ecological value would be provided through provision of an area of Open Mosaic Habitat on the flood bank within the REP site, subject to agreement with the Environment Agency. However, the OBLMS acknowledged that due to the limited availability of land within the REP site, an additional financial contribution to the Environment Bank would be required to fully offset impacts, with a legal agreement for a contribution towards the creation or enhancement of habitats outside the Application Site, in order to achieve biodiversity net gain. This will be secured through the mechanisms described in **Section 6.4** below.
- 3.1.4 The Applicant has confirmed that a Biodiversity and Landscape Mitigation Strategy, delivered through **Requirement 5 of Schedule 2** to the **dDCO (3.1, Rev 1)**, will be prepared prior to commencement and will include the final results of a Biodiversity Accounting Assessment which will confirm the value of the required offset and net gain requirements (in accordance with local and national policy), with a preference to deliver the biodiversity creation or enhancements in the local area, targeting the enhancement and restoration of Habitats of Principal Importance. The Requirement states that the final Biodiversity and Landscape Mitigation Strategy must set out the mechanism for securing this value (**Requirement 5(1)(d)** and sub-paragraph (2)) then requires the Applicant to implement the approved strategy. Accordingly, the delivery of the offset and net gain requirements is secured through the Development Consent Order. The Applicant has also committed to delivering a minimum of 10% biodiversity net gain.
- 3.1.5 The calculation of the predicted residual loss of habitat value using the metric at this stage of the Application allows a clear understand of the potential range



of biodiversity offset that needs to be secured in order to achieve biodiversity net gain, such that the Examining Authority and Interested Parties can have confidence that options being sought for the offset will achieve the stated net gain aim. The Applicant is committed to continue to exploring options with UKPN to further minimise environmental effects, where practical. This commitment is already demonstrated through the detailed update on the status of the Electrical Connection, as provided in the **Electrical Connection Progress Report (8.02.07)**, comprising part of the submission for Deadline 2. This reports that the Electrical Connection has now been refined to a single overall route corridor from the REP site to the Electrical Connection Point at the Littlebrook substation. This refinement is reflected in updated submissions of the **Works Plans (2.2; Rev 1)**, **Land Plans (2.1; Rev 1)**, **Access and Public Rights of Way Plans (2.3; Rev 1)**, **Book of Reference (4.3; Rev 1)**, **Statement of Reasons (4.1; Rev 1)** and **dDCO (3.1; Rev 1)** submitted at Deadline 2. As explained above, following these revisions, the "Realistic Worst Case Overall Route (Submission Stage)" cannot be delivered under the revised Order Limits given the land that has been taken out, such as the Crossness Local Nature Reserve. However, the metric was already being carried out for this scenario and so is presented here to show the original habitat loss at the time of submission. This demonstrates the work that the Applicant, and UKPN, have done to minimise ecological effects.

- 3.1.6 The Realistic Best Case is the scenario that more closely aligns with the Electrical Connection route submitted at Deadline 2. However, it should be remembered that the revised Order Limits, whilst reducing the optionality for the Electrical Connection still retains some flexibility for the detailed design and engineering stage of the Electrical Connection, which means it is likely to still be larger than the final area that would be affected. It is for this reason that the final metric will not be known until the detailed design stage.
- 3.1.7 In addition, at Deadline 2 the Applicant has moved the Main Temporary Construction Compound from its original location northwards to land owned by the Cory group and which has planning permission for a data centre. This has only just been become an option following a change in the delivery programme of the data centre. Accordingly, the metric calculation is based on the original location for the Main Temporary Construction Compound. However, the original location of the Main Temporary Construction Compound and the Data Centre Sites currently support very similar Biodiversity Value (in terms of habitat area, type (distinctiveness) and condition, as measured by the Defra Metric). Therefore, it is anticipated that in Biodiversity Unit terms the metric value of either of these two areas being temporarily affected, and subsequently restored through the Proposed Development, will be very similar.

## 4 Metric Assumptions

### 4.1 Overview

4.1.1 The metric for the Application needs to reflect the Application Boundary (i.e. the Order Limits). However, running an absolute “worst case” metric, with permanent loss within the REP site, and temporary loss of all other habitats within the Application Boundary (i.e. the Main Temporary Construction Compounds and all the worst Electrical Connection route options routed only within highway verges throughout) will provide an off-set value which is not likely to be representative of the actual effects that will occur as a result of the Proposed Development. Therefore, the assumptions set out below have been developed by the Applicant to inform the metric calculation.

- "Realistic Worst Case Overall Route (Submission Stage)" This scenario provides for what would have been the worst overall route, including through Crossness Local Nature Reserve (LNR), Erith Marshes Site of Importance for Nature Conservation (SINC), the River Cray Public Open Space and SINC, and running within the Dartford Marshes Local Wildlife Site (LWS). Biodiversity effect outcomes within this scenario would be representative of a realistic worst case based on the Revision 0 of the Order Limits (i.e. at the time of submission). The Realistic Worst Case Overall Route (Submission Stage)" scenario chooses a 10m corridor that incorporates the most valuable habitats, in biodiversity terms, within the Order Limits at the time of submission. However, as already noted, this Worst Case cannot be realised, given the reduction in the Order Limits and the removal of some of these most valuable habitats.
- "Realistic Best Case" This scenario provides for the impacts that are likely to represent the effects when the Proposed Development is delivered, based on the understanding of design evolution and practicalities of implementation at the time of the setting of the assumptions. However, the realistic best case also "builds in" an acknowledgement that uncertainty remains within this scenario. For example, assuming a 10 m working corridor for the installation of the Electrical Connection route, the "Realistic Best Case" avoids Crossness LNR, the River Cray Public Open Space and SINC and the majority of the Dartford Marshes LWS but still acknowledges the potential for impacts within specific areas of verge and other green space along the connection route. Whilst the final routing may achieve even better outcomes when constructed, and this is not precluded, the "Realistic Best Case" is considered to represent a sensible balance, i.e. it is not the "absolute" best case. The Realistic Best Case is closely aligned with the Applicant's recently updated single Electrical Connection route (as per the Works Plans **(2.2; Rev 1)**), subject to commentary at key locations provided below.

4.1.2 It is worth noting that a reasonable worst case scenario was used to assess impacts to biodiversity receptors within the ES. This approach was not considered appropriate for the Metric because it is not likely to be representative of the actual effects of the Proposed Development.



4.1.3 **Figures 2.1 - 2.3** and **Figures 3.1 – 3.3** within the *Biodiversity Accounting Assessment and Compensation Requirement Review* in **Appendix A** show the assessment areas for the "Realistic Worst Case Overall Route (Submission Stage)" and "Realistic Best Case" as described above. The assumptions for each scenario that have been applied to the metric calculations are described below.

## 4.2 Common Metric Assumptions

### REP Site

4.2.1 Permanent loss of habitats as a result of the Proposed Development are only assumed to occur within the REP site; the permanent loss of habitats within the REP site excludes the flood embankment and the surface water attenuation pond to the east of the existing Riverside Resource Recovery Facility (RRRF).

4.2.2 Temporary impacts to the flood embankment and the pond area within the REP site may arise through construction works such as installation of services or surface water drainage systems, however they will be reinstated following construction where required. For the purposes of the metric it is assumed up to 10% of the area of the flood embankment and pond will be temporarily impacted during construction. It is also assumed that habitats retained/replaced/created on the flood embankment will constitute 25% Open Mosaic Habitat (OMH), subject to agreement with the Environment Agency, with the remaining 75% grassland habitats.

4.2.3 The Proposed Development does not include any works to the existing jetty or within the River Thames.

### Main Temporary Construction Compounds and Data Centre site

4.2.4 For the purposes of the metric calculations (and at the time of submission of the Application), the Main Temporary Construction Compound was identified as the area west of Norman Road as shown on the Works Plans (**2.2; APP-008**), to be used (temporarily) during construction of the REP site for laydown, parking, fabrication, welfare etc. For the purposes of the metric, temporary loss and reinstatement of the whole compound is assumed. This excluded the "Data Centre site" as (at Submission) these fields were not included in the Main Temporary Construction Compound but were still in the Application Boundary to allow for electrical cabling installation. For the purposes of the Metric, temporary impacts on the habitats within the Main Temporary Construction Compound identified at submission were assumed. In addition, an allowance was made for a cable route width (10m strip) across the "Data Centre Site" to be included in the metric calculation - as for other areas affected by the main Electrical Connection route (see below). A length of cabling route that reaches the depth of the Data Centre site and a potential connection location at the back of the future plot was assumed for the purposes of the Metric.

4.2.5 The revised **Works Plans (2.2; Rev 1)**, **Land Plans (2.1; Rev 1)**, **Access and Public Rights of Way Plans (2.3; Rev 1)**, **Book of Reference (4.3; Rev 1)**,

**Statement of Reasons (4.1; Rev 1)** and **dDCO (3.1; Rev 1)** submitted at Deadline 2 confirm that the Main Temporary Construction Compound has been moved to the “Data Centre Site”. However, the original location of the Main Temporary Construction Compound and the Data Centre Site currently support very similar Biodiversity Value (in terms of habitat area, type (distinctiveness) and condition, as measured by the Defra Metric). Therefore, it is anticipated that in Biodiversity Unit terms the metric value of either of these two areas being temporarily affected, and subsequently restored through the Proposed Development, will be very similar.

4.2.6 It is acknowledged that the Data Centre Sites have a permission for development under approval (15/02926/OUTM).

- If that permission is not built out post the use of the site as a temporary construction compound, then the BLMS will require the Applicant to restore the site. The **OBLMS (7.6; APP-107)** will be updated at Deadline 3 to make this clear;
- If that permission is built out post the use as a temporary construction compound, then the conditions on that permission will be engaged regarding the necessary mitigation for permanent impacts on the habitats within the Data Centre Sites.

### **Electrical Connection Route**

4.2.7 The Electrical Connection route comprises a single cable route running from REP to the National Electricity Transmission System at Littlebrook substation to the south east. The Electrical Connection route largely follows existing roads and adjacent footpaths but some areas of semi-natural habitat are present within the (submission stage and recently revised) Application Boundary. The cable route is assumed to have a working area of 10 m wide; the exact route of the connection is subject to detailed design and implementation by UKPN.

4.2.8 For both the Realistic Worst Case Overall Route and Realistic Best Case scenarios, a proportional approach has been used to calculate the impacts of the Electrical Connection route where there is uncertainty about the specific location of the works. The proportional approach divides the route into route sections and the sum of the 10 m wide working area within each route section is calculated as a percentage of the Application Site boundary for that section area. The percentage impact is then applied to all habitats within that route section providing a proportional effect for each habitat. The sum of proportional and direct effects for each route scenario are presented in this report.

4.2.9 **Figures 2.1-2.3** and **3.1-3.3** within the *Biodiversity Accounting Assessment and Compensation Requirement Review* in **Appendix A** show which areas are assessed as having no impact during connection works for each scenario and which areas have been assessed using the proportional impact approach, through which the connection route is assumed to follow for that scenario. A breakdown of biodiversity impacts for each section is shown within the

calculations in Appendices A-D of the *Biodiversity Accounting Assessment and Compensation Requirement Review*.

### **General site wide assumptions**

4.2.10 With regards to linear features for both scenarios, the wet ditches near the Crossness and Norman Road areas have been assessed as temporarily lost as a precautionary measure. In addition, it has been assumed that there would be no temporary effects on watercourses at the River Cray or River Darent due to the use of trenchless installation techniques or existing highway crossings.

4.2.11 The construction period (factored into habitat reinstatement time for the metric) has been based on **Chapter 3 Project and Site Description** of the **ES (6.1; Rev 1)** being: worst case for connection route: 24 months; worst case for REP site: 45 months.

### **4.3 Realistic Worst Case Overall Route (Submission Stage)**

4.3.1 The following overall routing assumptions are included in this scenario:

- route through Crossness LNR as this would have a greater effect than routing via Norman Road;
- route through Public Open Space and through the SINC in the vicinity of the River Cray and eastwards to the Cray Mill railway underbridge, rather than within the public highway;
- routing through the Dartford Marshes to the north of the public highway and continuing onwards to Joyce Green Lane, rather than predominantly within the public highway; and
- continuing along Bob Dunn Way rather than through The Bridge since this is likely to have a higher metric impact.

4.3.2 The Electrical Connection route crosses both the River Cray and River Darent in both scenarios. In the Realistic Worst Case Overall Route Scenario it is assumed that the River Cray and River Darent will be crossed using trenchless installation beneath the river. To facilitate installation in this instance, a temporary drilling compound of approximately 20 m x 30 m will be required either side of the Rivers and are included in the impact assessment.

4.3.3 It is considered the metric calculation carried out with reference to these assumptions is likely to overestimate actual impact for the final Electrical Connection route, but provides a robust "Realistic Worst Case Overall Route (Submission Stage)" for the scenario illustrated at Submission stage whereby the connection route was shown to pass through Crossness LNR. This option has now been removed from the Proposed Development with updates to the Application Boundary submitted at Deadline 2 and therefore the Realistic Worst Case Overall Route will now no longer be possible.

## 4.4 Realistic Best Case

### Electrical Connection Route

4.4.1 The Realistic Best Case scenario represented, at the commencement of the metric, the Applicant's estimate of the most likely preferential route of the electrical connection (in respect of biodiversity) based on information available from UKPN at that time. The Realistic Best Case route was assumed to avoid areas of high nature conservation importance, such as the Crossness Local Nature Reserve, the SINC south of Thames Road and a significant proportion of the Dartford Marshes. Other assumptions included:

- Following a route through The Bridge rather than Bob Dunn Way; and
- Crossing the River Cray in the existing highway.

4.4.2 Whilst the Realistic Best Case did not avoid all areas of high nature conservation importance, it was considered to achieve a metric value which would be representative of balanced outcome for a realistically achievable best route.

4.4.3 The "Realistic Best Case" "builds in" an acknowledgement that uncertainty remains within this scenario. Whilst the final routing may achieve even better outcomes when constructed, and this is not precluded, the "Realistic Best Case" is considered to represent a sensible balance, i.e. it is not the "absolute" best case. The Realistic Best Case aligns well with the Applicant's recently updated single Electrical Connection route (as per the **Works Plans (2.2; Rev 1)**), subject to the commentary described above.

## 4.5 Single Electrical Connection Route for Deadline 2

4.5.1 The Applicant's ongoing commitment to minimising environmental effects has been demonstrated through the detailed update on the status of the Electrical Connection, as provided in the **Electrical Connection Progress Report (8.02.07)**, comprising part of the submission for Deadline 2. This reports that the Electrical Connection has now been refined to a single overall route corridor from the REP site to the Electrical Connection Point at the Littlebrook substation. These refinements are reflected in updated submissions of the **Works Plans (2.2; Rev 1)**, **Land Plans (2.1; Rev 1)**, **Access and Public Rights of Way Plans (2.3; Rev 1)**, **Book of Reference (4.3; Rev 1)**, **Statement of Reasons (4.1; Rev 1)** and **dDCO (3.1; Rev 1)** submitted at Deadline 2.

4.5.2 These updates have confirmed in particular:

- the removal of the route section which passes through Crossness LNR;
- avoidance of the Public Open Space west of the River Cray;
- refinement to the Application Boundary at the River Cray SINC but not complete avoidance;

- Refinement to the Application Boundary at the Dartford Marshes LWS, but not complete avoidance; and
- Use of the route through The Bridge development rather than Bob Dunn Way.

4.5.3 The updates above show that the revised Application Boundary reflects the Realistic Best Case along most of the route, except between the River Cray and Joyce Green Lane (east of the River Darent). On this basis, whilst not achieving it entirely, the final BLMS Metric at implementation is expected to lean towards the Realistic Best Case scenario for the metric set out in this report. This provides a sound basis for the Applicant progressing their Offset Search process for an appropriate target solution.

## 5 Summary Results of Metric Calculations

- 5.1.1 The biodiversity metric is set out in full within the Biodiversity Accounting Assessment and Compensation Requirement Review, which can be found in **Appendix A**.
- 5.1.2 The assessment applied the Defra Biodiversity Metric to the calculate the baseline value of all habitats and linear features. Habitat value is expressed as Biodiversity Units (BU) which is a function of the habitat area/length x habitat distinctiveness x habitat condition. The Metric was used to provide a comparative measure of impacts (in BU) of two development scenarios, defined with reference to the Submission Application Boundary: "Realistic Worst Case Overall Route (Submission Stage)", and "Realistic Best Case"), taking into account the on-site compensation provided for each, with the resulting balance indicating if the scenario will have residual losses or gains in habitat/linear value as a result of the Proposed Development.
- 5.1.3 The assessment identified that the Proposed Development under the "Realistic Best Case" scenario will result in a residual loss of habitat value equivalent to -30.46 BU and a residual linear loss of -3.11 linear BU. The Proposed Development under the "Realistic Worst Case Overall Route (Submission Stage)" scenario will result in the loss of habitat value equivalent to -35.62 BU and a residual loss of -6.11 linear BU. Both scenarios were found to have residual impacts on open mosaic habitat on previously developed ground, swamp and broad-leaved woodland, all of which are Habitats of Principal Importance for nature conservation in England.
- 5.1.4 The Applicant has confirmed that a Biodiversity and Landscape Mitigation Strategy, delivered through **Requirement 5** of Schedule 2 to the **dDCO (3.1, Rev 1)**, will be prepared prior to commencement and will include the final results of a Biodiversity Accounting Assessment. This will confirm the value of the offset and net gain requirements, with a preference to deliver the biodiversity creation or enhancements in the local area, targeting the enhancement and restoration of Habitats of Principal Importance. The Applicant has also committed to delivering a minimum of 10% biodiversity net gain which will be confirmed in an updated version of the **OBLMS (7.6; APP-107)** for Deadline 3.
- 5.1.5 The Environment Bank report at **Appendix A** confirms the BU value required to achieve net biodiversity gain of 10% for both the "Realistic Best Case" and "Realistic Worst Case Overall Route (Submission Stage)" Scenario. The offsetting requirement for the "Realistic Best Case" Scenario would be 36.33 BU with a linear requirement of 3.97 BU. For the "Realistic Worst Case Overall Route (Submission Stage)" Scenario, the offsetting requirement would be 42.61 BU with a linear requirement of 7.59 BU.
- 5.1.6 To contextualise this requirement in terms of land area, the Environment Bank estimates that suitable offset sites in the region of 5.47 – 8.25 ha would be needed to deliver a net gain requirement of 36.33 BU for the "Realistic Best Case" Scenario (depending on the types of habitats provided and the available

- uplift at the offset site). For the "Realistic Worst Case Overall Route (Submission Stage)" Scenario, it is estimated that offset sites in the region of 6.37 – 8.92 ha would be needed to deliver the net gain requirement of 42.61 BU.
- 5.1.7 In light of the Applicant's progress on reducing the Application Boundary to a single Electrical Connection route, which predominantly reflects the Realistic Best Case scenario, the Applicant considers that the Metric Calculations presented within this report provides confidence in the likely scale of offset site that needs to be sought.



## 6 Next Steps

### 6.1 Preliminary Offset Search

- 6.1.1 A preliminary offset search will be undertaken to identify potentially suitable offset projects for the Proposed Development, based on the range of Biodiversity Units determined as being required to secure 10% biodiversity net gain under the "Realistic Best Case" and "Realistic Worst Case Overall Route (Submission Stage)" scenarios described in previous sections of this report. This will be further informed by the comparative extent of the Application Boundary for a single Electrical Connection route, submitted for Deadline 2.
- 6.1.2 The offset search will build on discussions with consultees and interested parties regarding potential opportunities for offset projects and will be expanded using a desk-based search for suitable biodiversity compensation receptor sites; generating multiple site options whose landowners will be engaged to proceed with the process of an Agreement in Principle. This selection of sites can be used for the identification of preferred option(s) to take forward to final offset preparation, based on biodiversity benefits, location, estimate scheme costs and potential delivery timeframes, and with reference to the Biodiversity Offsetting Standards set out below.

### 6.2 Biodiversity Offsetting Standards

- 6.2.1 To secure the required net gains for biodiversity, the offset must meet relevant standards with regards to design, delivery, monitoring and enforcement. To accord with the Biodiversity Net Gain Principles (CIEEM et al. 2016) Business and Biodiversity Offsets Programme standards (BBOP 2012), the Environment Bank recommends that the offset should adhere to the following principles:
- The offset must be designed to provide a minimum level of biodiversity uplift to secure no net loss of biodiversity from the development. In this instance a minimum commitment to 10% net gain is agreed. This biodiversity enhancement must be in addition to any management practices already secured at the offset site.
  - The Environment Bank Assessment also confirms that both scenarios result in residual losses of Habitats of Principal Importance. The proposed offset should therefore include, as a minimum, the creation, restoration or enhancement of Habitats of Principal Importance, equivalent to the residual losses of each habitat for the two development scenarios.
  - Offset sites suitable for compensation delivery should be located 'locally' to the development impacts. This should be ideally with the same Local Authority or within a 15 km radius of Application Site.
  - Offset requirements should be used to undertake positive biodiversity management interventions to create or restore Habitats of Principal Importance or to improve the nature conservation status of a site or area of



land by restoring, buffering, expanding or creating new habitats or ecosystems.

- Offset sites and schemes should be designed to contribute towards local biodiversity objectives and/or green infrastructure initiatives and enhance local ecological connectivity so that the value of the offset is greater than the sum of its parts.
- The Offset Scheme should be informed by a site survey and site history investigations to determine existing baseline conditions and appropriate management recommendations. The scheme must be underpinned by a long-term, adaptive management plan prepared and approved by the relevant planning authority prior to commencement of development.
- The Biodiversity Offsetting Strategy must have sufficient funds upfront to ensure full implementation of any habitat creation and establishment works together with habitat management for a minimum period of 25 years - as typically required by Local Planning Authorities nationally.
- The proposed Biodiversity Offsetting Strategy must be inclusive of a fully funded monitoring programme to review progress against the offsetting objectives, where necessary, adapt the management plan and report back to the appropriate planning authority to ensure compliance with any relevant planning obligations.
- The proposed Biodiversity Offsetting Strategy must include an enforceable delivery mechanism that will be in place to secure the 25 years of management.

### **6.3 Biodiversity Offset Confirmation**

6.3.1 Prior to the commencement of the Proposed Development, an updated Biodiversity Metric Assessment will be carried out to update the findings of this report based on the approved detailed design and final construction programme for the Proposed Development. The findings of the report will be used to confirm the Offset requirements to achieve Biodiversity Net Gain.

6.3.2 The proposed Offset will be agreed with the relevant planning authority; detailing the design, delivery, monitoring and enforcement provisions necessary to ensure that a net gain for biodiversity will be achieved as a result of the Proposed Development, together with a timetable for delivery. The offset site/s and scheme/s will (as a minimum):

- Include habitat enhancement, restoration and creation proposals sufficient to provide an uplift in habitat value equivalent to residual biodiversity impact of the Proposed Development as determined by the final updated Biodiversity Metric Assessment. This compensation requirement is currently estimated at 36.33 BU and 3.97 BU for linear features in the Realistic Best Case Scenario (inclusive of 10% Biodiversity Net Gain) or a habitat value

equivalent to 42.61 BU and 7.59 BU for linear features for the Realistic Worst Case Scenario.

- Include provision for the enhancement, restoration of Habitats of Principal Importance equivalent to the value of those to be impacted by the Proposed Development. Currently determined under the impact scenarios as: OMH, broad-leaved semi-natural woodland, swamp and species-rich hedgerow.
- Enable the delivery of Biodiversity Offsetting Standards to achieve net gain for biodiversity taking into account local offset delivery, an adaptive management plan and pre-survey, fully funded management for a 25 years period, a monitoring plan and an underpinning legal agreement and means of enforcement.

## 6.4 Mechanism for Securing Offset Through DCO

6.4.1 The **OMBS (7.6, APP-107)** which has been prepared and submitted with the application includes the following:

- a set of principles and parameters that will be applied when replacing/creating habitats;
- an obligation to provide a final biodiversity metric valuation at the detailed design stage; and,
- obligations in respect of monitoring and reporting on offsetting.

6.4.2 The final Biodiversity and Landscape Mitigation Strategy, which must be substantially in accordance with the OBLMS, will be submitted to and approved by the relevant planning authority, in accordance with **Requirement 5** of the **dDCO (3.1, Rev 1)**. The OBLMS will be updated at Deadline 3 to include a commitment to 10% biodiversity net gain.

6.4.3 The Requirement states that the final Biodiversity and Landscape Mitigation Strategy must set out the mechanism for securing the off-setting value **Requirement 5(1)(d)** and sub-paragraph (2) then requires the Applicant to implement the approved strategy. Accordingly, the delivery of the offset and net gain requirements is secured through the Development Consent Order. A breach of the Order would be a criminal offence.

6.4.4 The final Biodiversity and Landscape Mitigation Strategy will be prepared prior to commencement of the Proposed Development and will include the final results of a Biodiversity Accounting Assessment which will confirm the value of the required offset, net gain requirements, and location and details of the offset - with a preference to deliver the biodiversity creation or enhancements in the local area, targeting the enhancement and restoration of Habitats of Principal Importance. The Applicant has also committed to delivering a minimum of 10% biodiversity net gain.

- 6.4.5 A legal agreement between the Applicant and Environment Bank will then be entered into requiring Environment Bank to secure the offset – to be funded by the Applicant.

## 7 Conclusion

- 7.1.1 The Biodiversity Accounting Assessment (**Appendix A**) has identified that both the Realistic Best Case and Realistic Worst Case Overall Route scenarios of the Proposed Development will result in residual losses of habitat value from within the Application Site. However, the revisions to the Order Limits would mean that the Realistic Worst Case Overall Route is no longer possible.
- 7.1.2 In accordance with the NPPF, where a biodiversity impact cannot be avoided or mitigated then compensation measures must be provided. If this cannot be achieved on-site through compensatory habitat creation or restoration measures, then offsite compensation measures will be required (i.e. through a biodiversity offsetting scheme). In this instance, the Applicant has confirmed that a Biodiversity Offset will be prepared by the Environment Bank and implemented as part of the Proposed Development, to address the residual effects identified and to deliver a net gain in biodiversity, in accordance with planning policy.
- 7.1.3 The full details of the Biodiversity Offset Scheme, including the details of the nature and location of the offset are to be submitted and approved prior to commencement of development. This will be informed by an updated Biodiversity Impact Assessment to guide the final offset requirements once the detailed design has been completed. This will be delivered through **Requirement 5** of the **dDCO (3.1; Rev 1)**.

## 8 References

British Standards Institute (2013). BSI Standards Publication: BS 42020:2013: Biodiversity — Code of practice for planning and development

CIEEM, CIRIA, IEMA (2016). Biodiversity Net Gain: Good practice principles for development.

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester

Cory Riverside Energy (2018) Riverside Energy Project Environmental Statement

Department for Environment, Food and Rural Affairs (2012). Technical Paper: The Metric for the Biodiversity Offsetting Pilot in England. <http://www.defra.gov.uk/publications/>

Department for Housing, Communities and Local Government (2019). National Planning Policy Framework (NPPF).

HM Government (2006). Natural Environment and Rural Communities (NERC) Act.

HM Government (2011). Natural Environment White Paper: The Natural Choice: securing the value of nature.

HM Government (2018). Planning Portal: Planning Practice Guidance for the Natural Environment.

## **Appendix A Biodiversity Accounting Assessment and Compensation Requirement Review (Environment Bank)**



the  
**Environment Bank**

Biodiversity Accounting Assessment  
and  
Compensation Requirement Review  
*Riverside Energy Park,  
Belvedere, London.*

17 May 2019

Report Ref: EB031227-A3

Reference: Appendix to 8.02.09

Project reference	EB03127
Project site	Riverside Energy Park, Belvedere, London
Client	Cory Environmental Holdings Ltd
Report title	Biodiversity accounting assessment and compensation requirement review
Report reference	EB03127-A3
Report version	2
Report author(s)	Rob Wreglesworth, Richard Wheat ACIEEM
Approved by	Louise Martland, Rebecca Benmayor
Final draft date	16 <sup>th</sup> May 2019

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement. Where information is provided by others, EBL shall bear no liability in respect of any advice given on the basis of that information. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations (date, work, interpretation of that data or work) completely defined the degree or extent of e.g. species abundances, habitat management efficacy, conservation credit calculations and hence credit requirements, described in the report. Nor does EBL accept any liability for any decisions made by the CLIENT on the basis of the information, consultancy or advice provided by EBL.





# BIODIVERSITY ACCOUNTING AND COMPENSATION REVIEW FOR RIVERSIDE ENERGY PARK, BELVEDERE, LONDON

## 1 INTRODUCTION

- 1.1.1 Environment Bank (EB) was commissioned by Cory Environmental Holdings Limited (trading as Cory Riverside Energy) ('the Applicant') to undertake a Biodiversity Impact Assessment for a proposed development known as Riverside Energy Park in Belvedere, South East London ('Proposed Development'). The purpose of the assessment is to calculate the value of any habitat losses and gains associated with the Proposed Development and to determine what compensation requirements would be needed to secure a measurable biodiversity net gain in accordance with planning policy.
- 1.1.2 The Biodiversity Impact Assessment presented in this Appendix (**Appendix to Applicant's reference 8.02.09**) is an 'accountancy statement', which determines if a biodiversity net gain can be achieved by providing a comparable 'balance' of habitat impacts and mitigation/compensation for a proposed development. The assessment is an iterative document, which can be applied at all stages of scheme design to inform avoidance and mitigation measures or to identify where residual losses would occur, and subsequently where compensation is required. The Biodiversity Impact Assessment therefore provides robust and transparent information to assist all levels of decision-making regarding biodiversity net gain.
- 1.1.3 The Biodiversity Accounting Report (**8.02.09**) summarises the results of this Assessment and explains that the **draft Development Consent Order (dDCO) (3.1, Rev 1)** secures the delivery of biodiversity net gain through **Requirement 5 in Schedule 2** to the **dDCO**.

### 1.1 Site Description and Context

- 1.1.3 A description of the site and of the Proposed Development is contained in **Chapter 3 (Project and Site Description)** to the **Environmental Statement (6.1, Rev 1)**.
- 1.1.4 The REP site is located within the administrative areas of the London Borough of Bexley (LBB) and the Electrical Connection route is located within both LBB and Dartford Borough Council (DBC). The original site extents are shown on **Figure 1.1, Site Location Plan**, and **Figure 1.2, Application Boundary** of the ES (**6.2, APP-056**). Through the detailed update on the status of the Electrical Connection, as provided in the Electrical Connection Progress Report (**8.02.07**) comprising part of

the submission for Deadline 2, the Electrical Connection has now been refined to a single overall route corridor from the REP site to the Electrical Connection Point at the Littlebrook substation. This refinement is reflected in updated submissions of the **Works Plans (2.2; Rev 1)**, **Land Plans (2.1; Rev 1)**, **Access and Public Rights of Way Plans (2.3; Rev 1)**, **Book of Reference (4.3; Rev 1)**, **Statement of Reasons (4.1; Rev 1)** and **dDCO (3.1; Rev 1)** submitted at Deadline 2. The full project background, including the implications of the changes to the site extents now submitted at Deadline 2 for this metric report, is described in the main report to this Appendix **(8.02.09)**. The main report **(8.02.09)** to this Appendix also describes in detail how the recommendations within this report will be secured through the DCO Requirements.

- 1.1.5 In this assessment, references to documents submitted into the examination for the Proposed Development are identified by the applicant's reference number and the Examination Library reference number, which starts with "APP". For the purposes of this assessment, the Environment Bank has had regard to the application documents submitted in November 2018, rather than any updates submitted post submission (unless expressly stated otherwise).

## 1.2 Documentation provided

- 1.2.1 The following documentation and information have been provided about the Proposed Development to inform this assessment:
- Riverside Energy Park **ES Chapter 11 - Terrestrial Biodiversity (6.1; APP-048)**;
  - Riverside Energy Park **ES Chapter 11 - Terrestrial Biodiversity, Figures 11.3a-g Phase 1 Habitat Plans (6.2; APP-060)**;
  - Electrical Route Options - **Figure 5.2a** and **Figure 5.2b** in the **ES (6.2; APP-056)**;
  - Riverside Energy Park: Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) **(7.6; APP-107)**;
  - Application boundary Rev O, GIS Shape file, Peter Brett Associates, received 8<sup>th</sup> November 2018 (this boundary is shown on **Figure 1.2 (6.2; APP-056)**).
  - Phase 1 habitat survey, GIS shapefiles, Peter Brett Associates, received 8<sup>th</sup> November 2018 (these are the phase 1 habitat survey plans shown on **Figures 11.3a-g** of the **ES (6.2; APP-060)**).

## 1.3 Report Limitations

- 1.3.1 The metric used within this assessment is intended to address the overall impacts of the Proposed Development on existing habitats and does not consider the potential effects to marine habitats or individual protected and notable species. These issues, where relevant, are addressed separately in **Chapter 11 Terrestrial Biodiversity** of the ES (**6.1, APP-060**), the **Outline Code of Construction Practice (7.5: APP-106)** and the **Outline Biodiversity and Landscape Mitigation Strategy (7.6: APP-107)**. Any mitigation that these documents identify for ecological effects will be secured by a specific requirement attached to the **dDCO (3.1; Rev 1)**.

## 2 METHODS

- 2.1.1 Biodiversity is complex and so it is impossible to measure in its entirety. Therefore metrics, which incorporate measures of different biodiversity attributes, are used to provide surrogate measures of overall biodiversity. This report uses the 'Defra metric' (Department of Environment, Food and Rural Affairs, 2012), which was designed by Natural England to define the biodiversity impacts and compensation requirements associated with development proposals. The metric works by providing a comparative measure of each habitat on site in 'biodiversity units' by multiplying its area (hectares), distinctiveness (habitat type) and current condition (quality). The relative impacts (habitat loss) of the development, taking into account any additional on-site habitat creation, can then be calculated to determine if a measurable biodiversity net gain will be achieved on site.
- 2.1.2 The following section describes the methods used to apply the Defra metric to the Proposed Development.

### 2.1 Data Analysis

#### Baseline Data

- 2.1.3 The baseline analysis of the existing habitats on site was carried out using ecological data from **Chapter 11 Terrestrial Biodiversity** of ES (6.1, APP-048). The Environmental Statement is informed by extensive ecological survey work carried out by Peter Brett Associates in 2017 and 2018 including Phase 1 Habitat Surveys and a Botanical Survey.
- 2.1.4 A GIS shape file showing all Phase 1 Habitats and linear features within the Order Limits, was provided by Peter Brett Associates. The GIS files were analysed to calculate the existing area (Ha) of each habitat (or length of linear habitats) using QGIS 3.2.1.
- 2.1.5 An estimate of condition for each habitat was then formulated using all available ecological data for the Order Limits and discussion with Peter Brett Associates. Habitats were assigned a condition score of 'poor', 'moderate' or 'good' using the methodology and criteria detailed in Natural England (2010) and professional judgement where required.

## Impact Assessment

- 2.1.6 The existing baseline habitat plan for the Order Limits was overlain with a detailed illustrative layout plan of the Proposed Development using GIS software, and with reference to assumptions agreed with the Applicant and described in full in the main report to this Appendix (**Section 4 of 8.02.09**) to provide an estimate of the area (ha) of temporary and permanent habitat loss.
- 2.1.7 The area of any retained/enhanced or created habitats proposed as part of the Proposed Development was also mapped to provide an area (Ha) (or length (km) for linear features) estimate of the on-site compensation proposals being provided. An estimate of future condition, time until establishment and the likelihood of success was then calculated using landscaping data provided by the Applicant and professional judgement.

## 2.2 Habitat Calculations

- 2.2.1 Habitat calculations of the existing and proposed post-development habitats on site were undertaken using the Defra Metric (2012). A summary of the habitat calculation process is detailed from **Section 2.2.2** below. The Biodiversity Impact is calculated by subtracting the habitat losses from the value of any on-site (and/or off-site) compensatory habitat creation proposed as part of the Proposed Development. Biodiversity net gain is predicted where the resulting figure is greater than zero biodiversity units. Where the number is zero biodiversity units, no net loss is predicted and if the figure is below zero, a proposed development is predicted to result in a net loss of biodiversity.

### Habitat type

- 2.2.2 All existing and proposed habitats are assigned a distinctiveness band (**Table 2.1**) based on Defra Metric guidelines (2012). Distinctiveness includes parameters such as species richness, diversity, rarity (at local, regional, national and international scales). It also considers whether the habitat is listed as a Habitat of Principal Importance under the Natural Environment and Rural Communities Act 2006 (NERC Act 2006). Where data is available, the presence of a priority or locally notable species may also be a consideration when assigning a distinctiveness band.

**Table 2.1 Habitat type bands**

Habitat type Bands	Biodiversity distinctiveness	Type of habitat
High	High	Priority habitats
Medium	Medium	Semi-natural
Low	Low	For example: Intensive agricultural

## Habitat condition

2.2.3 All existing and proposed habitats types are assigned a condition value based on the guidelines in the Higher Level Stewardship Farm Environment Plan (FEP) handbook (Natural England, 2010). Where a condition assessment is unavailable, a precautionary condition is assigned using all available sources of ecological data about the habitat and professional judgement. Each habitat condition is assigned into one of three categories; poor, moderate or good (**Table 2.2**).

**Table 2.2 Condition categories**

Habitat condition category	Description
Good	Excellent representation of 'typical' habitat type concerned. All 'typical' habitat condition criteria met.
Moderate	Average to reasonable representation of 'typical' habitat type concerned. One or two 'typical' habitat condition criteria not met.
Poor	Below average representation of 'typical' habitat type concerned. Several 'typical' habitat condition criteria not met.

## Risk factors

2.2.4 When calculating the habitat value of newly created or enhanced habitats, risk factors are applied to account for time delays, difficulties and the location for their establishment, in accordance with the Defra Metric guidelines (Defra, 2012). These factors are applied to all compensation measures - i.e. habitat restoration or creation, proposed on-site as part of the development or off-site at a biodiversity offset scheme –to reflect the risk and to obtain equivalent biodiversity units. The risk factors are as follows:

### Temporal risk

2.2.5 In delivering on-site mitigation and off-site compensation there may be a mismatch in the timing of impact and the establishment time of attaining of

target habitat condition. A temporal factor is used to compensate for this (see **Table 2.3**).

**Table 2.3. Temporal risk factors**

Years to target condition	Factor
5	1.2
10	1.4
15	1.7
20	2.0
25	2.4
30	2.8
32+	3

Difficulty risk

2.2.6 Biodiversity compensation will involve either restoration or creation of habitats, and both have risks associated with them. Some habitats are more difficult than others to restore or create, and there will therefore be different levels of risk for different habitats. However, for any particular habitat, restoration is likely to be lower risk than creation/expansion.

2.2.7 To compensate for the level of risk involved a multiplier is used, depending on the level of technical difficulty of restoration or expansion (see **Table 2.4**).

**Table 2.4 Factors for different categories of delivery risk**

Difficulty of creation/restoration	Factor
Low	1
Medium	1.5
High	3
Very high	10

**Spatial factor**

2.2.8 A final spatial factor can be applied if an offset is not within an area identified as strategic for biodiversity enhancement by the local authority. In cases where this factor is applied the credit value of the offset site is reduced (by up to a half) and, again, a larger area will be required to deliver the appropriate offset. The spatial factor does not apply within the Application Boundary.



## 2.3 Habitat trading

- 2.3.1 Delivery of habitat compensation, both on and off-site, must follow a framework of habitat trading, whereby loss of a habitat must be compensated for through creation or restoration of areas of habitat of equivalent or greater distinctiveness value. Guidance by Defra (2012) is that loss of high distinctiveness area, such as Habitats of Principal Importance (HPI, NERC Act 2006, S.41), should be compensated for in a like-for-like manner (creation or restoration of habitat of the same habitat classification as that impacted); where this is not possible a 'within band' strategy could be considered (in line with the bands set out in **Table 2.1**). It is encouraged that necessary compensation include 'trading up' to a higher distinctiveness band (such as converting non-priority habitat into a priority habitat) and that 'down-trading' (where loss of one habitat may not be compensated for through gains in another of a lower distinctiveness) is not permitted. Recommended offset requirements for habitat types are shown in **Table 2.5**.

**Table 2.5. Habitat type bands and recommended offset requirement**

Habitat band	Habitat type	Offset requirement
High	Habitat of Principal Importance as defined in accordance with Section 41 of the NERC Act 2006.	Within band type and ideally 'like for like'
Medium	Semi-natural	Within band type or trade up
Low	For example: Intensive agricultural	Trade up

## 3 BASELINE SITE HABITATS AND CONDITION ASSESSMENT

### 3.1 Introduction

3.1.1 The assessment was carried out by the Environment Bank using ecological data detailed in **Chapter 11 Terrestrial Biodiversity** of the ES (6.1, APP-048) and in accordance with assumptions defined in the main report to this Appendix (Section 4 of (8.02.09)). The ES is informed by extensive ecological survey work carried out by Peter Brett Associates in 2017 and 2018 including Phase 1 Habitat Survey data for the Electrical Connection route and a botanical survey of the Open Mosaic Habitat and species-rich grassland at the REP site and the Main Temporary Construction Compound.

### 3.2 Constraints

- 3.2.1 Condition assessments of habitats using the recommended Farm Environmental Plan manual (Natural England, 2010), as per standard biodiversity metric assessment methodology (Defra, 2012), were not undertaken at the time of survey. Precautionary estimations of habitat distinctiveness and condition have therefore been applied to some habitats (as indicated below) using available ecological information, professional judgement and input from the development team ecologists Peter Brett Associates. These precautionary estimations are based on location, likelihood/type of management, public disturbance and ecological connectivity.
- 3.2.2 The precautionary approach adopted, assigned a higher than 'typical' (i.e. as defined in the Defra biodiversity metric (2012)) distinctiveness value to selected semi-natural habitats of low distinctiveness located with or adjacent to existing features of high nature conservation importance (i.e. protected sites) (see **Table 3.1** below). For other semi-natural and modified habitats, condition scores were attributed to reflect a precautionary 'higher than likely' condition given the attributes assessed, but these were considered to be maintained within realistic parameters.

### 3.3 Baseline Habitats

3.3.2 **Tables 3.1 – 3.3** details the habitats recorded in the REP site, the Main Temporary Construction Compound and the Electrical Connection route, together with a summary of the assigned distinctiveness and condition values for each habitat. The baseline habitat value for each habitat is detailed as biodiversity units, which is a function of the area multiplied by distinctiveness score multiplied by condition score of the habitat. A breakdown of habitats with the REP site, the

Main Temporary Construction Compound and the Electrical Connection route is detailed in **Appendices A-D**. Area figures are rounded to 2 decimal places and so biodiversity value (units) is corrected for rounding errors. For full habitat descriptions and locations of habitat please refer to **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, APP-048)**.

**Table 3.1 Summary of habitat type, description, area, distinctiveness, condition and baseline habitat value at the REP site**

Habitat	Description	Area (Ha)	Distinctiveness	Condition	Biodiversity Value (Units)
<b>REP Site</b>					
A2.1 Dense Scrub	Precautionary condition assessment based on size and likely management.	0.15	Medium (4)	Moderate (2)	1.18
B2.2 Semi-improved neutral grassland	Precautionary condition assessment based on limited available information but accounting for limited species diversity and absence of positive indicators within the sward.	1.30	Medium (4)	Moderate (2)	10.39
B6 Species-poor semi-improved grassland	Unmanaged grassland of poor species-composition and encroaching tall ruderal vegetation. Precautionary condition assessment based on limited available information but accounting for absence of management and high proportion of ruderal and injurious weeds.	0.10	Medium (4)	Poor (1)	0.38
C3.1 Tall ruderal	Precautionary condition assessment based on limited available evidence. Condition assessment reflects moderate species diversity recorded.	0.12	Low (2)	Moderate (2)	0.49
F1 Swamp	* Habitat of Principal Importance Shallow wet depression dominated by common reed <i>Phragmites australis</i> extending along a ditch on the eastern boundary. Precautionary condition assessment based on limited available information but accounting for limited size.	0.08	High (6)	Moderate (2)	1.38
G1.1 Standing water	Ditch along the west of the site. Precautionary condition assessment based on limited available information.	0.02	High (6)	Good (3)	0.29
J1.2 Amenity grassland	Short-mown amenity grassland situation on road verges and roundabouts close to the site. Condition assessment reflecting existing sward diversity and management.	0.40	Low (2)	Poor (1)	0.80
J3.6 Buildings	Existing buildings with no discernible habitat value.	1.48	None (0)	Poor (1)	0.00
J4 Bare ground	Unvegetated bare ground in use for storage, temporary offices and vehicle parking	1.46	Low (2)	Poor (1)	2.92



Open mosaic of previously development land	* Habitat of Principal Importance Located in centre/west of the site. Dominated by mix of specie-rich grassland and ephemera/short perennial vegetation mosaic over a loose aggregate/rubble and aggregate bund. Precautionary condition assessment based on limited available information but accounting for limited structure and presence of successional communities.	0.46	High (6)	Moderate (2)	5.57
J5 Hardstanding	Existing hardstanding with no discernible habitat value.	2.85	None (0)	Poor (1)	0.00
<b>Total</b>		<b>8.41*</b>			<b>23.41*</b>

\* Total figure adjusted to reflect rounding errors at 2 d.p

**Table 3.2 Summary of habitat type, description, area, distinctiveness, condition and baseline habitat value at the Main Temporary Construction compound**

Habitat	Description	Area (Ha)	Distinctiveness	Condition	Summary Value (Units)
<b>Main Temporary Construction Compound</b>					
Open mosaic habitat on previously developed land	* Habitat of Principal Importance Mosaic of short perennial/ephemeral vegetation, poor semi-improved grassland, tall ruderal and scrub edges. Precautionary condition assessment based on limited available evidence but reflecting limited species composition and structural diversity.	2.14	High (6)	Moderate (2)	25.68
<b>Total</b>		<b>2.14</b>			<b>25.68</b>



**Table 3.3 Summary of habitat type, description, area, distinctiveness, condition and baseline habitat value at the Electrical Connection Route**

Habitat	Description	Area (Ha)	Distinctiveness	Condition	Summary Value (Units)
<b>Electrical Connection route</b>					
A1.1.1 Broad-leaved semi-natural woodland	* Habitat of Principal Importance Broad-leaved woodland situated along the A2016/Eastern Way with limited ground flora present. Precautionary condition assessment reflecting size and limited age diversity of the woodland.	0.55	High (6)	Moderate (2)	6.54
A1.1.2 Broad-leaved plantation	Plantation woodland comprising mostly native standards and small shrubs scattered along road verges and roundabouts. Precautionary condition assessment reflecting size, limited age structure and likely management.	0.30	Medium (4)	Moderate (2)	2.40
A2.1 Dense scrub	Area of dense and scattered scrub passing through open space at Joyce green lane. Habitat providing ecotone and connectivity between adjacent habitats therefore reflecting good condition score.	1.15	Medium (4)	Good (3)	13.81
A2.1 Dense Scrub	Small areas of dense scrub situated on road verges to the south of the REP and to the southeast of the connection route near to Joyce Green Lane public open space. Precautionary condition assessment reflecting size and likely management of scrub habitat present.	0.94	Medium (4)	Moderate (2)	7.49
A2.2 Scattered scrub	Small area of scattered scrub situated on road verges to the south of the REP and to the southeast of the connection route near to Joyce Green Lane public open space. Precautionary condition assessment reflecting small size of scrub habitat present.	<0.01	Medium (4)	Moderate (2)	0.02
B2.2 Semi-improved neutral grassland	Modified neutral grassland present along Norman Road to the south of the REP s and between the River Cray and Joyce	3.12	Medium (4)	Moderate (2)	24.99



	Green lane. The former species-poor but with good connectivity to two areas of open mosaic habitat reflecting higher than typical distinctiveness score. Precautionary condition assessment based on limited available evidence but reflecting limited species diversity and absence of management.				
B5 Marshy/marshy grassland	No Description. Precautionary distinctiveness score and condition reflecting location and likely management of grassland.	0.33	High (6)	Moderate (2)	3.97
B6 Poor semi-improved grassland	Areas of poor semi-improved grassland within, and with connectivity to, other habitats with Crossness Local Nature Reserve and Joyce Lane Public Open Space. Precautionary condition assessment reflecting ecological connectivity to other semi-natural habitats in nature conservation sites.	1.42	Medium (4)	Moderate (2)	11.39
B6 Poor semi-improved grassland	Unmanaged poor semi-improved grassland lining the banks of the River Darent at the flyover crossing. Precautionary condition assessment based on location and likely management.	2.14	Medium (4)	Poor (1)	8.57
C3.1 Tall ruderal vegetation	Tall ruderal vegetation situated in Crossness Local Nature Reserve forming mosaic with other semi-natural habitats as is reflected in higher than average distinctiveness score for this habitat. Precautionary condition assessment based on limited available evidence.	0.21	Medium (4)	Moderate (2)	1.68
C3.1 Tall ruderal vegetation	Scattered areas of tall ruderal habitat along the route. Precautionary condition assessment based on limited available information.	0.14	Low (2)	Moderate (2)	0.58
F1 Swamp	* Habitat of Principal Importance Partially tidal area of exposed mud banks and submerged and marginal common reed along the River Darent. Precautionary condition assessment based in limited available evidence.	0.88	High (6)	Good (3)	15.91
F1 Swamp	* Habitat of Principal Importance	0.21	High (6)	Moderate (2)	2.46



	An open ditch to south of REP, vegetated towards the southern end with reed swamp. Precautionary condition assessment location based on limited evidence but reflecting small size and likely management.				
G1 Standing Water (pond)	Ephemeral woodland pool located to the south of Crossness LNR and adjacent to the A2016/Eastern Way. Precautionary Condition Assessment based on limited available evidence but reflecting small size and likely management.	0.03	High (6)	Moderate (2)	0.31
G1.1 (Standing water (ditch))	Sections of wet ditch to northwest of the electrical connection route with poor water quality. Precautionary condition assessment based on limited available information but reflecting poor water quality.	0.28	High (6)	Moderate (2)	3.32
G2.1 Running Water	No Description. Precautionary assessment of distinctiveness and condition based on absence of evidence.	0.15	High (6)	Good (3)	2.63
H2.6 Coastal salt marsh	* Habitat of Principal Importance Low lying mosaic of semi-improved grassland, marshy grassland and pockets of swamp to the east of the River Darent indicative of coastal and flood plain grazing marsh. Precautionary condition assessment based on limited available information.	0.13	High (6)	Good (3)	2.39
Open mosaic on previously developed land	* Habitat of Principal Importance Mosaic of tall ruderal, ephemeral/short perennial vegetation and bare ground located along Norman Road. Precautionary condition assessment based on limited available information but reflecting limited.	2.47	High (6)	Moderate (2)	29.58
J1.2 Amenity grassland	Short amenity grassland situated along central reservations throughout the route and at Joyce Green Lane. Condition assessment based on limited species diversity and intensity of management.	2.80	Low (2)	Poor (1)	5.59
J1.3 Ephemeral/Short perennial	No description. Precautionary Condition score for habitat of typically low biodiversity value.	0.10	Low (2)	Poor (1)	0.20





J1.4 Introduced shrub	Tall introduced screening shelterbelt planting comprising broad-leaved trees and shrubs in central reservations along route. Precautionary condition assessment based on limited available information but reflecting likely lack of age structure.	0.48	Medium (4)	Moderate (2)	3.82
J3.6 Buildings	Buildings with no discernible value for biodiversity.	0.09	Null (0)	Poor (1)	0.00
J4 Bare ground	Habitat not described. Precautionary distinctiveness and condition scores for a habitat of typically low biodiversity value.	0.44	Low (2)	Poor (1)	0.87
J5 Hardstanding	Unvegetated hardstanding with no discernible value for biodiversity.	40.03	Null (0)	Poor (1)	0.00
<b>Total</b>		<b>58.38*</b>			<b>148.52</b>

\* Total figure adjusted to reflect rounding errors at 2 d.p.



## 3.4 Baseline Linear Features

- 3.4.1 **Table 3.4** summarises the linear habitats recorded at the REP site, the Main Temporary Construction Compound and the Electrical Connection route during the surveys carried out by Peter Brett Associates. The baseline linear value for each habitat is detailed as biodiversity units, which is a function of the length (km) x distinctiveness score x condition score of the linear feature habitat. A breakdown of the linear with the Electrical Connection route by section area is also detailed in **Appendices A-D**. Length figures are rounded to 2 decimal places and so linear biodiversity value (units) is justified to correct for rounding errors.

**Table 3.4 Summary of Linear feature type, description, length, distinctiveness, condition and baseline value of linear features value by development area**

Habitat	Description	Length (km)	Distinctiveness	Condition	Biodiversity Value (linear Units)
<b>REP site</b>					
G2.1 Running water	Ditch on southern boundary. Precautionary condition assessment based on limited available evidence.	0.08	High (6)	Moderate (2)	0.96
J2.4 Fence	Fence with no discernible value for biodiversity.	2.31	Null (0)	Poor (1)	0.00
<b>Total</b>		<b>2.39</b>			<b>0.96</b>
<b>Main Temporary Construction Compound</b>					
G1 Standing water	Ditch on northern, eastern and southern boundary of the Main Temporary Construction Compound. Precautionary condition assessment based on limited evidence but reflecting poor water quality recorded.	0.18	High (6)	Moderate (2)	2.16
J2.6 Dry Ditch	Dry ditch on western boundary of Main Temporary Construction Compound. Precautionary condition assessment based on limited available evidence.	0.29	Low (2)	Good (3)	1.74
<b>Total</b>		<b>0.47</b>			<b>3.90</b>
<b>Electrical Connection route</b>					
G1 Standing Water	Wet ditch along situated to the south of the REP adjacent to Crossness LNR. Precautionary condition assessment based on limited available evidence but reflecting poor water quality recorded.	0.72	High (6)	Moderate (2)	8.64
G2.1 Running water	Small section of ditch to south of REP along Norman Road. Precautionary condition assessment.	0.13	High (6)	Good (3)	2.34



J2.1.1 Species-rich intact hedgerow	Hedgerow situated to the south of REP along the boundary of Crossness LNR. Precautionary condition assessment based on limited available evidence.	0.54	High (6)	Good (3)	9.72
J2.1.2 Species-poor intact hedgerow	Species-poor hedgerow along River Cray to south of the Electrical Connection route. Precautionary condition assessment based on limited available evidence but reflecting poor species-richness recorded.	0.02	High (2)	Moderate (2)	0.24
J2.4 Fence	Scattered fence lines with no discernible value for biodiversity.	0.58	Null (0)	Poor (1)	0.00
J2.5 Wall	Small section of wall along the A2106 Queens Road. Precautionary condition assessment based on feature of typically low nature conservation value.	0.13	Low (2)	Poor (1)	0.26
<b>Total</b>		<b>2.12</b>			<b>21.20</b>



## 4 IMPACT ASSESSMENT

### 4.1 Assumptions

- 4.1.1 The following section outlines the permanent and temporary impacts of the Proposed Development on the baseline habitats within Order Limits. The impact assessment is based on iterative and detailed communication with Peter Brett Associates and between Peter Brett Associates, the Applicant and UK Power Network (UKPN), in order to confirm the assumptions regarding likely impacts which were used to inform the Metric Impact Assessment (see **Section 4** in the main report to this Appendix **(8.02.09)**).
- 4.1.2 As described in **Section 4** of the main report to this Appendix **(8.02.09)**, the impact assessment must reflect the Application Boundary (being the Order Limits), however an absolute worst-case scenario (assuming permanent loss of all habitats within the REP site and temporary loss of all habitats within the Main Temporary Construction Compound and Electrical Connection route) is not representative of the actual effects of the Proposed Development. The assumptions described in the main report to this Appendix **(8.02.09)** confirm the "Realistic Worst Case Overall Route (Submission Stage)" and the "Realistic Best Case" scenarios.
- 4.1.3 **Figures 2.1 - 2.3** and **Figures 3.1 – 3.3** of this Appendix show the assessment areas for the "Realistic Worst Case Overall Route (Submission Stage)" and the "Realistic Best Case" scenarios, as described in the main report to this Appendix **(8.02.09)**.
- 4.1.4 For both scenarios, impacts assessed include permanent and temporary loss of habitats and linear features throughout the Order Limits. All temporary losses described below are to be reinstated on a like-for-like basis upon completion of the construction phase. Timeframes for reinstatement are given for the respective works area, which includes 45 months for the REP site and Main Temporary Construction Compound and 24 months for the Electrical Connection route. These timings are reflected in the temporal risk factors for reinstated habitats in each works area respectively. The proposed habitat restoration and any on-site compensation proposals are described in **Section 5** below.
- 4.1.5 The assessment has used a proportional approach to calculate the impacts of the Electrical Connection route in both scenarios, where there is uncertainty about the specific location of the works. The proportional approach divides the route into route sections and the sum of the 10 m wide working area within each route

section is calculated as a percentage of the Application Boundary for that section area. The percentage impact is then applied to all habitats within that route section providing a proportional effect for each habitat. The sum of proportional and direct effects for each route scenario are presented in this report. A breakdown of biodiversity impacts for each section is shown within the calculations in **Appendices A-D**.

- 4.1.6 The impacts described in this section have been subject to earlier revisions informed by the Defra Metric to avoid and reduce, where possible, adverse effects on habitats and linear features of high nature conservation importance. A summary of avoidance measures employed as part of the initial route design are detailed in **Section 3** of the main report to this Appendix (**8.02.09**).

## 4.2 Realistic Best Case Scenario

- 4.2.1 This section summarises the main identified impacts for each development section based on the "Realistic Best Case" Scenario. A summary of gross impacts (i.e. biodiversity loss prior to compensation or reinstatement) by works area is shown in **Table 4.1**.

### REP Site

- 4.2.2 The "Realistic Best Case" scenario will result in 5.91 ha of permanent habitat loss for the creation of the new REP facility. A breakdown of this figure by habitat type is shown in **Appendix A**. A further 0.26 ha, principally comprising semi-improved neutral grassland and species-poor semi-improved grassland, will also be permanently lost on the flood bund for compensatory creation of OMH during the post-construction phase (see **Section 5**).
- 4.2.3 The "Realistic Best Case" Scenario will also result in a further 0.12 ha of temporary habitat loss along the flood embankment and associated with the installation of services and surface water drainage systems. These habitats will be reinstated.
- 4.2.4 The creation of the REP facility will result in the loss of 0.96 km of linear features in the "Realistic Best Case" Scenario. These features are to be permanently lost.
- 4.2.5 The assessment presumes that two Habitats of Principal Importance will be affected within the "Realistic Best Case" Scenario based on the proportionate assessment approach detailed in **Section 4.1** above. These are swamp and OMH. **Table 4.2** below details the affected area and biodiversity unit value of these habitats at REP.

## Main Temporary Construction Compound

- 4.2.6 The "Realistic Best Case" scenario will result in the temporary loss of 2.14 ha of OMH at the Main Temporary Construction Compound. There will also be a further temporary loss of 0.46 km of linear features during the construction phase. These features will all be reinstated.
- 4.2.7 OMH is a Habitat of Principal Importance. **Table 4.2** summarises the affected area and biodiversity unit value of the OMH habitat at the Main Temporary Construction Compound.

## Electrical Connection Route

- 4.2.8 The "Realistic Best Case" scenario estimates a potential temporary loss of 14 habitat types with a cumulative area of 10.80 ha. A breakdown of this figure by habitat type is included in **Appendix C** to this report. The assessment presumes that 0.66 ha of this loss will constitute Habitats of Principal Importance (OMH and broad-leaved woodland) based on the proportionate approach assessment approach detailed in **Section 4.1** above. **Table 4.2** below details the presumed area and biodiversity unit value of Habitats of Principal importance along the Electrical Connection route in the "Realistic Best Case" scenario.
- 4.2.9 The Realistic Best Case" scenario will also result in the loss of three linear features with combined length of 0.26 km. These linear features will be reinstated.

## Summary Impacts

- 4.2.10 **Table 4.1** below details the area/length and number of biodiversity units for retained and lost habitats and linear features at each section of the Proposed Development based on the "Realistic Best Case" scenario. The summary is inclusive of Habitats of Principal Importance.

**Table 4.1: Summary of habitat and linear impacts (area/length and biodiversity units) by works area in the "Realistic Best Case" scenario**

Works Area	Retained		Assessed gross loss	
	Area/length (Ha/km)	Unit	Area/length (Ha/ km)	Unit
REP Site	2.12	6.76	-6.03	-14.74
Main temporary construction compound	0.00	0.00	-2.14	-25.68
Electrical Connection route	47.57	130.25	-10.81	-18.29

<b>Total</b>	<b>49.69</b>	<b>137.01</b>	<b>-18.97</b>	<b>-58.71</b>
<b>Linear Features</b>				
REP Site	0.43 km	0.00 (linear)	-1.96 km	-0.96 (linear)
Main Temporary Construction Compound	0.01 km	0.12 (linear)	-0.46 km	-3.78 (linear)
Electrical Connection route	1.70 km	17.38 (linear)	-0.42 km	-3.82 (linear)
<b>Total Linear</b>	<b>2.14 km</b>	<b>17.50 (linear)</b>	<b>-2.84 km</b>	<b>-8.56 (linear)</b>
* Gross biodiversity loss is the assessed biodiversity loss before compensation/reinstatement				

4.2.11 **Table 4.2** below summarises the area and biodiversity unit value of retained and impacted Habitats of Principal Importance for each works area in the “Realistic Best Case” scenario.

**Table 4.2: Area and biodiversity unit value of retained and impacted Habitats of Principal Importance by works area in the “Realistic Best Case” scenario.**

Works Area	Retained		Assessed gross loss	
	Area/length (Ha/km)	Unit	Area/length (Ha/ km)	Unit
<b>REP Site</b>				
Swamp	0.07	1.21	-0.01	-0.17
Open Mosaic Habitat	-	-	-0.46	-5.57
<b>Main Temporary Construction Compound</b>				
OMH	-	-	-2.14	-25.68
<b>Electrical Connection route</b>				
Broad-leaved semi-natural woodland	0.52	6.24	-0.03	-0.30
OMH	1.83	21.70	-0.63	-7.58

### 4.3 Realistic Worst Case Overall Route (Submission Stage)

4.3.1 This section summarises the main identified impacts for each development section based on the “Realistic Worst Case Overall Route (Submission Stage)”. A summary of gross impacts by works area is shown in **Table 4.3**.

#### REP Site and Main Temporary Construction Compound

4.3.2 The permanent and temporary impacts on habitats within the REP site and the Main Temporary Construction Compound are the same as described in **Section**



**4.2.** No additional impacts are considered as part of the “Realistic Worst Case Overall Route (Submission Stage)”.

**Electrical Connection route**

4.3.3 The “Realistic Worst Case Overall Route (Submission Stage)” will result in the temporary loss of 19 habitats with a cumulative area of 11.83 ha. A breakdown of this figure by habitat type is included in **Appendix D** to this report. The “Realistic Worst Case Overall Route (Submission Stage)” will also result in the loss of four linear features with a combined length of 1.24 km.

4.3.4 This assessment presumes the loss of three Habitats of Principal Importance with the potential to be affected in the “Realistic Worst Case Overall Route (Submission Stage)” in accordance with the precautionary assessment approach detailed in **Section 4.1**. These are broad-leaved semi-natural woodland, OMH and species-rich hedgerow. **Table 4.4** below details the affected area/length and biodiversity unit value of these habitats along the Electrical Connection route.

**Summary of Impacts**

4.3.5 **Table 4.3** below details the area and number of biodiversity units for all retained and lost habitats at each works area of the Proposed Development based on the “Realistic Worst Case Overall Route (Submission Stage)”. These figures incorporate losses for Habitats of Principal importance.

**Table 4.3: Summary of biodiversity impacts (area/length and biodiversity units) for the “Realistic Worst Case Overall Route (Submission Stage)”**

Works Area	Habitat Retained		Assessed gross loss	
	Area/length (Ha/km)	Unit	Area/length (Ha/ km)	Unit
<b>Habitats</b>				
REP site	2.12	6.76	-6.03	-14.74
Main Temporary Construction compound	0.00	0.00	-2.14	-25.68
Electrical Connection route	46.55	119.02	-11.83	-29.52
<b>Total</b>	<b>48.67</b>	<b>125.78</b>	<b>-20.00</b>	<b>-69.94</b>
<b>Linear Features</b>				
REP site	0.43 km	0.00 (linear)	-1.96 km	-0.96 (linear)
Main Temporary Construction Compound	0.01 km	0.12 (linear)	-0.46 km	-3.78 (linear)

Electrical Connection route	0.88 km	11.14 (linear)	-1.24 km	-10.06 (linear)
<b>Total Linear</b>	<b>1.32 km</b>	<b>11.26 (linear)</b>	<b>-3.66 km</b>	<b>-14.80 (linear)</b>

4.3.6 Table 4.4 below summarises the area/length and biodiversity unit value of presumed retained and impacted Habitats of Principal Importance for each works area in the “Realistic Worst Case Overall Route (Submission Stage)”.

**Table 4.4: Area and biodiversity unit value of retained and impacted Habitats of Principal Importance by works area in the “Realistic Worst Case Overall Route (Submission Stage)”**

Works Area	Retained		Assessed gross loss	
	Area/Length (Ha/km)	Unit Value	Area/Length (Ha/km)	Unit Value
<b>REP site</b>				
Swamp	0.07	1.21	-0.01	-0.17
Open Mosaic Habitat	-	-	-0.46	-5.57
<b>Main Temporary Construction Compound</b>				
OMH	-	-	-2.14	-25.68
<b>Electrical Connection route</b>				
Broad-leaved semi-natural woodland	0.40	4.79	-0.15	-1.75
OMH	2.02	24.25	-0.44	-5.33
Species-rich Hedgerow	0.00	0.00	-0.54 km	-9.72 (linear)

## 5 HABITAT RESTORATION AND CREATION

- 5.1.1 The following section describes the onsite habitat restoration and creation measures that will be implemented as part of the Proposed Development. These measures are set out in the **Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**.
- 5.1.2 At present the **OBLMS (7.6, APP-107)** is based on broad principles for habitat restoration and creation as detailed designs for construction are still evolving. These principles have been used to inform the assessment of both the "Realistic Best Case" and the "Realistic Worst Case Overall Route (Submission Stage)" scenarios, as described in **Section 4** of the main report to this Appendix (**8.02.09**), to provide a comparative overview of the projected habitat value (in biodiversity units) for each upon implementation of the final Biodiversity and Landscape Mitigation Strategy (BLMS).
- 5.1.3 To account for level of detail currently provided in the **OBLMS (7.6, APP-107)**, precautionary assumptions have been made in the assessment about the target habitat distinctiveness and condition, as well as 'temporal' and 'difficulty' risk factors that are applied to all habitat restoration and creation proposals. The final BLMS, which must be substantially in accordance with the **OBLMS (7.6, APP-107)**, will be submitted to and approved by the relevant planning authority, in accordance with **Requirement 5** of the **dDCO (3.1; Rev 1)**.
- 5.1.4 The final BLMS will be prepared prior to commencement of the Proposed Development and will include the final results of a Biodiversity Accounting Assessment which will confirm the value of the required offset, net gain requirements, and location and details of the offset - with a preference to deliver the biodiversity creation or enhancements in the local area, targeting the enhancement and restoration of Habitats of Principal Importance. The Applicant has also committed to delivering a minimum of 10% biodiversity net gain.

### 5.1 "Realistic Best Case" Scenario

- 5.1.5 A summary of onsite compensation proposals by works area is shown in **Table 5.1** for the "Realistic Best Case" Scenario. A detailed breakdown of the restoration and creation proposal by habitat type for this scenario is shown in **Appendices A, B and C**.

## REP site

- 5.1.6 The **OBLMS (7.6, APP-107)** outlines that the permanent loss of the OMH (a Habitat of Principal Importance) will be partially compensated within the REP site through the creation of the same habitat type on the flood bank between the RRRF and the River Thames, subject to agreement with the Environment Agency. As the flood bank currently comprises semi-improved neutral grassland, which is also of value for biodiversity, the area of OMH will represent 25% of the flood bank area to balance the requirement to re-create a Habitat of Principal Importance against maintaining existing nature conservation features in the site. The area of OMH creation proposed is therefore 0.26 ha. Precautionary target condition, risk factors and biodiversity unit value of the OMH creation are detailed in **Table 5.2**.
- 5.1.7 It is understood that all habitats subject to temporary impacts within the REP site will be restored upon completion of the construction phase. The target condition of the restored habitats is assumed to be equivalent to the baseline value of the habitat affected by the construction works, taking into account 'temporal' and 'difficulty' risk factors. The cumulative area and biodiversity value of all restored and created habitats for REP in the "Realistic Best Case" Scenario is summarised in **Table 5.1**.
- 5.1.8 Two Habitats of Principal Importance will be reinstated upon completion of the construction phases at REP. These are Swamp and OMH. **Table 5.2** details the precautionary target condition, risk factors and biodiversity unit value proposed for these habitats.
- 5.1.9 In addition to the above measures, the **OBLMS (7.6, APP-107)** states that additional hard and soft landscaping will be incorporated into the final design of REP. These features may have some additional value to biodiversity and will be considered as part of the review of the final Biodiversity Accounting Report.

## Main Temporary Construction Compound

- 5.1.10 For the purposes of the metric calculation, it is assumed that the OMH in the Main Temporary Construction will be reinstated upon completion of the construction phase. The target condition of the OMH will be equivalent to its baseline value prior to the construction works. Precautionary 'temporal' and 'difficulty' risk factors are also applied to reflect the extended duration of impact to the compound and the current level of detail about post-construction establishment and maintenance. **Table 5.2** details the target condition, risk

factors and biodiversity unit value of this habitats upon restoration, subject to appropriate habitat establishment and management measures.

**Electrical Connection route**

- 5.1.11 All habitats subject to temporary impacts in the Electrical Connection route will be reinstated like-for-like upon completion of the construction phase. As with REP and the Main Temporary Construction Compound, the target condition of the restored habitats is assumed to be equivalent to the existing baseline value of the habitat affected with temporal and difficulty risk factors applied. The exception to this is the restoration of broad-leaved semi-natural woodland, which, due to the establishment time of semi-natural woodland habitats, is not feasible within the post-construction timeframe proposed. As such, replacement habitats for woodland are classified as plantation woodland to better reflect the likely outcome during the post-construction period. The cumulative area and biodiversity value of all restored and created habitats for the Electrical Connection route in the "Realistic Best Case" Scenario is summarised in **Table 5.1**.
- 5.1.12 One Habitat of Principal Importance – OMH - will be restored upon completion of the construction phases along the Electrical Connection route in the “Realistic Best Case” Scenario. **Table 5.2** details the target condition, risk factors and biodiversity unit value of this habitat upon restoration, subject to appropriate habitat establishment and management measures.

**Mitigation Summary (“Realistic Best Case” Scenario)**

- 5.1.13 **Table 5.1** below details the total area and value (biodiversity units) for all habitat creation and restoration proposals in each section, based on the “Realistic Best Case” Scenario. Biodiversity Units values for each section are calculated as the cumulative sum of each habitat area (e.g. created or restored) multiplied by the distinctiveness of each habitat multiplied by the condition of each habitat multiplied by any applied risk factors (i.e. temporal or difficulty risks).

**Table 5.1: Total Area/length (Ha/km) and compensation value (biodiversity Units) of restoration and compensation measures for each works area of the Proposed Development (Realistic Best Case" Scenario)**

Works Area	Cumulative extent of creation and restoration proposals for habitats (ha) and linear features (km)	Cumulative Habitat Value (Biodiversity Units) of Creation/Restoration proposals for habitats (ha) and linear features (km)
REP site	6.03 (Includes 5.91 ha of new buildings and hardstanding)	1.47

Main Temporary Construction Compound	2.14	15.11
Electrical Connection route	10.80	11.66
<b>Total</b>	<b>18.97</b>	<b>28.22</b>
<b>Linear</b>		
REP	0.00 km	0.00 (linear)
Main Temporary Construction Compound	0.46 km	2.70 (linear)
Electrical Connection route	0.42 km	2.75 (Linear)
<b>Total</b>	<b>1.31 km</b>	<b>5.45 (Linear)</b>

5.1.14 **Table 5.2** details the total area and target value (biodiversity units) of the habitat creation/restoration proposals involving Habitats of Principal importance in the "Realistic Best Case" Scenario.

**Table 5.2: Area/length, target condition, risk and compensation value of restoration and compensation measures for Habitats of Principal Importance in the "Realistic Best Case" Scenario.**

Target Habitat of Principal Importance	Area/Length (Ha/ km)	Target Distinctiveness	Target Condition	Delivery risks	Biodiversity compensation value
<b>REP site</b>					
OMH Creation	0.26	High (6)	Moderate (2)	Low difficulty, 10 years	0.89
Swamp Restoration	0.01	High (6)	Moderate (2)	Medium difficulty, 10 years	0.04
OMH Restoration	0.03	High (6)	Moderate (2)	Low difficulty, 10 years	0.25
<b>Main Temporary Construction Compound</b>					
OMH Restoration	2.14	High (6)	Moderate (2)	Low difficulty, 15 years	15.11
<b>Electrical Connection route</b>					
OMH	0.63	High (6)	Moderate (2)	Low difficulty, 10 years	2

## 5.2 Realistic Worst Case Overall Route (Submission Stage)

- 5.2.1 A summary of onsite compensation proposals by works area is shown in **Table 5.3** for the "Realistic Worst Case Overall Route (Submission Stage)". A detailed breakdown of the restoration and creation proposal by habitat type for this scenario is shown in **Appendices A, B and D**.

### REP Site and Main Temporary Construction Compound

- 5.2.2 The proposed habitat restoration and creation proposals within the REP site and the Main Temporary Construction Compound, as described in **Paragraph 5.1.6 – 5.1.10** above for the "Realistic Best Case", remain unchanged for the "Realistic Worst Case Overall Route (Submission Stage)".

### Electrical Connection route

- 5.2.3 As described for the "Realistic Best Case" Scenario, it is understood that all habitats subject to temporary impacts in the Electrical Connection route will be reinstated like-for-like upon completion of the construction phase. Similarly, assumptions regarding target condition of the restored habitats, together with risk factors and restoration of broad-leaved woodland are unchanged from the "Realistic Best Case" detailed in **Paragraph 5.1.11** above. The cumulative area and anticipated biodiversity value of all restored and created habitats for the Electrical Connection route in the "Realistic Worst Case Overall Route (Submission Stage)" is summarised in **Table 5.3**.
- 5.2.4 Two Habitats of Principal Importance are amongst the habitats to be restored upon completion of the construction phases along the Electrical Connection route. These are Swamp and OMH. **Table 5.4** details the target condition, risk factors and biodiversity unit value of these habitats upon restoration, subject to appropriate habitat establishment and management measures.

### Mitigation Summary ("Realistic Worst Case Overall Route (Submission Stage)")

- 5.2.5 **Table 5.3** below details the total area and target value (biodiversity units) of all habitat creation and restoration proposals in each works area, based on the "Realistic Worst Case Overall Route (Submission Stage)". Biodiversity Units values for each section are calculated as the cumulative sum of each habitat area (e.g. created or restored) multiplied by the distinctiveness of each habitat, the condition of each habitat and any applied risk factors (i.e. temporal or difficulty risks).

**Table 5.3: Total area/length (Ha/km) and compensation value (biodiversity Units) of restoration and compensation measures for each works area of the Proposed Development ("Realistic Worst Case Overall Route (Submission Stage)")**

Works Area	Cumulative extent of creation and restoration proposals for habitats (ha) and linear features (km)	Cumulative Habitat Value (Biodiversity Units) of Creation/Restoration proposals for habitats (ha) and linear features (km)
REP site	6.03 (Includes 5.91 ha of new buildings and hardstanding)	1.47
Main Temporary construction Compound	2.14	15.11
Electrical Connection route	11.83	17.74
<b>Total</b>	<b>20.00</b>	<b>34.32</b>
<b>Linear</b>		
REP site	0.00 km	0.00 (linear)
Main Temporary construction Compound	0.46 km	2.70 (linear)
Electrical Connection route	1.24 km	5.99 (Linear)
<b>Total</b>	<b>2.13 km</b>	<b>8.69 (Linear)</b>

5.2.6 **Table 5.4** details the total area and target value (biodiversity units) of the habitat creation/restoration proposals involving Habitats of Principal importance in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario.

**Table 5.4: Area, target condition, risk and compensation value of restoration and compensation measures for Habitats of Principal Importance in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario**

Target Habitat of Principal Importance	Area/Length (Ha/km)	Target Distinctiveness	Target Condition	Delivery risks	Biodiversity compensation value
<b>REP site</b>					
OMH Creation	0.26	High (6)	Moderate (2)	Low difficulty, 10 years	0.89
Swamp Restoration	0.01	High (6)	Moderate (2)	Medium difficulty, 10 years	0.04



OMH Restoration	0.03	High (6)	Moderate (2)	Low difficulty, 10 years	0.25
<b>Main Temporary Construction Compound</b>					
OMH Restoration	2.14	High (6)	Moderate (2)	Low difficulty, 15 years	15.11
<b>Electrical Connection route</b>					
OMH Restoration	0.44	High (6)	Moderate (2)	Low difficulty, 10 years	3.81
Species-Rich Hedgerow	0.54 km	High (6)	Good (3)	Low difficulty, 15 years	5.72 (linear)

## 6 RESIDUAL EFFECTS

6.1.1 This section summarises the residual effects and net impacts on biodiversity for the "Realistic Best Case" and the "Realistic Worst Case Overall Route (Submission Stage)" scenarios of the Proposed Development. Residual effects are calculated by subtracting the value (biodiversity units) of all habitat creation and restoration proposals detailed in **Chapter 5** from the value of the gross biodiversity impacts in **Chapter 3**, taking in to account any habitat trading restrictions (see **Section 2.3**). Where the resulting biodiversity balance is negative, a residual net loss of biodiversity is recorded. Where the balance is positive a residual net gain to biodiversity is recorded.

### 6.1 “Realistic Best Case” Scenario

6.1.2 **Table 6.1** below details the residual effects on total biodiversity value in the “Realistic Best Case” scenario broken down by works area. These figures take into account the value of any on-site compensation as described in **Section 5.1**.

**Table 6.1 Residual effects on all habitats by works area in the “Realistic Best Case” Scenario**

Impact Scenario	Existing Unit Value	Gross Unit Loss	Unit Value of onsite compensation/ Restoration	Net Unit Balance (Residual effect)
REP site	23.41	14.74	1.47	-13.26*
Main Construction Compound	25.68	25.68	15.11	-10.57
Electrical Connection route	148.54	18.29	11.66	-6.63
<b>Total</b>	<b>197.63</b>	<b>58.71</b>	<b>28.24</b>	<b>-30.46</b>
<b>Linear</b>				
REP site	0.96 (linear)	0.96 (linear)	0.00 (linear)	-0.96 (linear)
Main Construction Compound	3.90 (linear)	3.78 (linear)	2.70 (linear)	-1.08 (linear)
Electrical Connection route	21.20 (linear)	3.82 (linear)	2.75 (linear)	-1.07 (linear)
<b>Total</b>	<b>26.52 (linear)</b>	<b>8.56 (linear)</b>	<b>5.45 (linear)</b>	<b>-3.11 (linear)</b>

\* Figure adjusted to reflect rounding errors at 2 d.p

6.1.3 The “Realistic Best Case” Scenario of the proposed Development will result in an overall residual habitat impact of -30.46 BU and a residual linear impact of -3.11 BU.

6.1.4 **Table 6.2** below details the anticipated residual effects on Habitats of Principal Importance in the “Realistic Best Case” Scenario broken down by works area.

**Table 6.2 Residual effect on Habitats of Principal Importance for the "Realistic Best Case" Scenario**

Impact Scenario	Existing Unit Value	Gross Unit Loss	Unit Value of onsite compensation/ Restoration	Net Unit Balance (Residual effect)
<b>REP site</b>				
Swamp	1.38	0.17	0.04	- 0.13
OMH	5.57	5.57	1.14	-4.43
<b>Main Temporary Construction Compound</b>				
OMH	25.68	25.68	15.11	- 10.57
<b>Electrical Connection route</b>				
Broad-leaved semi-natural woodland	6.54	0.30	0.07*	-0.23
OMH	29.58	7.58	5.42	-2.17**
<p>* On-site compensation for Broad-leaved semi-natural woodland is not Habitat of Principal Importance. However new woodland planting is typically seen as an appropriate form of compensation to minimise any subsequent loss of woodland cover and therefore the value of this replacement woodland planting is reflected as having compensation value for this habitat.</p> <p>**Figure adjusted to correct for rounding errors at 2 d.p</p>				

6.1.5 The "Realistic Best Case" Scenario of the Proposed Development will result in a residual loss of habitat value for three priority habitat types across the Application Site. By habitat type this constitutes a residual impact of -0.13 biodiversity units (BU) of swamp, -17.17 BU of OMH (figure adjusted to correct for rounding errors at 2 d.p) and -0.23 BU of broad-leaved semi-natural woodland.

## 6.2 "Realistic Worst Case Overall Route (Submission Stage)"

6.2.1 **Table 6.3** below details the residual effects on total habitat value in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario broken down by works area. These figures take into account the value of any on-site compensation, as described in **Section 5.2**.

**Table 6.3 Residual effects on all habitats and linear features by works area in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario**

Existing Unit Value	Existing Unit Value	Gross Unit Loss	Unit Value of onsite compensation/ Restoration	Net Unit Balance (Residual effect)
REP site	23.41	14.74	1.47	- 13.26*
Main Construction Compound	25.68	25.68	15.11	- 10.57
Electrical Connection route	148.54	29.52	17.74	--11.79*

<b>Total</b>	<b>197.63</b>	<b>69.94</b>	<b>34.34</b>	<b>- 35.62</b>
<b>Linear</b>				
REP site	1.42 (linear)	0.96 (linear)	0.00 (linear)	-0.96 (linear)
Main Construction Compound	3.90 (linear)	3.78 (linear)	2.70 (linear)	-1.08 (linear)
Electrical Connection route	21.20 (linear)	10.06 (linear)	5.99 (linear)	-4.07 (linear)
<b>Total</b>	<b>26.52 (linear)</b>	<b>14.80 (linear)</b>	<b>8.69 (linear)</b>	<b>- 6.11 (linear)</b>

\* Figure adjusted to reflect rounding errors at 2 d.p

6.2.2 The "Realistic Worst Case Overall Route (Submission Stage)" Scenario of the Proposed Development will result in a residual impact of -35.62 biodiversity units (BU) and a residual linear impact of -6.11 BU.

6.2.3 **Table 6.4** below details the residual effects on Habitats of Principal Importance in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario, broken down by works area.

**Table 6.4 Residual effect on Habitats of Principal Importance in the "Realistic Worst Case Overall Route (Submission Stage)" Scenario**

Existing Unit Value	Existing Unit Value	Gross Unit Loss	Unit Value of onsite compensation/ Restoration	Net Unit Balance (Residual effect)
<b>REP site</b>				
Swamp	1.38	0.17	0.04	- 0.13
OMH	5.57	5.57	1.14	-4.43
<b>Main Temporary Construction Compound</b>				
OMH	25.68	25.68	15.11	- 10.57
<b>Electrical Connection route</b>				
Broad-leaved semi-natural woodland	6.54	1.75	0.39*	- 1.36
OMH	29.58	5.33	3.81	- 1.52
Species-rich hedgerow	9.72 Linear	9.72 (linear)	5.72 (linear)	-4.00 (linear)

\* On-site compensation for broad-leaved semi-natural woodland will not constitute Habitat of Principal Importance. However new woodland planting is typically seen as an appropriate form of compensation to minimise any subsequent loss of woodland cover and therefore the value of this replacement woodland planting is reflected as having compensation value for this habitat.

6.2.4 The Realistic Worst Case Overall Route (Submission Stage)" Scenario of the Proposed Development will result in the residual loss of habitat value for four priority habitat types across the Application Boundary. Arranged by habitat type, this constitutes a residual impact of -0.13 BU of swamp, -16.53 BU of OMH (corrected for rounding errors at 2 d.p), -1.36 BU of broad-leaved semi-natural woodland and -4.00 linear units of species-rich hedgerow.

## 7 CONCLUSION AND RECOMMENDATIONS

### 7.1 Discussion

- 7.1.1 The Biodiversity Impact Assessment has identified that both the "Realistic Best Case" and the "Realistic Worst Case Overall Route (Submission Stage)" scenarios of the Proposed Development will result in residual losses of habitat value from within the Order Limits. In the "Realistic Best Case" Scenario, the residual impact is equivalent to -30.46 BU for habitats and -3.11 BU for linear features. For the "Realistic Worst Case Overall Route (Submission Stage)" Scenario, the residual impact is -35.62 BU for habitats and -6.11 BU for linear features. The "Realistic Worst Case Overall Route (Submission Stage)" Scenario therefore represents a 16.94% increase in BU loss than the "Realistic Best Case" scenario for habitats and a 96% increase in BU loss for linear features. The residual losses in habitats and linear features for both habitats, however, amounts to an overall net loss of biodiversity from the site contrary to the principles of national and local planning policy.
- 7.1.2 In accordance with the National Planning Policy Framework (NPPF), where a biodiversity impact cannot be avoided or mitigated then compensation measures must be provided. If this cannot be achieved on-site through compensatory habitat creation or restoration measures, such as those described in **Section 5**, then offsite compensation measures will be required (i.e. through a Biodiversity Offsetting scheme). The final BLMS, which must be substantially in accordance with the **OBLMS (7.6, APP-107)**, will be submitted to and approved by the relevant planning authority, in accordance with **Requirement 5** of the **dDCO (3.1; Rev 1)**. The **OBLMS (7.6, APP-107)** will be updated at Deadline 3 to include a commitment to 10% biodiversity net gain.

#### Biodiversity Net Gain

- 7.1.3 Biodiversity Offsetting is defined by Defra (2012) as '*conservation activities designed to deliver biodiversity benefits in compensation for losses, in a measurable way*'. As such, it differs from other forms of off-site compensation provision as it is underpinned by the Defra biodiversity metric calculator to ensure that any compensation provided is measurable and proportionate to the impacts identified. The residual losses of habitats and linear features identified in **Section 6** of this assessment therefore provides an indication of the baseline requirement for the minimum number of BU that the proposed Biodiversity Offset will need to deliver under the two development scenarios.

- 7.1.4 The minimum number BU for each development scenario are however only sufficient to compensate for the residual impacts on biodiversity (i.e. no net loss of Biodiversity). This does not constitute providing net gains for biodiversity as required in the NPPF. Additional habitats and linear features, above the minimum number of BU required, should be included within the proposed Biodiversity Offset to ensure compliance with national planning policy.
- 7.1.5 There is currently no policy guidance on what constitutes a reasonable threshold for delivering biodiversity net gain. In their recent Net Gain Consultation Proposals paper, Defra (2018) states that their initial view on this matter is that:
- “a 10% gain in biodiversity units would be a suitable level of net gain to require in order to provide a high degree of certainty that overall gains will be achieved, balanced against the need to ensure any costs to developers are proportionate.”*
- 7.1.6 The Applicant has committed to ensuring that the Biodiversity Offset Strategy is designed to deliver a minimum 10% net gain threshold. The **OBLMS (7.6, APP-107)** will be updated at Deadline 3 to include a commitment to 10% biodiversity net gain.
- 7.1.7 Net gain provision is measured against the sum of the gross impact of the development (i.e. the sum of impacts prior to on or off-site compensation). **Table 7.1** below details the net gain requirement for both the "Realistic Best Case" and the Realistic Worst Case Overall Route (Submission Stage)" and scenarios.

**Table 7.1 Net gain (10%) requirement (BU) for the "Realistic Best Case" and the "Realistic Worst Case Overall Route (Submission Stage)" Scenarios**

Scenario	Gross Unit loss (BU)	10% of Gross Unit Loss (BU)	Residual (net) loss (BU)	Net gain requirement (10% + Residual loss)
"Realistic Best Case" scenarios	-58.71	5.87	-30.46	<b>36.33</b>
Realistic Worst Case "Overall Route (Submission Stage)" "	-69.94	6.99	-35.62	<b>42.61</b>
<b>Linear</b>				
"Realistic Best Case" scenario	8.56	0.86	-3.11	<b>3.97</b>
Realistic Worst Case "Overall Route (Submission Stage)" "	14.80	1.48	-6.11	<b>7.59</b>

- 7.1.8 To ensure compliance with national planning policy, the offsetting requirement for the "Realistic Best Case" Scenario will therefore be **36.33 BU** and the linear

requirement of **3.97 BU**. For the Realistic Worst Case “Overall Route (Submission Stage) Scenario, the requirement would be **42.61 BU** for habitats and **7.59 BU** for linear features.

- 7.1.9 To contextualise this requirement in land area, Environment Bank estimates that suitable offset sites in region of 5.47 – 8.25 ha will be needed to deliver a net gain requirement of 36.33 BU for the "Realistic Best Case" Scenario (depending on the types of habitats provided and the available uplift at the offset site). For the "Realistic Worst Case Overall Route (Submission Stage)", it is estimated that offset sites in region of 6.37 – 8.92 ha will be needed to deliver the net gain requirement of 42.61 BU.

### **Habitats of Principal Importance**

- 7.1.10 Both scenarios of the Proposed Development will result in residual losses of OMH and swamp and with the assessed potential for connection routes to impact additional broad-leaved woodland. The “Realistic Worst Case Overall Route (Submission Stage)” Scenario will also result in the loss species-rich hedgerow. All of these are Habitats of Principal Importance. In accordance with the NERC Act 2006 and the NPPF, opportunities to conserve and enhance these habitats should be sought as part of the Proposed Development. The proposed biodiversity offset should therefore include, as a minimum, the creation, restoration or enhancement of OMH, swamp and broad-leaved woodland (and Species-rich hedgerow as required) equivalent to the residual losses of each habitat for the two development scenarios.
- 7.1.11 In accordance with net gain principles, opportunities to enhance Habitats of Principal Importance should also be a consideration for the biodiversity offset. The Defra metric plays a role in supporting this approach by providing a comparative value for all high, medium and low distinctiveness habitats; facilitating an up-trading of several low value biodiversity features to an equivalent high value feature. This ensures that the compensation delivered is transparent and proportionate whilst supporting local nature conservation objectives.
- 7.1.12 **Table 7.2** below indicates the BU requirement for each Habitat of Principal Importance together with the recommended conservation action for these habitats in the proposed biodiversity offset. In addition, the Table indicates the combined BU requirements of all medium and low distinctiveness habitats that could be up-traded in support of further creation and enhancement of Habitats of Principal Importance, which will be used to guide the offset search for REP.

**Table 7.2 BU requirement for Habitats of Principal Importance and other medium and low distinctiveness habitats for each development scenario, together with recommended conservation action for Proposed Biodiversity Offset**

Habitats impacted	BU Requirement (Realistic Best Case)	BU Requirement (Realistic Worst Case Overall Route (Submission Stage))	Recommended Conservation Action
Open Mosaic Habitat	17.17	16.53	Like-for-like
Swamp	0.13	0.13	Like-for-like
Broad-leaved Woodland	0.23	1.36	Like-for-like
Other high distinctiveness Features (Standing water)	0.32	0.33	Like-for-like
Medium distinctiveness habitats (e.g. semi-improved neutral grassland, scrub and broad-leaved plantation)	8.17	12.74	Trade up
Low distinctiveness habitat (e.g. tall ruderal, ephemeral/short perennial vegetation)	4.44	4.53	Trade up
Species-Rich Hedgerows	-	4.0 (linear)	Like-for-like
Other high distinctiveness linear features (wet ditch/dry ditch)	2.57 (linear)	1.57 (linear)	Like-for-like
Low distinctiveness linear features	0.54 (linear)	0.54 (linear)	Trade up

### Biodiversity Offsetting Standards

7.1.13 To secure the required net gains for biodiversity, the Biodiversity Offsetting Strategy must be prepared to agreed standards with regards to design, delivery, monitoring and enforcement. To accord with the Biodiversity Net Gain Principles (CIEEM *et al.* 2016) Business and Biodiversity Offsets Programme standards (BBOP 2012), Environment Bank recommends that the Biodiversity Offsetting Strategy should adhere to the following principles:

- The offset must be designed to provide a minimum level of biodiversity uplift to secure no net loss of biodiversity from the development. In this instance a minimum commitment to 10% net gain is agreed. This biodiversity enhancement must be in addition to any management practices already secured at the offset site.



- Offset sites suitable for compensation delivery should be located 'locally' to the development impacts. This should be ideally with the same Local Authority or within a 15 km radius of Application Site.
- Offset requirements should be used to undertake positive biodiversity management interventions to create or restore Habitats of Principal Importance or to improve the nature conservation status of a site or area of land by restoring, buffering, expanding or creating new habitats or ecosystems.
- Offset sites and schemes should be designed to contribute towards local biodiversity objectives and/or green infrastructure initiatives and enhance local ecological connectivity so that the value of the offset is greater than the sum of its parts.
- The Offset Scheme should be informed by a site survey and site history investigations to determine existing baseline conditions and appropriate management recommendations. The scheme must be underpinned by a long-term, adaptive management plan prepared and approved by the relevant planning authority prior to commencement of development.
- The Biodiversity Offsetting Strategy must have sufficient funds upfront to ensure full implementation of any habitat creation and establishment works together with habitat management for a minimum period of 25 years – as typically required by Local Planning Authorities nationally.
- The proposed Biodiversity Offsetting Strategy must be inclusive of a fully funded monitoring programme to review progress against the offsetting objectives, where necessary adapt the management plan and report back to the appropriate planning authority to ensure compliance with any relevant planning obligations.
- The proposed Biodiversity offsetting Strategy must include an enforceable delivery mechanism that will be in place to secure the 25 years of management.

7.1.14 A recommendation for these standards to be implemented as part of the proposed Biodiversity offsetting Strategy is included in **Section 7.2**.

## 7.2 Recommendations

7.2.1 The following recommendations are correct as of the date of this report. Should the Proposed Development scenarios be amended after this time, a review of the conclusions and recommendations will be required.

### Recommendation 1

7.2.2 Prior to the commencement of Development an Updated Biodiversity Impact Assessment should be carried out to update the findings of this report based on the final construction programme and BLMS. The findings of the report should be used to set out the compensation requirements for the Biodiversity Offsetting Strategy (see Recommendation 2 below).

### Recommendation 2

7.2.3 Prior to the commencement of development, the proposed Biodiversity Offsetting Strategy should be produced and agreed with the relevant planning authority; detailing the design, delivery, monitoring and enforcement provisions necessary to ensure that a net gain for biodiversity will be achieved as a result of the Proposed Development, together with a timetable for delivery. The Biodiversity Offsetting Strategy must identify a biodiversity offset site/s and scheme/s that (as a minimum):

- Includes habitat enhancement, restoration and creation proposals sufficient to provide an uplift in habitat value equivalent to residual biodiversity impact of the Proposed Development as determined by the final updated Biodiversity Impact Assessment (set out in Recommendation 1). This compensation requirement is currently estimated at 36.33-2 BU and 3.97 BU for linear features in the "Realistic Best Case" Scenario (inclusive of 10% Biodiversity Net Gain) or a habitat value equivalent to 42.61 BU and 7.59 BU for linear features for the Worst-Case Scenario.
- Includes provision for the enhancement, restoration of Habitats of Principal Importance equivalent to the value of that those to be impacted by the Proposed Development. Currently determined as OMH, broad-leaved semi-natural woodland, swamp and species-rich hedgerow.
- Ensures the delivery of Biodiversity Offsetting Standards to achieve net gain for biodiversity taking into account local offset delivery, an adaptive management plan and pre-survey, fully funded management for a 25 years period, a monitoring plan and an underpinning legal agreement and means of enforcement.

7.2.4 Once agreed, the Biodiversity offsetting Strategy should be delivered thereafter.

## 8 REFERENCES

- BRIG (ed. Ant Maddock) (2008). UK Biodiversity Action Plan; Priority Habitat Descriptions: *Open Mosaic Habitats on Previously Developed Land*.
- British Standards Institute (2013). BSI Standards Publication: BS 42020:2013: *Biodiversity – Code of practice for planning and development*
- Business and Biodiversity Offsets Programme (2012). Standards on Biodiversity offsets.
- CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain: Good practice principles for development.
- Department of Communities and Local Government (2019). National Planning Policy Framework.
- Department for Environment, Food and Rural Affairs (Defra) (2012). Technical Paper: *Proposed Metric for the Biodiversity Offsetting Pilot in England*
- Department for Environment, Food and Rural Affairs (Defra) (2018). Net gain – Consultation proposals.
- Ecosystem Markets Task Force (2013). Realising nature’s value: *The final report of the Ecosystem Markets Task Force*
- HM Government (2006). Natural Environment and Rural Communities (NERC) Act.
- HM Government (2011). Natural Environment White Paper: *The Natural Choice: securing the value of nature*.
- HM Government (2018). Planning Portal: *Planning Practice Guidance for the Natural Environment*
- HMSO (1997). The Hedgerows Regulations
- Natural England (2010). Higher Level Stewardship Farm Environment Plan (FEP) Manual: *Technical guidance on the completion of the FEP and identification, condition assessment and recording of HLS FEP features*.
- Peter Brett Associates (2018) Electrical Route Options Figure 5.2a and Figure 5.2Bb PBA, November 2018
- Peter Brett Associates (2018) Riverside Energy Park: Environmental Statement (ES), Chapter 11, Terrestrial Biodiversity, DRAFT
- Peter Brett Associates (2018) Phase 1 Habitat Survey Plans, Figures 11.3a-g
- Peter Brett Associates (2018) Application boundary revision O, GIS shapefile
- Peter Brett Associates (2018) Phase 1 habitat survey, GIS shapefiles



## 9 FIGURES

- Figure 1.1 – Riverside Energy Park: Application Site Boundary. The REP site and Temporary Construction Compound
- Figure 1.2 – Riverside Energy Park: Application Site Boundary. Electrical Connection Route West
- Figure 1.3 – Riverside Energy Park: Application Site Boundary. Electrical Connection Route East.
- Figure 2.1 – Riverside Energy Park: Realistic Best Case Impacts Rep Site and Temporary Construction Compound
- Figure 2.2 – Riverside Energy Park: Realistic Best Case Impacts Electrical Connection Route West.
- Figure 2.3 – Riverside Energy Park: Realistic Best Case Impacts Electrical Connection Route East.
- Figure 3.1 – Riverside Energy Park: Realistic Worst Case Overall Route (Submission Stage) Impacts REP Site and Temporary Construction Compound.
- Figure 3.2 – Riverside Energy Park: Realistic Worst Case Overall Route (Submission Stage) Electrical Connection Route West
- Figure 3.3 – Riverside Energy Park: Realistic Worst-Case Overall Route (Submission Stage) Electrical Connection Route East

Legend


 Application Boundary





Figure 1.2

Riverside Energy Park Application Site Boundary Electrical Connection Route West





Figure 1.3  
Riverside Energy Park Application Site Boundary Electrical  
Connection Route East

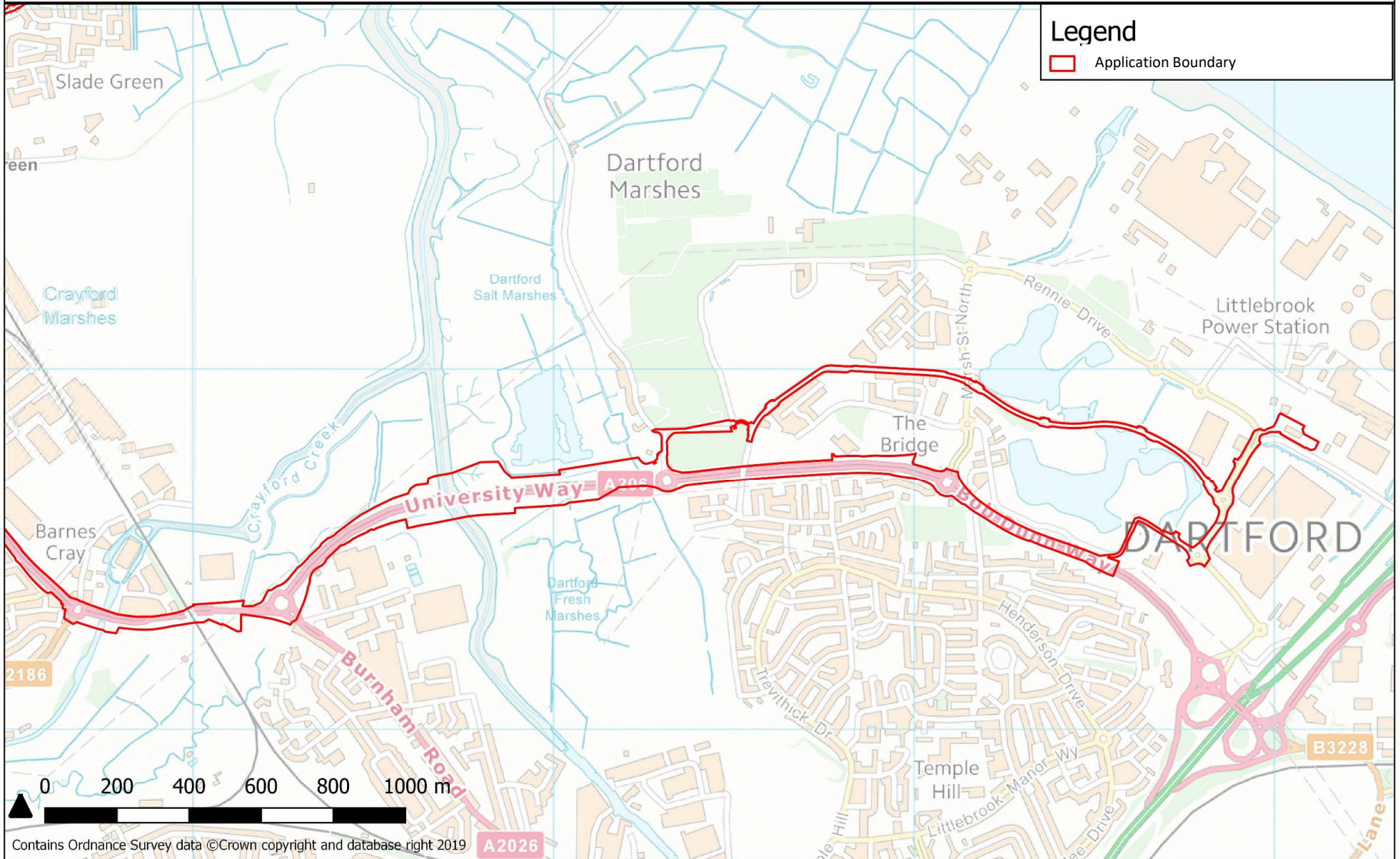


Figure 2.1  
Riverside Energy Park Realistic Best Case Impacts  
REP Site and Temporary Construction Compound

Legend

- Application Boundary
- Retained
- 10m Proportional Temporary Impact
- Known Temporary Impact
- Direct impact
- Excluded
- Retained RRRF
- Construction Compound Temporary Impact
- 10% Bund Temporary Impact

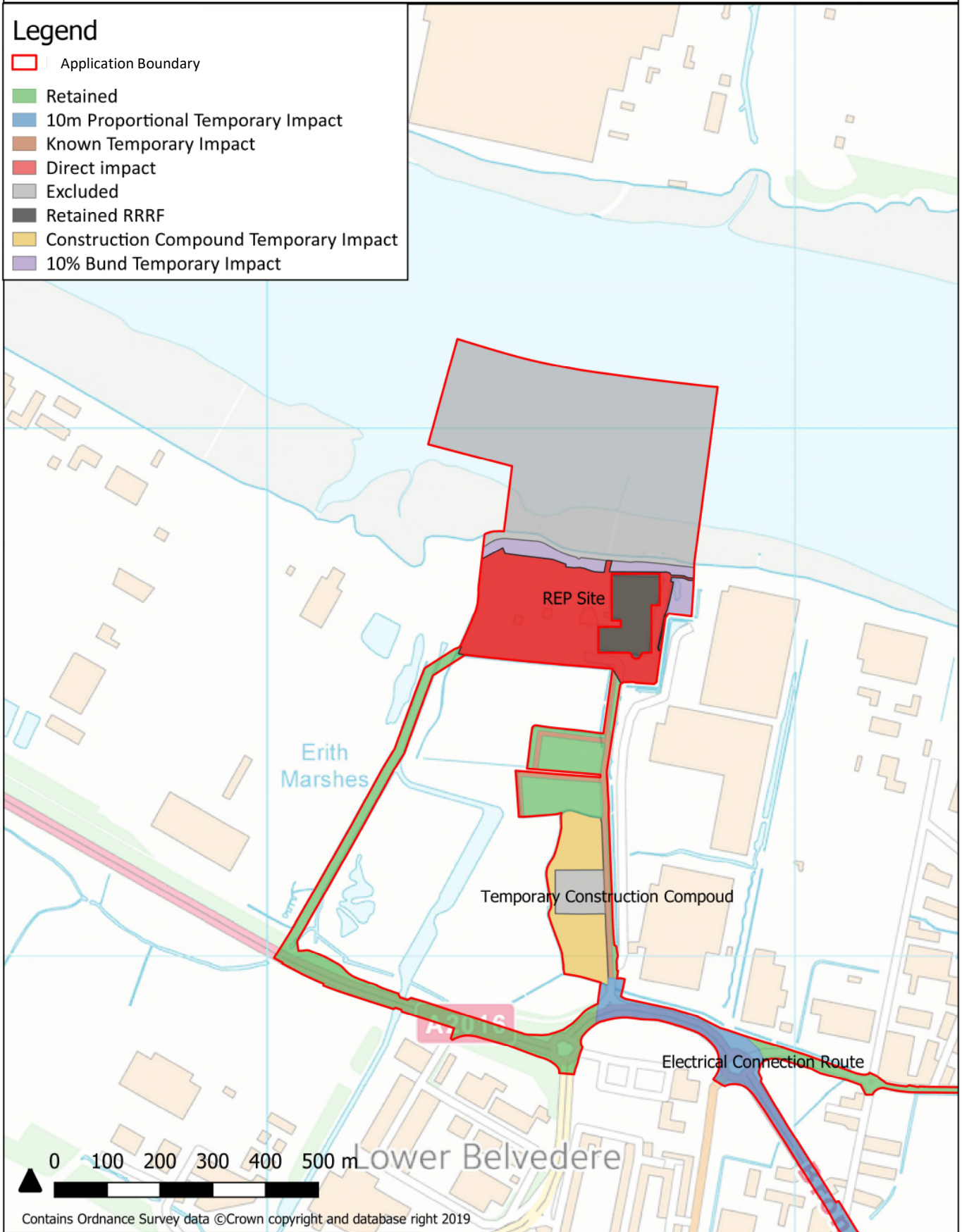




Figure 2.2  
Riverside Energy Park Realistic Best Case Impacts  
Electrical Connection Route West





Figure 2.3  
Riverside Energy Park Realistic Best Case Impacts  
Electrical Connection Route East

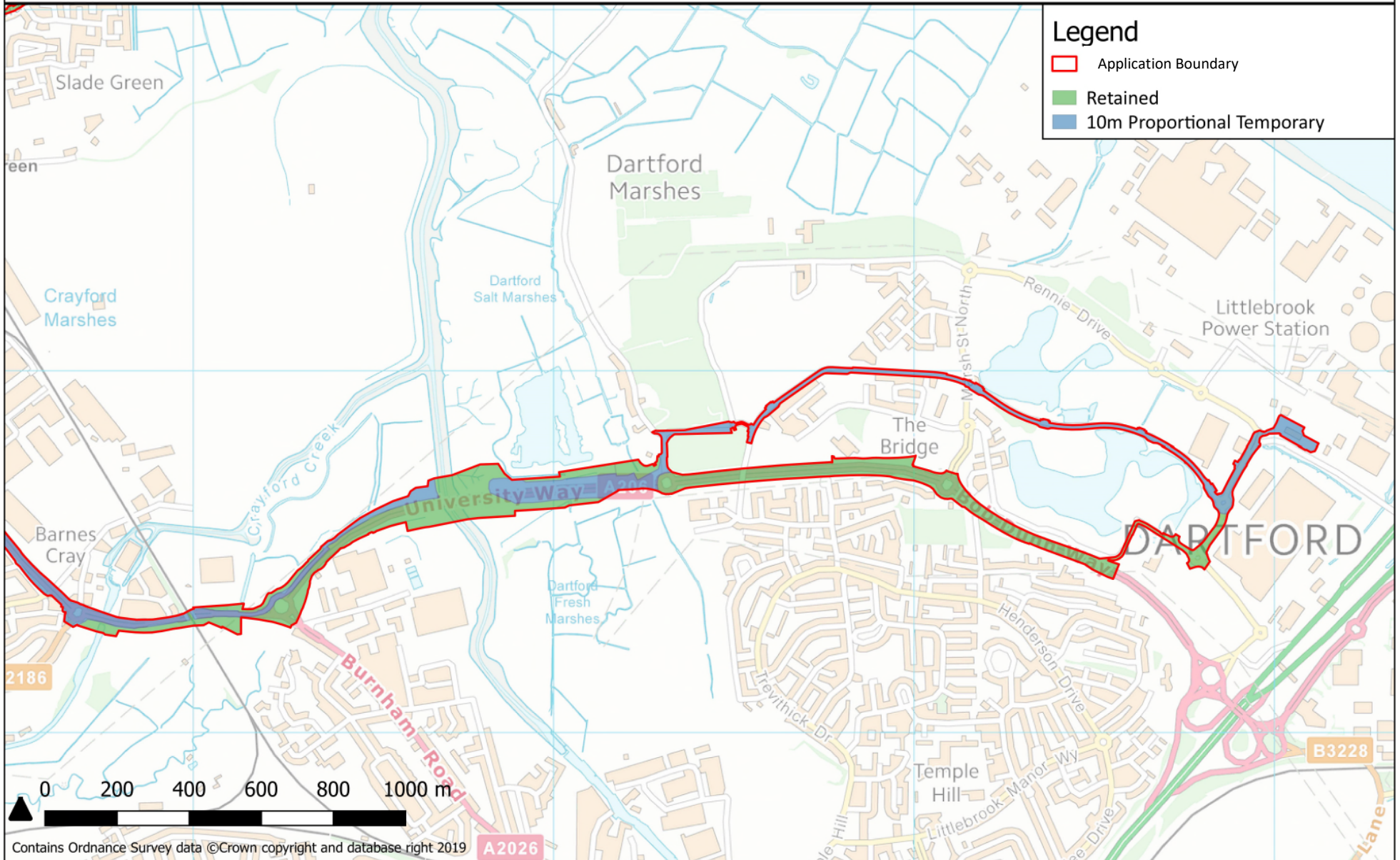


Figure 3.1  
Riverside Energy Park Realistic Worst Case Overall Route (Submission Stage) Impacts  
REP Site and Temporary Construction Compound

### Legend

- Application Boundary
- Retained
- 10m Proportional Temporary Impact
- Known Temporary Impact
- Direct impact
- Excluded
- Retained RRRF
- Construction Compound Temporary Impact
- 10% Bund Temporary Impact

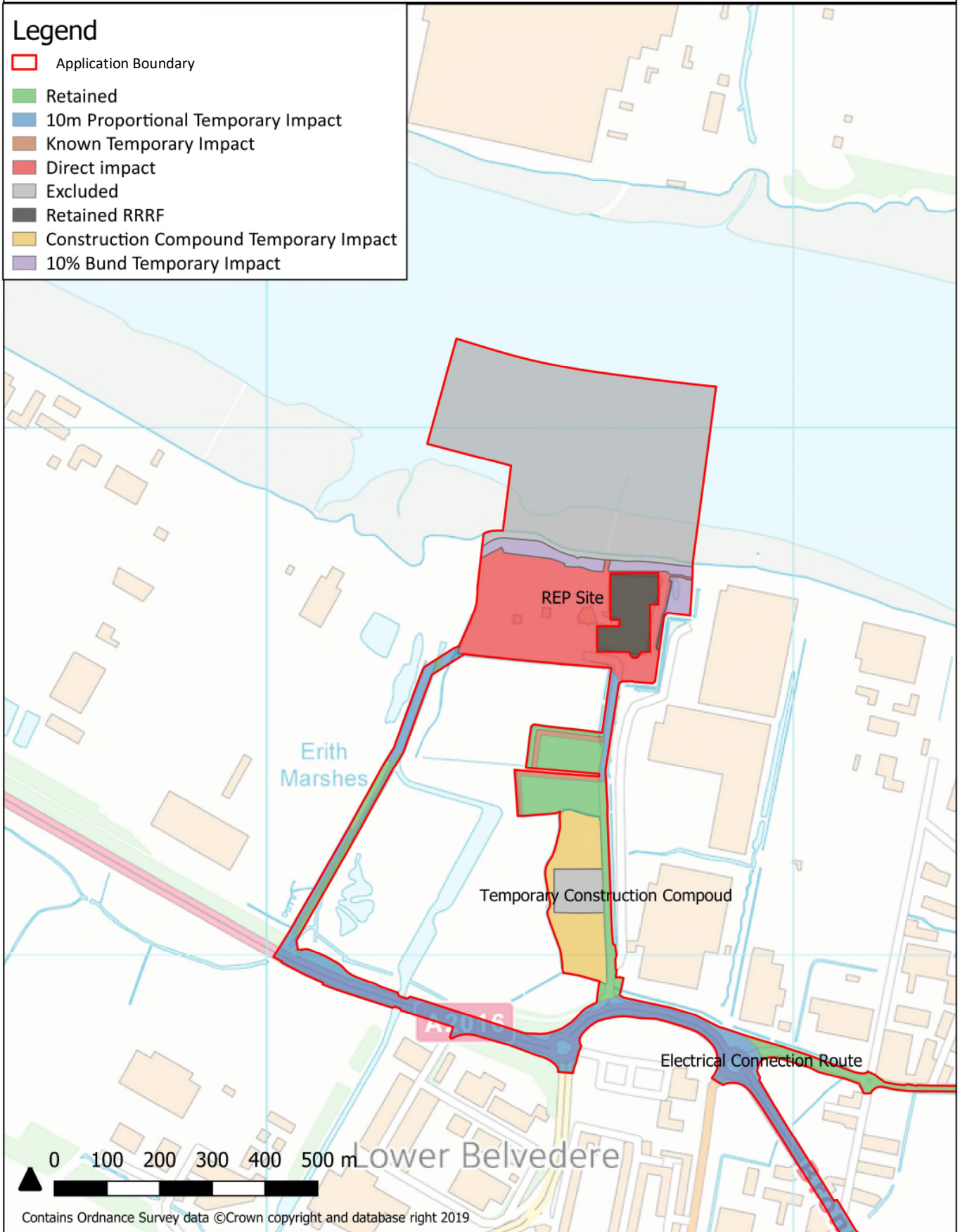


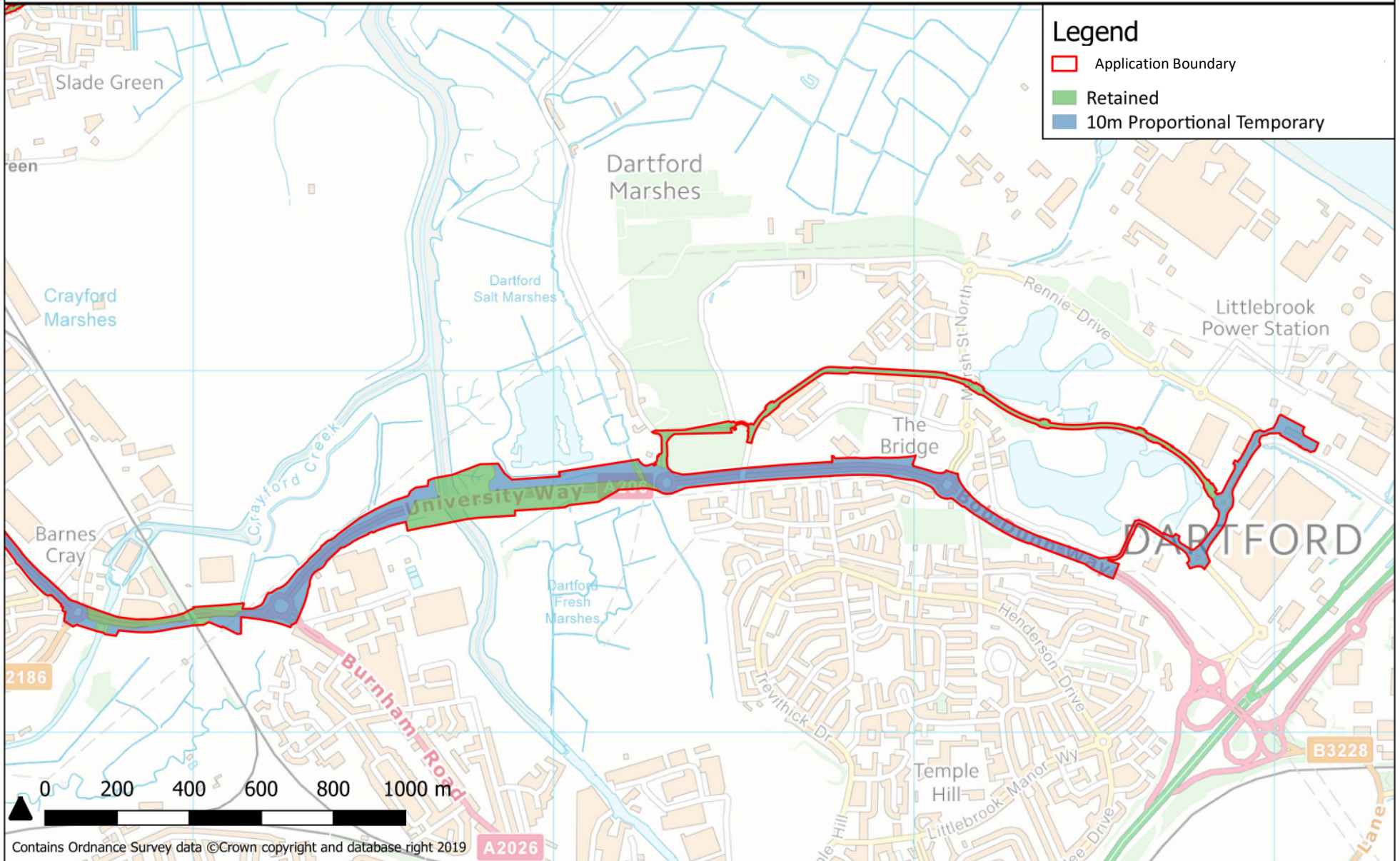


Figure 3.2  
Riverside Energy Park Realistic Worst Case Overall Route (Submission Stage) Impacts  
Electrical Connection Route West





Figure 3.3  
Riverside Energy Park Realistic Worst Case Overall Route (Submission Stage) Impacts  
Electrical Connection Route East



## Appendices

**Appendix A** – Biodiversity Impact Calculator for REP (habitats and linear features) for both the "Realistic Best Case" and "Realistic Worst Case Overall Route (Submission Stage)" scenarios.

**Appendix B** - Biodiversity Impact Calculator for the Main Temporary Construction Compound (habitats and linear features) for both the "Realistic Best Case" and "Realistic Worst Case Overall Route (Submission Stage)" scenarios.

**Appendix C** – Biodiversity Impact Calculator for the Electrical Connection Route Compound (habitats and linear features) in the "Realistic Best Case" scenario.

**Appendix D** - Biodiversity Impact Calculator for the Electrical Connection Route Compound (habitats and linear features) in the "Realistic Worst Case Overall Route (Submission Stage)" scenario.



## Appendix A – Biodiversity Calculator (Habitats and Linear) for the REP Site

Parcel ID	Existing site habitats Please enter <u>all</u> existing habitats within the development site.	Habitat area (ha)	Existing habitat distinctiveness		Existing habitat condition		Existing biodiversity units							
			Distinctive	Score	Condition	Score	Areas to be retained and protected during development			Habitats to be lost and subsequent recreation				
							Habitats to be maintained No further calculation	Habitats to be restored Enter target in section 3	New habitat creation Enter target in section 2	Area (ha)	Units lost			
	Direct Impacts and retained habitats	A		B		C	D	DxBxC = E	F	FxBxC = G	H	HxBxC = I	J	JxBxC = K
REP														
A2.1	Woodland: Scrub	0.148	Medium	4	Moderate	2							0.148	1.18
B2.2	Grassland: Other neutral grassland	0.312	Medium	4	Moderate	2							0.312	2.50
C3.1	Other Features: Tall ruderal	0.118	Low	2	Moderate	2							0.118	0.47
F1	Wetland: Other high distinctiveness wetland	0.004	High	6	Moderate	2							0.004	0.05
G1.1	Freshwater: Standing water	0.016	High	6	Good	3							0.016	0.29
J1.2	Grassland: Amenity grassland	0.400	Low	2	Poor	1							0.400	0.80
J3.6	Built Environment: Buildings and hardstanding	1.481	None	0	Poor	1	1.336	0.00					0.145	0.00
J4	Other Features: Bare ground	1.461	Low	2	Poor	1							1.461	2.92
J5	Built Environment: Buildings and hardstanding	2.845	None	0	Poor	1							2.845	0.00
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	0.464	High	6	Moderate	2							0.464	5.57
Bund														
B2.2	Grassland: Other neutral grassland	0.987	Medium	4	Moderate	2	0.673	5.38			0.215	1.72	0.099	0.79
B6	Grassland: Other medium distinctiveness grassland	0.096	Medium	4	Poor	1	0.038	0.15			0.048	0.19	0.010	0.04
C3.1	Other Features: Tall ruderal	0.005	Low	2	Moderate	2	0.005	0.02						
F1	Wetland: Other high distinctiveness wetland	0.074	High	6	Good	3	0.067	1.21					0.007	0.13
	<b>Total</b>	<b>8.411</b>					<b>2.119</b>	<b>6.76</b>	<b>0.00</b>	<b>0.00</b>	<b>0.263</b>	<b>1.91</b>	<b>6.029</b>	<b>14.74</b>
														$\Sigma(A \times B \times C)$
														Existing site biodiversity units
														23.41
														Gross biodiversity loss
														14.74

Parcel ID	Proposed habitats on site Development, mitigation and onsite compensation	Area (ha)	Target habitats distinctiveness		Target habitat condition		Existing value V2 (= 1)	Temporal factor		Difficulty factor		Biodiversity units generated
			Distinctive	Score	Condition	Score		Time (years)	Score	Difficulty	Score	
REP	1: Habitat recreation Enter target habitat to be recreated on area of development habitat impact	Q1		R1		S1						$(Q1 \times R1 \times S1) / T1 / U1$
J5	Built Environment: Buildings and hardstanding	5.913	None	0	Poor	1		5 years	1.2	n/a	1	0.00
Bund												
B2.2	Grassland: Other neutral grassland	0.076	Medium	4	Moderate	2		10 years	1.4	Medium	1.5	0.29
B6	Grassland: Other medium distinctiveness grassland	0.004	Medium	4	Poor	1		10 years	1.4	Medium	1.5	0.01
F1	Wetland: Other high distinctiveness wetland	0.007	High	6	Moderate	2		10 years	1.4	Medium	1.5	0.04
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	0.029	High	6	Moderate	2		10 years	1.4	Low	1	0.25
	<b>Total</b>	<b>6.029</b>										<b>0.59</b>
OMH	2: Habitat creation Enter new target habitat to be created on land protected during development. To be of higher value than existing	Q2		R2		S2	1.91					$((Q2 \times R2 \times S2) - V2) / T2 / U2$
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	0.263	High	6	Moderate	2	1.91	10 years	1.4	Low	1	0.89
												Trading down correction
												0.00
												Onsite compensation gain
												1.47
												NBB = OCG - GBL
												Net biodiversity balance
												-13.26
												Percentage of gross impact loss
												90.00
												Percentage of site biodiversity loss
												56.65



Existing biodiversity units												
Lengths to be retained and protected during												
Existing site habitats Please enter all existing linear features within the development site.		Linear distinctiveness		Linear condition		Habitats to be maintained No further calculation		Habitats to be restored Enter target below		Habitats to be lost		
T. Note	Existing linear habitat baseline	Habitat length (km)	Distinctiveness	Score	Condition	Score	Length (km)	Existing value	Length (km)	Existing value	Length (km)	Existing value
Direct Impacts and retained features							A x B x C = D		A x B x E = F		A x B x G = H	
REP				A		B	C		E	F	G	H
G2.1	Ditches: Wet Ditch	0.08	High	6	Moderate	2					0.08	0.96
J2.4	Other boundary: Fence	2.31	None	0	Poor	1	0.43	0.00			1.88	0.00
	Total	2.39				Total	0.44	0.12	0.00	0.00	1.96	0.96
											Site Linear Value	1.08
											Linear Impact Score (LIS)	-0.96

Proposed linear features on site Development, mitigation and onsite compensation												
Target habitat		Area (ha)	Target habitats distinctiveness		Target habitat condition		Time till target condition		Difficulty of creation / restoration		Linear biodiversity value	
T. Note	Target habitat	N	Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score	/ Q / R	
		Total		O		P		Q		R		
	Total	0.00										
											Linear Mitigation Score (LMS)	0.00
											LBS = LMS - LIS	
											Linear Biodiversity Impact Score	-0.96
											Percentage of linear impact loss	-100.00



## Appendix B - Biodiversity Calculator (Habitats and Linear) for the Main Temporary Construction Compound

Parcel ID	Existing site habitats		Existing habitat distinctiveness		Existing habitat condition		Existing biodiversity units					
	Please enter all existing habitats within the development site.						Areas to be retained and protected during development		Habitats to be lost and subsequent recreation			
	Existing habitat baseline	Habitat area (ha)	Distinctive	Score	Condition	Score	Habitats to be maintained No further calculation	Habitats to be restored Enter target in section 3	New habitat creation Enter target in section 2	Habitats to be lost and subsequent recreation Enter target in section 1		
	A	B	C	D	DxBxC = E	F	FxBxC = G	H	HxBxC = I	J	JxBxC = K	
<b>Direct Impacts and retained habitats</b>												
<b>Main temporary construction compound</b>												
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	2.140	High	6	Moderate	2					2.140	25.68
JS	Built Environment: Buildings and hardstanding	0.020	None	0	Poor	1				0.020	0.00	
	<b>Total</b>	<b>2.160</b>				<b>Total</b>	<b>0.000</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>	<b>25.68</b>
										Existing site biodiversity units		$\Sigma(A \times B \times C)$
												25.68
<b>Indirect negative impacts</b>												
Including off site habitats												
	M	B	C	Value of loss from indirect impacts $M \times A \times B = OI, OII$		OI - OII						
Before												
After												
	<b>Total</b>	<b>0.00</b>					<b>0.00</b>					
										Gross biodiversity loss		<b>GBL = L + P</b>
												<b>25.68</b>

Parcel ID	Proposed habitats on site		Target habitats distinctiveness		Target habitat condition		Temporal factor		Difficulty factor		Biodiversity units generated	
	Development, mitigation and onsite compensation						Time (years)	Score	Difficulty	Score		
	Target habitat	Area (ha)	Distinctive	Score	Condition	Score						
	1: Habitat recreation	Q1	R1	S1			T1	U1	$(Q1 \times R1 \times S1) / T1 / U1$			
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	2.140	High	6	Moderate	2	15 years	1.7	Low	1	15.11	
JS	Built Environment: Buildings and hardstanding	0.020	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
	<b>Total</b>	<b>2.160</b>									<b>15.11</b>	
											Trading down correction	0.00
											<b>Onsite compensation gain</b>	<b>15.11</b>
											<b>NBB = OCG - GBL</b>	<b>-10.57</b>
											<b>Net biodiversity balance</b>	<b>-10.57</b>
											Percentage of gross impact loss	41.18
											Percentage of site biodiversity loss	41.18



							Existing biodiversity units							
Existing site habitats		Linear distinctiveness			Linear condition		Lengths to be retained and protected during							
Please enter all existing linear features within the development site.							Habitats to be maintained No further calculation		Habitats to be restored Enter target below		Habitats to be lost			
T. Note	Existing linear habitat baseline	Habitat length (km)	Distinctiveness	Score	Condition	Score	Length (km)	Existing value	Length (km)	Existing value	Length (km)	Existing value		
Direct Impacts and retained features							A	B	C	D	E	F	G	H
Main Temporary Construction Compound														
G1	Ditches: Wet Ditch	0.18	High	6	Moderate	2	0.01	0.12			0.17	2.04		
J2.6	Ditches: Dry Ditch	0.29	Low	2	Good	3					0.29	1.74		
Total		0.47				Total	0.01	0.12	0.00	0.00	0.46	3.78		
											Site Linear Value	3.90		
											Linear Impact Score (LIS)	-3.78		

Proposed linear features on site			Target habitats distinctiveness		Target habitat condition		Time till target condition		Difficulty of creation / restoration		Linear biodiversity value	
Development, mitigation and onsite compensation												
T. Note	Target habitat	Area (ha)	Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score	/ Q / R	
Main Temporary Construction Compound			N	O	P		Q		R			
G1	Ditches: Wet Ditch	0.17	High	6	Moderate	2	10 years	1.4	Low	1	1.46	
J2.6	Ditches: Dry Ditch	0.29	Low	2	Good	3	10 years	1.4	Low	1	1.24	
Total		0.46										
Total		0.00										
											Trading down correction value	0.00
											Linear Mitigation Score (LMS)	2.70
											LBIS = LMS - LIS	
											Linear Biodiversity Impact Score	-1.08
											Percentage of linear impact loss	-28.57



## Appendix C - Biodiversity Calculator (Habitats and Linear) for the Electrical Connection Realistic Best Case

Parcel ID	Existing site habitats		Existing habitat distinctiveness		Existing habitat condition		Existing biodiversity units							
	Please enter all existing habitats within the development site.		Distinctive	Score	Condition	Score	Areas to be retained and <u>protected</u> during development		Habitats to be <u>restored</u>		New habitat <u>creation</u>		Habitats to be <u>lost</u> and subsequent <u>recreation</u>	
	Existing habitat baseline	Habitat area (ha)					No further calculation	Units maintained	Enter target in section 3	Enter target in section 2	Enter target in section 1	Enter target in section 1		
Direct Impacts and retained habitats		A	B	C	D	DxBxC = E	F	FxBxC = G	H	HxBxC = I	J	JxBxC = K		
<b>Section A - B Likely</b>														
A2.1	Woodland: Scrub	0.044	Medium	4	Moderate	2	0.044	0.35						
B6	Grassland: Other medium distinctiveness grassland	0.604	Medium	4	Moderate	2	0.604	4.83						
C3.1	Other Features: Tall ruderal	0.214	Medium	4	Moderate	2	0.214	1.71						
F1	Wetland: Other high distinctiveness wetland	0.205	High	6	Moderate	2	0.205	2.46						
G1	Freshwater: Standing water	0.020	High	6	Moderate	2	0.020	0.24						
G1.1	Freshwater: Other high distinctiveness freshwater	0.212	High	6	Moderate	2	0.212	2.54						
J4	Other Features: Bare ground	0.048	Low	2	Poor	1	0.048	0.10						
J5	Built Environment: Buildings and hardstanding	0.009	None	0	Poor	1	0.009	0.00						
<b>Section B-D Likely</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.461	High	6	Moderate	2	0.461	5.53						
A2.1	Woodland: Scrub	0.023	Medium	4	Moderate	2	0.023	0.18						
G1	Freshwater: Standing water	0.006	High	6	Moderate	2	0.006	0.07						
J1.2	Grassland: Amenity grassland	0.389	Low	2	Poor	1	0.389	0.78						
J5	Built Environment: Buildings and hardstanding	1.669	None	0	Poor	1	1.669	0.00						
<b>Section C - D Likely</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.010	High	6	Moderate	2	0.000					0.010	0.12	
A2.1	Woodland: Scrub	0.006	Medium	4	Moderate	2	0.000					0.006	0.05	
B2.2	Grassland: Other neutral grassland	0.137	Medium	4	Moderate	2	0.100	0.80				0.037	0.30	
B6	Grassland: Other medium distinctiveness grassland	0.029	Medium	4	Poor	1	0.015	0.06				0.014	0.06	
C3.1	Other Features: Tall ruderal	0.054	Low	2	Moderate	2	0.001	0.00				0.053	0.21	
G1.1	Freshwater: Other high distinctiveness freshwater	0.065	High	6	Moderate	2	0.054	0.65				0.011	0.13	
J1.2	Grassland: Amenity grassland	0.002	Low	2	Poor	1	0.000					0.002	0.00	
J1.4	Other Features: Other medium distinctiveness feature	0.016	Medium	4	Moderate	2	0.000					0.016	0.13	
J5	Built Environment: Buildings and hardstanding	0.581	None	0	Poor	1	0.252	0.00				0.329	0.00	
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	2.465	High	6	Moderate	2	1.824	21.89				0.641	7.69	
<b>Section D - E Likely</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.004	High	6	Moderate	2	0.003	0.04				0.001	0.01	
J1.2	Grassland: Amenity grassland	0.400	Low	2	Poor	1	0.309	0.62				0.091	0.18	
J1.4	Other Features: Other medium distinctiveness feature	0.011	Medium	4	Moderate	2	0.009	0.07				0.002	0.02	
J5	Built Environment: Buildings and hardstanding	1.053	None	0	Poor	1	0.814	0.00				0.239	0.00	
<b>Section E - F Likely</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.070	High	6	Moderate	2	0.048	0.58				0.022	0.26	
A2.1	Woodland: Scrub	0.063	Medium	4	Moderate	2	0.043	0.34				0.020	0.16	
B2.2	Grassland: Other neutral grassland	0.062	Medium	4	Moderate	2	0.042	0.34				0.020	0.16	
B6	Grassland: Other medium distinctiveness grassland	0.060	Medium	4	Poor	1	0.041	0.16				0.019	0.08	
C3.1	Other Features: Tall ruderal	0.023	Low	2	Moderate	2	0.016	0.06				0.007	0.03	
J1.2	Grassland: Amenity grassland	0.976	Low	2	Poor	1	0.663	1.33				0.313	0.63	
J1.3	Other Features: Other low distinctiveness feature	0.099	Low	2	Poor	1	0.067	0.13				0.032	0.06	
J1.4	Other Features: Other medium distinctiveness feature	0.434	Medium	4	Moderate	2	0.295	2.36				0.139	1.11	
J4	Other Features: Bare ground	0.078	Low	2	Poor	1	0.053	0.11				0.025	0.05	
J5	Built Environment: Buildings and hardstanding	12.449	None	0	Poor	1	8.454	0.00				3.995	0.00	



<b>Section F - G Likely</b>														
J1.2	Grassland: Amenity grassland	0.339	Low	2	Poor	1	0.238	0.48				0.101	0.20	
J1.4	Other Features: Other medium distinctiveness feature	0.006	Medium	4	Moderate	2	0.004	0.03				0.002	0.02	
J5	Built Environment: Buildings and hardstanding	3.110	None	0	Poor	1	2.184	0.00				0.926	0.00	
<b>Section G - H Likely</b>														
A2.1	Woodland: Scrub	0.211	Medium	4	Moderate	2	0.211	1.69						
B2.2	Grassland: Other neutral grassland	0.177	Medium	4	Moderate	2	0.177	1.42						
C3.1	Other Features: Tall ruderal	0.031	Low	2	Moderate	2	0.031	0.12						
G2	Freshwater: Rivers and streams	0.037	High	6	Good	3	0.037	0.67						
J1.2	Grassland: Amenity grassland	0.104	Low	2	Poor	1	0.094	0.19				0.010	0.02	
J4	Other Features: Bare ground	0.010	Low	2	Poor	1	0.010	0.02						
J5	Built Environment: Buildings and hardstanding	0.665	None	0	Poor	1	0.390	0.00				0.275	0.00	
<b>Section H - I Likely</b>														
A2.1	Woodland: Scrub	0.026	Medium	4	Moderate	2	0.026	0.21						
A2.2	Woodland: Scrub	0.003	Medium	4	Moderate	2	0.003	0.02						
B2.2	Grassland: Other neutral grassland	0.081	Medium	4	Moderate	2	0.081	0.65						
B6	Grassland: Other medium distinctiveness grassland	0.005	Medium	4	Poor	1	0.005	0.02						
C3.1	Other Features: Tall ruderal	0.030	Low	2	Moderate	2	0.030	0.12						
J1.2	Grassland: Amenity grassland	0.180	Low	2	Poor	1	0.180	0.36						
J4	Other Features: Bare ground	0.126	Low	2	Poor	1	0.126	0.25						
J5	Built Environment: Buildings and hardstanding	0.401	None	0	Poor	1	0.275	0.00				0.126	0.00	
<b>Section I - J Likely</b>														
A1.1.2	Woodland: Broadleaved plantation	0.300	Medium	4	Moderate	2	0.278	2.22				0.022	0.18	
A2.1	Woodland: Scrub	0.561	Medium	4	Moderate	2	0.381	3.05				0.180	1.44	
B2.2	Grassland: Other neutral grassland	2.548	Medium	4	Moderate	2	2.285	18.28				0.263	2.10	
B5	Grassland: Marsh/marshy grassland	0.331	High	6	Moderate	2	0.331	3.97						
B6	Grassland: Other medium distinctiveness grassland	2.047	Medium	4	Poor	1	1.865	7.46				0.182	0.73	
C3.1	Other Features: Tall ruderal	0.005	Low	2	Moderate	2	0.005	0.02						
F1	Wetland: Other high distinctiveness wetland	0.883	High	6	Good	3	0.883	15.89						
G2	Freshwater: Rivers and streams	0.109	High	6	Good	3	0.109	1.96						
H2.6	Coastal & Estuary: Coastal saltmarsh	0.133	High	6	Good	3	0.133	2.39						
J1.2	Grassland: Amenity grassland	0.177	Low	2	Poor	1	0.176	0.35				0.001	0.00	
J4	Other Features: Bare ground	0.117	Low	2	Poor	1	0.117	0.23						
J5	Built Environment: Buildings and hardstanding	3.182	None	0	Poor	1	2.610	0.00				0.572	0.00	
<b>Section J - K Likely</b>														
A2.1	Woodland: Scrub	1.151	Medium	4	Good	3	1.064	12.77				0.087	1.04	
B2.2	Grassland: Other neutral grassland	0.116	Medium	4	Moderate	2	0.116	0.93						
B6	Grassland: Other medium distinctiveness grassland	0.827	Medium	4	Moderate	2	0.704	5.63				0.123	0.98	
J1.2	Grassland: Amenity grassland	0.179	Low	2	Poor	1	0.083	0.17				0.096	0.19	
J3.6	Built Environment: Buildings and hardstanding	0.092	None	0	Poor	1	0.064	0.00				0.028	0.00	
J4	Other Features: Bare ground	0.038	Low	2	Poor	1	0.038	0.08						
J5	Built Environment: Buildings and hardstanding	7.996	None	0	Poor	1	6.163	0.00				1.833	0.00	
<b>Section K - L Likely</b>														
J1.2	Grassland: Amenity grassland	0.043	Low	2	Poor	1	0.030	0.06				0.013	0.03	
J3.6	Built Environment: Buildings and hardstanding	0.092	None	0	Poor	1	0.064	0.00				0.028	0.00	
J5	Built Environment: Buildings and hardstanding	1.187	None	0	Poor	1	0.822	0.00				0.365	0.00	
<b>Alternative Route Option</b>														
J1.2	Grassland: Amenity grassland	0.050	Low	2	Poor	1	0.050	0.10						
J1.4	Other Features: Other medium distinctiveness feature	0.011	Medium	4	Moderate	2	0.011	0.09						
J4	Other Features: Bare ground	0.018	Low	2	Poor	1	0.018	0.04						
J5	Built Environment: Buildings and hardstanding	8.914	None	0	Poor	1	8.914	0.00						
<b>Total</b>		<b>59.700</b>					<b>48.423</b>	<b>130.27</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>11.277</b>	<b>18.37</b>
												Existing site biodiversity units	148.65	
												<b>Gross biodiversity loss</b>	<b>18.37</b>	





Parcel ID	Proposed habitats on site Development, mitigation and onsite compensation		Target habitats distinctiveness		Target habitat condition		Temporal factor		Difficulty factor		Biodiversity units generated
	Target habitat	Area (ha)	Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score	
	<b>1: Habitat recreation</b> Enter target habitat to be recreated on area of development habitat impact										(Q1 x R1 x S1) / T1 / U1
		Q1		R1		S1		T1		U1	
	<b>Section C - D Likely</b>										
A1.1.2	Woodland: Broadleaved plantation	0.010	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.03
A2.1	Woodland: Scrub	0.006	Medium	4	Moderate	2	10 years	1.4	Low	1	0.03
B2.2	Grassland: Other neutral grassland	0.037	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.14
B6	Grassland: Other medium distinctiveness grassland	0.014	Medium	4	Poor	1	10 years	1.4	Medium	1.5	0.03
C3.1	Other Features: Tall ruderal	0.053	Low	2	Moderate	2	5 years	1.2	Low	1	0.18
G1.1	Freshwater: Other high distinctiveness freshwater	0.011	High	6	Moderate	2	15 years	1.7	Medium	1.5	0.05
J1.2	Grassland: Amenity grassland	0.002	Low	2	Poor	1	5 years	1.2	Low	1	0.00
J1.4	Other Features: Other medium distinctiveness feature	0.016	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.07
J5	Built Environment: Buildings and hardstanding	0.329	None	0	Poor	1	5 years	1.2	n/a	1	0.00
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	0.641	High	6	Moderate	2	10 years	1.4	Low	1	5.49
	<b>Section D - E Likely</b>										
A1.1.2	Woodland: Broadleaved plantation	0.001	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.00
J1.2	Grassland: Amenity grassland	0.091	Low	2	Poor	1	5 years	1.2	Low	1	0.15
J1.4	Other Features: Other medium distinctiveness feature	0.002	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.01
J5	Built Environment: Buildings and hardstanding	0.239	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section E - F Likely</b>										
A1.1.2	Woodland: Broadleaved plantation	0.022	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.06
A2.1	Woodland: Scrub	0.020	Medium	4	Moderate	2	10 years	1.4	Low	1	0.11
B2.2	Grassland: Other neutral grassland	0.020	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.08
B6	Grassland: Other medium distinctiveness grassland	0.019	Medium	4	Poor	1	10 years	1.4	Medium	1.5	0.04
C3.1	Other Features: Tall ruderal	0.007	Low	2	Moderate	2	5 years	1.2	Low	1	0.02
J1.2	Grassland: Amenity grassland	0.313	Low	2	Poor	1	5 years	1.2	Low	1	0.52
J1.3	Other Features: Other low distinctiveness feature	0.032	Low	2	Poor	1	5 years	1.2	Low	1	0.05
J1.4	Other Features: Other medium distinctiveness feature	0.139	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.62
J4	Other Features: Other low distinctiveness feature	0.025	Low	2	Poor	1	5 years	1.2	Low	1	0.04
J5	Built Environment: Buildings and hardstanding	3.995	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section F - G Likely</b>										
J1.2	Grassland: Amenity grassland	0.101	Low	2	Poor	1	5 years	1.2	Low	1	0.17
J1.4	Other Features: Other medium distinctiveness feature	0.002	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.01
J5	Built Environment: Buildings and hardstanding	0.926	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section G - H Likely</b>										
J1.2	Grassland: Amenity grassland	0.010	Low	2	Poor	1	5 years	1.2	Low	1	0.02
J5	Built Environment: Buildings and hardstanding	0.275	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section H - I Likely</b>										
J5	Built Environment: Buildings and hardstanding	0.126	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section I - J Likely</b>										
A1.1.2	Woodland: Broadleaved plantation	0.022	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.06
A2.1	Woodland: Scrub	0.180	Medium	4	Moderate	2	10 years	1.4	Low	1	1.03
B2.2	Grassland: Other neutral grassland	0.263	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	1.00
B6	Grassland: Other medium distinctiveness grassland	0.182	Medium	4	Poor	1	10 years	1.4	Medium	1.5	0.35
J1.2	Grassland: Amenity grassland	0.001	Low	2	Poor	1	5 years	1.2	Low	1	0.00
J5	Built Environment: Buildings and hardstanding	0.572	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section J - K Likely</b>										
A2.1	Woodland: Scrub	0.087	Medium	4	Good	3	10 years	1.4	Low	1	0.75
B6	Grassland: Other medium distinctiveness grassland	0.123	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.47
J1.2	Grassland: Amenity grassland	0.096	Low	2	Poor	1	5 years	1.2	Low	1	0.16
J3.6	Built Environment: Buildings and hardstanding	0.028	None	0	Poor	1	5 years	1.2	n/a	1	0.00
J5	Built Environment: Buildings and hardstanding	1.833	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Section K - L Likely</b>										
J1.2	Grassland: Amenity grassland	0.013	Low	2	Poor	1	5 years	1.2	Low	1	0.02
J3.6	Built Environment: Buildings and hardstanding	0.028	None	0	Poor	1	5 years	1.2	n/a	1	0.00
J5	Built Environment: Buildings and hardstanding	0.365	None	0	Poor	1	5 years	1.2	n/a	1	0.00
	<b>Total</b>	<b>11.277</b>									<b>11.76</b>
											<b>Total</b>
											Trading down correction
											0.00
											<b>Onsite compensation gain</b>
											<b>11.76</b>
											NBB = OCG - GBL
											<b>Net biodiversity balance</b>
											<b>-6.61</b>
											Percentage loss/gain of gross impact
											-36.0
											Percentage loss/gain of site biodiversity value
											-4.4



T. Note	Existing site habitats		Linear distinctiveness		Linear condition		Lengths to be retained and protected during				Habitats to be lost		
	Existing linear habitat baseline	Habitat length (km)	Distinctiveness	Score	Condition	Score	Habitats to be maintained Length (km)	Existing value	Habitats to be restored Length (km)	Existing value	Length (km)	Existing value	
Direct Impacts and retained features				A		B	C	A x B x C = D	E	A x B x E = F	G	A x B x G = H	
<b>Section A- B</b>													
G1	Ditches: Wet Ditch	0.29	High	6	Moderate	2	0.29	3.48					
J2.1.1	Hedges/trees: Hedgerows	0.54	High	6	Good	3	0.54	9.72					
J2.4	Other boundary: Fence	0.57	None	0	Poor	1	0.57	0.00					
<b>Section C-D</b>													
G1	Ditches: Wet Ditch	0.43	High	6	Moderate	2	0.13	1.56			0.30	3.60	
G2.1	Ditches: Wet Ditch	0.13	High	6	Good	3	0.13	2.34					
<b>Section E-F</b>													
J2.4	Other boundary: Fence	0.01	None	0	Poor	1					0.01	0.00	
J2.5	Other boundary: Wall	0.11	Low	2	Poor	1					0.11	0.22	
<b>Section G-H</b>													
J2.1.2	Hedges/trees: Hedgerows	0.02	High	6	Moderate	2	0.02	0.24					
J2.5	Other boundary: Wall	0.02	Low	2	Poor	1	0.02	0.04					
Total		2.12				Total	1.70	17.38	0.00	0.00	0.42	3.82	
		0.00					M	0.00				HIS = J + M	
											<b>Linear Impact Score (LIS)</b>		<b>-3.82</b>

T. Note	Proposed linear features on site Development, mitigation and onsite compensation		Target habitats distinctiveness		Target habitat condition		Time till target condition		Difficulty of creation / restoration		Linear biodiversity value		
	Target habitat	Area (ha)	Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score	(N x O x P) / Q / R		
		N		O		P		Q		R			
<b>Main Temporary Construction Compound</b>													
G1	Ditches: Wet Ditch		High	6	Good	3	10 years	1.4	Low	1	0.00		
					Good	3	10 years	1.4	Low	1			
<b>Section C-D Likely</b>													
G1	Ditches: Wet Ditch	0.30	High	6	Moderate	2	10 years	1.4	Low	1	2.57		
<b>Section E-F</b>													
J2.4	Other boundary: Fence	0.01	None	0	Poor	1	5 years	1.2	n/a	1	0.00		
J2.5	Other boundary: Wall	0.11	Low	2	Poor	1	5 years	1.2	n/a	1	0.18		
Total		0.42											
											<b>Linear Mitigation Score (LMS)</b>	2.75	
											<b>LBIS = LMS - LIS</b>		
											<b>Linear Biodiversity Impact Score</b>	<b>-1.07</b>	
											Percentage of linear impact loss		-27.89





## Appendix D Biodiversity Calculator (Habitats and Linear) for the Electrical Connection “Realistic Worst-Case Overall Route (Submission Stage)”

Parcel ID	Existing site habitats		Existing habitat distinctiveness		Existing habitat condition		Existing biodiversity units					Habitats to be lost and subsequent recreation		
	Please enter all existing habitats within the development site.		Distinctive	Score	Condition	Score	Areas to be retained and protected during development		Habitats to be maintained		Habitats to be restored		New habitat creation	
	Existing habitat baseline	Habitat area (ha)					No further calculation	Units maintained	Area (ha)	Units to be enhanced	Area (ha)	Units to be enhanced	Enter target in section 3	Enter target in section 2
Direct Impacts and retained habitats		A	B	C	D	DxBxC = E	F	FxBxC = G	H	HxBxC = I	J	JxBxC = K		
<b>Section A - B Worst Case</b>														
A2.1	Woodland: Scrub	0.044	Medium	4	Moderate	2	0.013	0.10					0.031	0.25
B6	Grassland: Other medium distinctiveness grassland	0.604	Medium	4	Moderate	2	0.181	1.45					0.423	3.38
C3.1	Other Features: Tall ruderal	0.214	Medium	4	Moderate	2	0.064	0.51					0.150	1.20
F1	Wetland: Other high distinctiveness wetland	0.205	High	6	Moderate	2	0.205	2.46						
G1	Freshwater: Standing water	0.020	High	6	Moderate	2	0.020	0.24						
G1.1	Freshwater: Other high distinctiveness freshwater	0.212	High	6	Moderate	2	0.212	2.54						
J4	Other Features: Bare ground	0.048	Low	2	Poor	1	0.014	0.03					0.034	0.07
J5	Built Environment: Buildings and hardstanding	0.009	None	0	Poor	1	0.003	0.00					0.006	0.00
<b>Section B - D Worst Case</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.461	High	6	Moderate	2	0.338	4.06					0.123	1.48
A2.1	Woodland: Scrub	0.023	Medium	4	Moderate	2	0.017	0.14					0.006	0.05
G1	Freshwater: Standing water	0.006	High	6	Moderate	2	0.006	0.07						
J1.2	Grassland: Amenity grassland	0.389	Low	2	Poor	1	0.285	0.57					0.104	0.21
J5	Built Environment: Buildings and hardstanding	1.669	None	0	Poor	1	1.223	0.00					0.446	0.00
<b>Section C - D Worst Case</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.010	High	6	Moderate	2	0.010	0.12						
A2.1	Woodland: Scrub	0.006	Medium	4	Moderate	2	0.006	0.05						
B2.2	Grassland: Other neutral grassland	0.136	Medium	4	Moderate	2	0.028	0.22					0.108	0.86
B6	Grassland: Other medium distinctiveness grassland	0.029	Medium	4	Poor	1	0.029	0.12						
C3.1	Other Features: Tall ruderal	0.054	Low	2	Moderate	2	0.036	0.14					0.018	0.07
G1.1	Freshwater: Other high distinctiveness freshwater	0.065	High	6	Moderate	2	0.063	0.76					0.002	0.02
J1.2	Grassland: Amenity grassland	0.002	Low	2	Poor	1	0.002	0.00						
J1.4	Other Features: Other medium distinctiveness feature	0.016	Medium	4	Moderate	2	0.016	0.13						
J5	Built Environment: Buildings and hardstanding	0.582	None	0	Poor	1	0.427	0.00					0.155	0.00
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	2.465	High	6	Moderate	2	2.010	24.12					0.455	5.46
<b>Section D - E Worst Case</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.004	High	6	Moderate	2	0.003	0.04					0.001	0.01
J1.2	Grassland: Amenity grassland	0.400	Low	2	Poor	1	0.305	0.61					0.095	0.19
J1.4	Other Features: Other medium distinctiveness feature	0.011	Medium	4	Moderate	2	0.008	0.06					0.003	0.02
J5	Built Environment: Buildings and hardstanding	1.053	None	0	Poor	1	0.803	0.00					0.250	0.00
<b>Section E - F Worst Case</b>														
A1.1.1	Woodland: Native broadleaved woodland	0.070	High	6	Moderate	2	0.048	0.58					0.022	0.26
A2.1	Woodland: Scrub	0.063	Medium	4	Moderate	2	0.043	0.34					0.020	0.16
B2.2	Grassland: Other neutral grassland	0.062	Medium	4	Moderate	2	0.042	0.34					0.020	0.16
B6	Grassland: Other medium distinctiveness grassland	0.060	Medium	4	Poor	1	0.041	0.16					0.019	0.08
C3.1	Other Features: Tall ruderal	0.023	Low	2	Moderate	2	0.016	0.06					0.007	0.03
J1.2	Grassland: Amenity grassland	0.976	Low	2	Poor	1	0.663	1.33					0.313	0.63
J1.3	Other Features: Other low distinctiveness feature	0.099	Low	2	Poor	1	0.067	0.13					0.032	0.06
J1.4	Other Features: Other medium distinctiveness feature	0.434	Medium	4	Moderate	2	0.295	2.36					0.139	1.11
J4	Other Features: Bare ground	0.078	Low	2	Poor	1	0.053	0.11					0.025	0.05
J5	Built Environment: Buildings and hardstanding	12.449	None	0	Poor	1	8.454	0.00					3.995	0.00



<b>Section F - G Worst Case</b>															
J1.2	Grassland: Amenity grassland	0.339	Low	2	Poor	1	0.238	0.48				0.101	0.20		
J1.4	Other Features: Other medium distinctiveness feature	0.006	Medium	4	Moderate	2	0.004	0.03				0.002	0.02		
J5	Built Environment: Buildings and hardstanding	3.110	None	0	Poor	1	2.179	0.00				0.931	0.00		
<b>Section G - H Worst Case</b>															
A2.1	Woodland: Scrub	0.209	Medium	4	Moderate	2	0.069	0.55				0.140	1.12		
B2.2	Grassland: Other neutral grassland	0.177	Medium	4	Moderate	2	0.047	0.38				0.130	1.04		
C3.1	Other Features: Tall ruderal	0.031	Low	2	Moderate	2	0.016	0.06				0.015	0.06		
G2	Freshwater: Rivers and streams	0.037	High	6	Good	3	0.037	0.67							
J1.2	Grassland: Amenity grassland	0.105	Low	2	Poor	1	0.054	0.11				0.051	0.10		
J4	Other Features: Bare ground	0.010	Low	2	Poor	1	0.002	0.00				0.008	0.02		
J5	Built Environment: Buildings and hardstanding	0.663	None	0	Poor	1	0.649	0.00				0.014	0.00		
<b>Section H - I Worst Case</b>															
A2.1	Woodland: Scrub	0.026	Medium	4	Moderate	2	0.026	0.21							
A2.2	Woodland: Scrub	0.003	Medium	4	Moderate	2	0.002	0.02				0.001	0.01		
B2.2	Grassland: Other neutral grassland	0.081	Medium	4	Moderate	2	0.053	0.42				0.028	0.22		
B6	Grassland: Other medium distinctiveness grassland	0.005	Medium	4	Poor	1	0.005	0.02							
C3.1	Other Features: Tall ruderal	0.030	Low	2	Moderate	2	0.017	0.07				0.013	0.05		
J1.2	Grassland: Amenity grassland	0.181	Low	2	Poor	1	0.151	0.30				0.030	0.06		
J4	Other Features: Bare ground	0.127	Low	2	Poor	1	0.075	0.15				0.052	0.10		
J5	Built Environment: Buildings and hardstanding	0.400	None	0	Poor	1	0.392	0.00				0.008	0.00		
<b>Section I - J Worst Case</b>															
A1.1.2	Woodland: Broadleaved plantation	0.300	Medium	4	Moderate	2	0.234	1.87				0.066	0.53		
A2.1	Woodland: Scrub	0.560	Medium	4	Moderate	2	0.437	3.50				0.123	0.98		
B2.2	Grassland: Other neutral grassland	2.548	Medium	4	Moderate	2	2.128	17.02				0.420	3.36		
B5	Grassland: Marsh/marshy grassland	0.330	High	6	Moderate	2	0.330	3.96							
B6	Grassland: Other medium distinctiveness grassland	2.048	Medium	4	Poor	1	1.764	7.06				0.284	1.14		
C3.1	Other Features: Tall ruderal	0.005	Low	2	Moderate	2	0.005	0.02							
F1	Wetland: Other high distinctiveness wetland	0.883	High	6	Good	3	0.883	15.89							
G2	Freshwater: Rivers and streams	0.109	High	6	Good	3	0.106	1.91				0.003	0.05		
H2.6	Coastal & Estuary: Coastal saltmarsh	0.133	High	6	Good	3	0.133	2.39							
J1.2	Grassland: Amenity grassland	0.176	Low	2	Poor	1	0.140	0.28				0.036	0.07		
J4	Other Features: Bare ground	0.117	Low	2	Poor	1	0.116	0.23				0.001	0.00		
J5	Built Environment: Buildings and hardstanding	3.181	None	0	Poor	1	2.865	0.00				0.316	0.00		
<b>Section J - K Worst Case</b>															
A2.1	Woodland: Scrub	1.151	Medium	4	Good	3	0.871	10.45				0.280	3.36		
B2.2	Grassland: Other neutral grassland	0.116	Medium	4	Moderate	2	0.088	0.70				0.028	0.22		
B6	Grassland: Other medium distinctiveness grassland	0.827	Medium	4	Moderate	2	0.650	5.20				0.177	1.42		
J1.2	Grassland: Amenity grassland	0.179	Low	2	Poor	1	0.164	0.33				0.015	0.03		
J3.6	Built Environment: Buildings and hardstanding	0.092	None	0	Poor	1	0.064	0.00				0.028	0.00		
J4	Other Features: Bare ground	0.038	Low	2	Poor	1	0.027	0.05				0.011	0.02		
J5	Built Environment: Buildings and hardstanding	7.995	None	0	Poor	1	6.375	0.00				1.620	0.00		
<b>Section K-L Worst Case</b>															
J1.2	Grassland: Amenity grassland	0.043	Low	2	Poor	1	0.030	0.06				0.013	0.03		
J3.6	Built Environment: Buildings and hardstanding	0.092	None	0	Poor	1	0.064	0.00				0.028	0.00		
J5	Built Environment: Buildings and hardstanding	1.185	None	0	Poor	1	0.823	0.00				0.362	0.00		
<b>Alternative Route Option</b>															
J1.2	Grassland: Amenity grassland	0.050	Low	2	Poor	1	0.050	0.10							
J1.4	Other Features: Other medium distinctiveness feature	0.011	Medium	4	Moderate	2	0.011	0.09							
J4	Other Features: Bare ground	0.018	Low	2	Poor	1	0.018	0.04							
J5	Built Environment: Buildings and hardstanding	8.914	None	0	Poor	1	8.914	0.00							
<b>Total</b>		59.692					<b>Total</b>	47.355	118.57	0.00	0.00	0.00	0.00	12.337	30.04
												Existing site biodiversity units	148.61		
												Gross biodiversity loss	30.04		



Parcel ID	Proposed habitats on site Development, mitigation and onsite compensation		Target habitats distinctiveness		Target habitat condition		Temporal factor		Difficulty factor		Biodiversity units generated  (Q1 x R1 x S1) / T1 / U1
	Target habitat	Area (ha)	Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score	
	<b>1: Habitat recreation</b> Enter target habitat to be recreated on area of development habitat impact	Q1		R1		S1		T1		U1	
<b>Section A - B Worst Case</b>											
A2.1	Woodland: Scrub	0.031	Medium	4	Moderate	2	10 years	1.4	Low	1	0.18
B6	Grassland: Other medium distinctiveness grassland	0.423	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	1.88
C3.1	Other Features: Tall ruderal	0.150	Medium	4	Moderate	2	5 years	1.2	Low	1	1.00
J4	Other Features: Other low distinctiveness feature	0.034	Low	2	Poor	1	5 years	1.2	Low	1	0.06
J5	Built Environment: Buildings and hardstanding	0.006	None	0	Poor	1	5 years	1.2	n/a	1	0.00
<b>Section B - D Worst Case</b>											
A1.1.2	Woodland: Broadleaved plantation	0.123	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.33
A2.1	Woodland: Scrub	0.006	Medium	4	Moderate	2	10 years	1.4	Low	1	0.03
J1.2	Grassland: Amenity grassland	0.104	Low	2	Poor	1	5 years	1.2	Low	1	0.17
J5	Built Environment: Buildings and hardstanding	0.446	None	0	Poor	1	5 years	1.2	n/a	1	0.00
<b>Section C - D Worst Case</b>											
B2.2	Grassland: Other neutral grassland	0.108	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.41
C3.1	Other Features: Tall ruderal	0.018	Low	2	Moderate	2	5 years	1.2	Low	1	0.06
G1.1	Freshwater: Other high distinctiveness freshwater	0.002	High	6	Moderate	2	15 years	1.7	Medium	1.5	0.01
J5	Built Environment: Buildings and hardstanding	0.155	None	0	Poor	1	5 years	1.2	n/a	1	0.00
OMH	Inland Rock: Open mosaic habitats on prev. dev. land	0.455	High	6	Moderate	2	10 years	1.4	Low	1	3.90
<b>Section D - E Worst Case</b>											
A1.1.2	Woodland: Broadleaved plantation	0.001	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.00
J1.2	Grassland: Amenity grassland	0.095	Low	2	Poor	1	5 years	1.2	Low	1	0.16
J1.4	Other Features: Other medium distinctiveness feature	0.003	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.01
J5	Built Environment: Buildings and hardstanding	0.250	None	0	Poor	1	5 years	1.2	n/a	1	0.00
<b>Section E - F Worst Case</b>											
A1.1.2	Woodland: Broadleaved plantation	0.022	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.06
A2.1	Woodland: Scrub	0.020	Medium	4	Moderate	2	10 years	1.4	Low	1	0.11
B2.2	Grassland: Other neutral grassland	0.020	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.08
B6	Grassland: Other medium distinctiveness grassland	0.019	Medium	4	Poor	1	10 years	1.4	Medium	1.5	0.04
C3.1	Other Features: Tall ruderal	0.007	Low	2	Moderate	2	5 years	1.2	Low	1	0.02
J1.2	Grassland: Amenity grassland	0.313	Low	2	Poor	1	5 years	1.2	Low	1	0.52
J1.3	Other Features: Other low distinctiveness feature	0.032	Low	2	Poor	1	5 years	1.2	Low	1	0.05
J1.4	Other Features: Other medium distinctiveness feature	0.139	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.62
J4	Other Features: Other low distinctiveness feature	0.025	Low	2	Poor	1	5 years	1.2	Low	1	0.04
J5	Built Environment: Buildings and hardstanding	3.995	None	0	Poor	1	5 years	1.2	n/a	1	0.00
<b>Section F - G Worst Case</b>											
J1.2	Grassland: Amenity grassland	0.101	Low	2	Poor	1	5 years	1.2	Low	1	0.17
J1.4	Other Features: Other medium distinctiveness feature	0.002	Medium	4	Moderate	2	5 years	1.2	Medium	1.5	0.01
J5	Built Environment: Buildings and hardstanding	0.931	None	0	Poor	1	5 years	1.2	n/a	1	0.00
<b>Section G - H Worst case</b>											
A2.1	Woodland: Scrub	0.140	Medium	4	Moderate	2	10 years	1.4	Low	1	0.80
B2.2	Grassland: Other neutral grassland	0.130	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.50
C3.1	Other Features: Tall ruderal	0.015	Low	2	Moderate	2	5 years	1.2	Low	1	0.05
J1.2	Grassland: Amenity grassland	0.051	Low	2	Poor	1	5 years	1.2	Low	1	0.09
J4	Other Features: Other low distinctiveness feature	0.008	Low	2	Poor	1	5 years	1.2	Low	1	0.01
J5	Built Environment: Buildings and hardstanding	0.014	None	0	Poor	1	5 years	1.2	n/a	1	0.00



<b>Section H- I Worst case</b>												
A2.2	Woodland: Scrub	0.001	Medium	4	Moderate	2	10 years	1.4	Low	1	0.01	
B2.2	Grassland: Other neutral grassland	0.028	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.11	
C3.1	Other Features: Tall ruderal	0.013	Low	2	Moderate	2	5 years	1.2	Low	1	0.04	
J1.2	Grassland: Amenity grassland	0.030	Low	2	Poor	1	5 years	1.2	Low	1	0.05	
J4	Other Features: Other low distinctiveness feature	0.052	Low	2	Poor	1	5 years	1.2	Low	1	0.09	
J5	Built Environment: Buildings and hardstanding	0.008	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
<b>Section I - J Worst Case</b>												
A1.1.2	Woodland: Broadleaved plantation	0.066	Medium	4	Moderate	2	20 years	2	Medium	1.5	0.18	
A2.1	Woodland: Scrub	0.123	Medium	4	Moderate	2	10 years	1.4	Low	1	0.70	
B2.2	Grassland: Other neutral grassland	0.420	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	1.60	
B6	Grassland: Other medium distinctiveness grassland	0.284	Medium	4	Poor	1	10 years	1.4	Medium	1.5	0.54	
G2	Freshwater: Rivers and streams	0.003	High	6	Good	3	10 years	1.4	Medium	1.5	0.03	
J1.2	Grassland: Amenity grassland	0.036	Low	2	Poor	1	5 years	1.2	Low	1	0.06	
J4	Other Features: Other low distinctiveness feature	0.001	Low	2	Poor	1	5 years	1.2	Low	1	0.00	
J5	Built Environment: Buildings and hardstanding	0.316	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
<b>Section J - K Worst Case</b>												
A2.1	Woodland: Scrub	0.280	Medium	4	Good	3	10 years	1.4	Low	1	2.40	
B2.2	Grassland: Other neutral grassland	0.028	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.11	
B6	Grassland: Other medium distinctiveness grassland	0.177	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	0.67	
J1.2	Grassland: Amenity grassland	0.015	Low	2	Poor	1	5 years	1.2	Low	1	0.03	
J3.6	Built Environment: Buildings and hardstanding	0.028	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
J4	Other Features: Other low distinctiveness feature	0.011	Low	2	Poor	1	5 years	1.2	Low	1	0.02	
J5	Built Environment: Buildings and hardstanding	1.620	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
<b>Section K-L Worst Case</b>												
J1.2	Grassland: Amenity grassland	0.013	Low	2	Poor	1	5 years	1.2	Low	1	0.02	
J3.6	Built Environment: Buildings and hardstanding	0.028	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
J5	Built Environment: Buildings and hardstanding	0.362	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
<b>Total</b>										<b>Total</b>	<b>18.01</b>	
							Trading down correction					0.00
							<b>Onsite compensation gain</b>					<b>18.01</b>
							NBB = OCG - GBL					
							<b>Net biodiversity balance</b>					<b>-12.02</b>
							Percentage loss/gain of gross impact					-40.0
							Percentage loss/gain of site biodiversity value					-8.1



T. Note	Existing site habitats		Existing biodiversity units											
			Linear distinctiveness				Linear condition				Lengths to be retained and protected during		Habitats to be lost	
	Existing linear habitat baseline	Habitat length (km)	Distinctiveness	Score	Condition	Score	Habitats to be maintained	Habitats to be restored	Length (km)	Existing value	Length (km)	Existing value	Length (km)	Existing value
				A		B	C	$A \times B \times C = D$	E	$A \times B \times E = F$	G	$A \times B \times G = H$		
<b>Direct Impacts and retained features</b>														
<b>Section A- B Worst Case</b>														
G1	Ditches: Wet Ditch	0.29	High	6	Moderate	2	0.29	3.48						
J2.1.1	Hedges/trees: Hedgerows	0.54	High	6	Good	3					0.54	9.72		
J2.4	Other boundary: Fence	0.57	None	0	Poor	1					0.57	0.00		
<b>Section C-D Worst Case</b>														
G1	Ditches: Wet Ditch	0.43	High	6	Moderate	2	0.42	5.04			0.01	0.12		
G2.1	Ditches: Wet Ditch	0.13	High	6	Good	3	0.13	2.34						
<b>Section E-F Worst Case</b>														
J2.4	Other boundary: Fence	0.01	None	0	Poor	1					0.01	0.00		
J2.5	Other boundary: Wall	0.11	Low	2	Poor	1					0.11	0.22		
<b>Section G-H Worst Case</b>														
J2.1.2	Hedges/trees: Hedgerows	0.02	High	6	Moderate	2	0.02	0.24						
J2.5	Other boundary: Wall	0.02	Low	2	Poor	1	0.02	0.04						
	<b>Total</b>	2.12					<b>Total</b>	0.88	11.14	0.00	0.00	1.24	10.06	
													Site Linear Value	21.20
													<b>Linear Impact Score (LIS)</b>	<b>-10.06</b>

T. Note	Proposed linear features on site		Target habitats distinctiveness		Target habitat condition		Time till target condition		Difficulty of creation / restoration		Linear biodiversity value	
	Development, mitigation and onsite compensation		Distinctive	Score	Condition	Score	Time (years)	Score	Difficulty	Score		
	Target habitat	Area (ha)										Q
		N		O		P					$(N \times O \times P) / Q / R$	
<b>Section A-B Worst Case</b>												
J2.1.1	Hedges/trees: Hedgerows	0.54	High	6	Good	3	15 years	1.7	Low	1	5.72	
J2.4	Other boundary: Fence	0.57	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
<b>Section C-D Worst Case</b>												
G1	Ditches: Wet Ditch	0.01	High	6	Moderate	2	10 years	1.4	Low	1	0.09	
<b>Section E-F Worst Case</b>												
J2.4	Other boundary: Fence	0.01	None	0	Poor	1	5 years	1.2	n/a	1	0.00	
J2.5	Other boundary: Wall	0.11	Low	2	Poor	1	5 years	1.2	n/a	1	0.18	
	<b>Total</b>	1.24										
											<b>Linear Mitigation Score (LMS)</b>	5.99
											$LBIS = LMS - LIS$	
											<b>Linear Biodiversity Impact Score</b>	<b>-4.07</b>
											Percentage of linear impact loss	-40.49

