

# Riverside Energy Park

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## Applicant responses to ExA First Written Questions

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## 0 Introduction

- 0.1.1 On 16 November 2018, Cory Environmental Holdings Limited (the Applicant) submitted an application (the Application) to the Secretary of State for a development consent order in respect of the Riverside Energy Park (REP). The Application was accepted for examination on 14 December 2018 and the examination commenced on 10 April 2019 (the Examination).
- 0.1.2 For defined terms, please refer to the **Project Glossary (1.6, APP-006)**.
- 0.1.3 This document, submitted for Deadline 2 of the Examination, contains the Applicant's responses to the Examining Authority's (ExA) First Written Questions (1WQs), issued by the ExA on 17 April 2019.
- 0.1.4 The Applicant's response to the 1WQs are divided into individual chapters in the order of the topics provided by the ExA:
- a. General and Cross-topic Questions (Chapter 1);
  - b. Air Quality and Emissions (Chapter 2);
  - c. Biodiversity, Ecology and Natural Environment (including Habitats Regulations Assessment (HRA)) (Chapter 3);
  - d. Landscape and Visual (Chapter 4);
  - e. Noise and Vibration (Chapter 5);
  - f. Transportation and Traffic (Chapter 6); and
  - g. Draft Development Consent Order (DCO) (Chapter 7).
- 0.1.5 At Deadline 2 of the Examination, the Applicant has submitted new or revised versions of documents. These are listed below:

Document Reference	Revision (May 2019)	Document Title
1.3	1	Guide to Application
2.1	1	Land Plans
2.2	1	Work Plans
2.3	1	Access and Public Rights of Way Plans
3.1	1	Draft Development Consent Order
4.1	1	Statement of Reasons

Document Reference	Revision (May 2019)	Document Title
4.3	1	Book of Reference
6.1	1	Environmental Statement Chapter 3 – Project and Site Description Chapter 5 – Alternatives Considered Chapter 6 – Transport Chapter 7 – Air Quality Chapter 9 – Townscape and Visual Impact Assessment Chapter 11 – Terrestrial Biodiversity Chapter 12 – Hydrology, Flood Risk and Water Resources Chapter 13 – Ground Conditions Chapter 14 – Socio-Economics Chapter 18 – Glossary
6.2	1	Environmental Statement Figures Figure 7.5 Contour Nickel
6.3	1	Environmental Statement Appendices Appendix J (Network Traffic Flows and Distribution) to Appendix B.1 (Transport Assessment) Appendix L (Outline Construction Traffic Management Plan) to Appendix B.1 (Transport Assessment) Appendix C.1 – Traffic Modelling Appendix C.2 – Stack Modelling Appendix C.3 – Human Health Risk Assessment
6.5	1	Habitats Regulations No Significant Effects Report

Document Reference	Revision (May 2019)	Document Title
7.5	1	Outline Code of Construction Practice
<b><i>New documents submitted in support of the Application</i></b>		
5.4.1	0	Combined Heat and Power Supplementary Report
6.6	0	Environmental Statement Supplementary Report
7.2.1	0	Supplementary Report to The Project and Its Benefits Report
8.02.05	0	Clarifications and Corrections Report
8.02.06	0	Environmental Permit and Air Quality Note
8.02.07	0	Electrical Connection Progress Report
8.02.08	0	Carbon Assessment
8.02.09	0	Biodiversity Accounting Report
8.02.10	0	Report on shading effects to Crossness Nature Reserve
8.02.11	0	Riverside Energy Park: Great Crested Newt eDNA Survey
8.02.12	0	Night-time Construction Noise Impact Validation Assessment

0.1.6 Also at Deadline 2, the Applicant has submitted, at the request of the ExA, Statements of Common Ground (either in final signed form, or draft). These are set out below (a Statement of Common Ground has been agreed with Historic England and the signed SoCG was submitted prior to the Examination and accepted by the ExA (**8.1.1, AS-013**)).

Document Reference	Revision (May 2019)	Statement of Common Ground	Status
8.01.02	0	Dartford Borough Council	Final draft, not signed
8.01.03	0	Environment Agency	Draft
8.01.04	0	Kent County Council	Final draft, not signed



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8.01.05	0	Natural England	Final, signed
8.01.06	0	Port of London Authority	Final draft, not signed

# 1 General and Cross-Topic Questions

## 1.1 ExA Written Question Reference Q1.0.1

### 1.1.1 Written Question Q1.0.1 states:

*"The proposed capacity of the Energy Recovery Facility (ERF) appears to be in the region of 95MW and as such would qualify as a Nationally Significant Infrastructure Project (NSIP). Please consider including the maximum capacity of the ERF both in terms of MW electrical output and tonnes of waste input in the draft DCO or provide an explanation as to why the capacity should not be included."*

### **Response:**

- 1.1.2 The Applicant is content to amend Schedule 1 of the draft Development Consent Order (**3.1; APP-014**) (dDCO) to include wording that refers to the nationally significant infrastructure project being a generating station that has a capacity of more than 50 megawatts. This amendment is reflected in the dDCO (**3.1, Rev 1**) submitted at Deadline 2.
- 1.1.3 It is not appropriate to refer to the maximum MW electrical output of the generating station (which collectively comprises the Energy Recovery Facility (ERF), anaerobic digestion facility, solar photovoltaic installation and battery storage, being the integrated Riverside Energy Park (REP)), as this could change over time as technology becomes more efficient. The Development Consent Order, if granted, should not prevent the Applicant from maintaining REP by replacing parts that ultimately result in REP's electrical output and/or thermal efficiency increasing.
- 1.1.4 Regarding the definition of "maintain" and what the Applicant can and cannot do, please see the Applicant's response to Q7.0.1.
- 1.1.5 Regarding the maximum tonnes of waste throughput, again it is not appropriate to limit this through a requirement on the dDCO. The actual waste throughput will vary over time depending on the calorific value of the waste itself and the operational availability of the ERF.
- 1.1.6 This is because the REP ERF will have a maximum thermal input that it can process at any given time via the components installed in the plant. The thermal input of waste is governed by a number of factors, not just the tonnage. Therefore, if the calorific value of the waste is higher, then the REP ERF will process a lower waste throughput and vice versa. It is the thermal input of the REP ERF, rather than the waste throughput, which is important in assessing the REP ERF's operating effects. A tonnage restriction would not be an effective mitigation measure, which is why specific requirements controlling those areas which would influence the operating effects of the ERF are included in the dDCO. In acknowledgement of this, at Deadline 2 the Applicant has submitted a revised dDCO which includes a requirement restricting the number of heavy commercial vehicles delivering waste to the ERF. Emissions levels are not included in the dDCO as emissions will be controlled by the Environmental Permit and monitored by the Environment Agency. As guidance makes clear, and indeed as paragraph

4.10.3 of NPS EN-1 states, the Development Consent Order should "not duplicate" another consenting regime.

- 1.1.7 In addition, NPS EN-1 at paragraph 4.10.5 states that the Environmental Permitting regime also incorporates operational waste management requirements for certain activities which could include a restriction on tonnage should the Environment Agency consider it appropriate when assessing the Environmental Permit application. The Development Consent Order should not seek to impose operational waste management restrictions when this area is clearly the remit of the Environmental Permitting regime, as is made clear in NPS EN-1.

## 1.2 ExA Written Question Reference Q1.0.2

### 1.2.1 Written Question Q1.0.2 states:

*"It is stated in the Environmental Statement (ES) that modelling has been based on a fuel throughput of 805,920 tonnes per annum (tpa) which is greater than the nominal tonnage of 655,000 tpa. Why is the nominal throughput lower than the maximum level used for the modelling? Will the operation of the plant, in practice, be limited to this nominal throughput? Is a limit proposed for the volume of green waste to be processed?"*

### Response:

- 1.2.2 There are two throughput tonnages referred to in the Environmental Statement (ES): the nominal throughput (655,000 tonnes per annum (tpa)) and an upper throughput (805,920 tpa).
- 1.2.3 The difference between the two is driven by the assumptions made for the calorific value of the waste fuel and the operational availability of the Energy Recovery Facility (ERF) itself.
- 1.2.4 The nominal throughput (655,000 tpa) is based on the anticipated throughput of residual waste at an assumed (design) calorific value, with both lines of the ERF operating for 8,000 hours across the year (8760 hours).
- 1.2.5 The upper throughput (805,920 tpa), referred to within paragraph 3.3.5 of Chapter 3 Project and Site Description of the Environmental Statement (ES) (**6.1, Rev 1**) is based on the maximum throughput of residual waste which could be processed at the lowest calorific value which the ERF has been designed to accept and with both lines of the REP ERF operating continuously (i.e. 100%) across the year (8,760 hours).
- 1.2.6 In practice, it is highly unlikely that the maximum throughput would occur for the entirety of the year. For example, the ERF will require maintenance shutdowns at regular intervals as part of its preventative maintenance regime (e.g. turbine, boiler etc). Therefore, it is highly likely that the actual tonnage of residual waste processed per annum will be lower than the upper throughput (805,920 tpa).
- 1.2.7 The upper throughput is used in Environmental Statement (ES) modelling as a conservative worst case approach to ensure that the modelled impacts and conclusions drawn are based on a set of operational variables which results in the 'worst' conceivable environmental impacts as the ERF will be designed to process that quantity of waste, i.e. the assessment is conservative.
- 1.2.8 Waste throughput at the ERF will vary subject to the number of operational hours achieved across any particular year; and the calorific value of the waste processed, which is variable due to the heterogenous nature of residual waste. To account for waste variability, a high degree of flexibility has been designed into the ERF such that it would be capable of processing wastes with net calorific values ranging from 7 to 13 MJ/kg.

- 1.2.9 The ERF will be operated on the principle of maintaining a relatively constant thermal output from the boilers to ensure high levels of efficiency and stable combustion parameters for optimised emissions performance. This means that waste will be processed at differing rates as the calorific value of the waste varies.
- 1.2.10 Accordingly, it is not appropriate to limit the waste throughput of the ERF given that the actual waste throughput will vary depending on the calorific value of the waste and the hours that the REP ERF operates. This is because the REP ERF will have a maximum thermal input that it can process at any given time via the components installed in the plant. It is the thermal input of the REP ERF, rather than the waste throughput, which is important in assessing the REP ERF's operating effects. Any megawatt restriction and/or tonnage restriction would not control the level of environmental effects, which is the concern of the planning regime, which are primarily air quality and transport.
- 1.2.11 Regarding the former, the Environmental Permit will contain restrictions regarding emissions levels, which the Environment Agency will monitor and enforce. Indeed, the Environment Agency, rather than the relevant planning authority, is the most appropriate body to enforce emissions levels. As is clear from guidance, consenting regimes should duplicate each other. Regarding transport, the Applicant has inserted a new Requirement into Schedule 2 of the draft Development Consent Order (dDCO) (**3.1, Rev 1**) which limits the number of HGV movements for waste being delivered to the ERF. This Requirement is included in the dDCO (**3.1, Rev 1**) submitted at Deadline 2.
- 1.2.12 In addition, it would serve no purpose to restrict the tonnage throughput when this would constrain future efficiencies in technology. It would be non-sensical to restrict the Applicant from making such improvements over the life of the Proposed Development, which in turn would constrain the production of low carbon renewable energy. In blunt terms, a restriction on tonnage throughput would serve no purpose and would therefore not be justified.
- 1.2.13 It should be noted that the Environmental Permit (EP) would restrict the waste throughput at a level deemed acceptable by the regulator (Environment Agency) and as applied for in the EP application. As part of the EP application, an ERF waste throughput of 805,920 tonnes per annum has been applied for by the Applicant. This application is currently being determined by the Environment Agency. The National Policy Statement EN-1, recognises at paragraph 4.10.5 that the Environmental Permitting regime incorporates operational waste management requirements, which would include any tonnage restriction where the EA considered it necessary. As NPS EN-1 makes clear, there should be no duplication between regimes.
- 1.2.14 Food and green waste received at the anaerobic digestion facility would also be limited in the EP. As part of the EP application, an anaerobic digestion facility with a food and green waste throughput limit of 40,000 tonnes per annum has been applied for by the Applicant. As stated in paragraph 1.2.13, the application is currently being determined by the Environment Agency.

### 1.3 ExA Written Question Reference Q1.0.3

#### 1.3.1 Written Question Q1.0.3 states:

*"The capacities for the proposed solar panels, anaerobic digestion system and battery storage are not specified in detail but appear to be below the NSIP threshold of 50MW. Please clarify the proposed capacity for each of these elements and provide an explanation as to why they are included as part of the NSIP."*

#### **Response:**

#### 1.3.2 Riverside Energy Park (REP) presents a range of complementary and integrated technologies which are designed to operate together, maximise efficient operation and together mitigate environmental effects, including the potential for:

- heat from the Energy Recovery Facility (ERF) to support the Anaerobic Digestion process;
- digestate drying using heat from the ERF;
- combustion of potential odours from the Anaerobic Digestion facility in the ERF;
- Solar Photovoltaic Panels providing back up power to the ERF;
- Battery Storage providing resilience both on and off site; and
- maximisation of solar gain by the location of the solar panels on top of the stepped roof design.

#### 1.3.3 As can be seen from the above, all generating elements of REP are intrinsically linked, and provide support, to each other. All of these elements are, therefore, part of the NSIP and together will have a generating capacity in excess of 50 MW. In addition, all generating elements of REP will be controlled by the same control room and will be connected to the same cables to transmit electricity to Littlebrook substation.

## 1.4 ExA Written Question Reference Q1.0.4

### 1.4.1 Written Question Q1.0.4 states:

*"The case for ERF generation is included in the suite of Energy National Policy Statements (NPS). This element of the proposed development will therefore be considered under s 104 of the Planning Act 2008 (as amended) (PA2008). There is no NPS which provides technology specific policy in relation to solar photovoltaic, anaerobic digestion and battery storage. In which case would Work Numbers 1(b) to (e) fall to be determined under s 105 of PA2008 and if so which NPS policies would be important and relevant?"*

### Response:

1.4.2 As explained in the Explanatory Memorandum to the draft Development Consent Order (**3.2, APP-015**), the Nationally Significant Infrastructure Project ("NSIP") comprises Work Numbers 1 and 2 in Schedule 1 to the draft Development Consent Order (**3.1, Rev 1**). Work Numbers 1 and 2 are the generating elements of the Riverside Energy Park ("REP"), all of which are intrinsically linked to each other, are located within the same building, are controlled by the same control centre and will send electricity generated to the same electrical connection (the Electrical Connection in Work Numbers 9 and 10 of Schedule 1 to the draft Development Consent Order (**3.1, Rev 1**)). See also the response to FWQ 1.0.3.

1.4.3 The NSIP comprises 4 types of technologies:

- an energy recovery facility ("ERF");
- Solar Photovoltaic Panels;
- Anaerobic Digestion facility; and
- Battery Storage.

1.4.4 The Planning Act 2008 ("the Act") created a new regime for the consenting of major infrastructure projects. If a project meets certain criteria that are defined under the Act, the project will be classified as an NSIP. This development consent regime and application process requires developers of NSIP projects to obtain a DCO to consent the construction, operation and maintenance of their projects.

1.4.5 Under the Act, the Proposed Development constitutes an NSIP because:

- it consists of "*the construction or extension of a generating station*" (Section 14 (1)(a) of the Act); and
- "*its capacity is more than 50 megawatts*" (Section 15 (2) of the Act).

1.4.6 National Policy Statements ("NPS") set out the policy basis for NSIP developments. These are technology specific. As the Examining Authority correctly states, the ERF generating element is a type of technology expressly referred to in NPSs EN-1 and EN-3. Accordingly, section 104 of the Act applies to the ERF element of the REP NSIP.

- 1.4.7 However, there is currently no NPS for solar development, anaerobic digestion or battery storage. Section 105 of the Act states the Secretary of State must have regard, as the decision maker to an application for an order granting development consent where a NPS does not exist for the type of development applied for, to any Local Impact Report and to any other matters which the Secretary of State considers are both important and relevant to the decision. This may include a variety of national planning and local planning documents, including NPSs.
- 1.4.8 NPSs set out the national case and establish the need for certain types of infrastructure, as well as identifying potential key issues that should be considered by the decision maker. Although there is no NPS which provides specific policy in relation to solar development, anaerobic digestion or battery storage, in previous applications where no NPS applies, the Secretary of State has applied relevant related NPSs as if the NPS governed the development in question.<sup>1</sup> Therefore, the Applicant submits that both NPS EN-1 and NPS EN-3 are important and relevant to his decision in respect of the whole of the REP.

### **The Overarching National Policy Statement for Energy (EN-1)**

- 1.4.9 The overarching NPS for Energy (EN-1) was adopted in July 2011 and sets out the overall national energy policy for delivering major energy infrastructure.
- 1.4.10 Part 1 of NPS EN-1 advises that within the context of the planning system this NPS (EN-1) is likely to be a material consideration. Whether and to what extent EN-1 is a material consideration, will be judged on a case by case basis.
- 1.4.11 Part 2 of NPS EN-1 sets out Government policy context for major energy infrastructure. It comprises the need to meet legally binding targets to cut greenhouse gas emissions; transition to a low carbon economy; decarbonise the power sector; reform the electricity market; secure energy supplies; replace outdated energy infrastructure; and widen objectives of sustainable development. In particular, in this section:
- paragraph 2.2.2 advises that in times of severe constraints of public expenditure, the Government recognises the important role the private sector has to play in the delivery of energy developments and aims to facilitate it; and
  - paragraph 2.2.16 identifies that approximately a quarter of the UK's generating capacity is due to close by 2018 and that new low-carbon generation is required which is reliable, secure and affordable.
- 1.4.12 Part 2, therefore, reflects the Government's commitment to carbon emission reduction, energy security and affordability. If consented, the Proposed Development will deliver Government policy objectives, as it will facilitate the transition to a low carbon economy. In addition, the Proposed Development will be privately funded and will not affect the public expenditure.

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<sup>1</sup> See decisions on Triton Knoll Electrical System Order 2017, Tidal Lagoon (Swansea Bay) Order 2015, and Glyn Rhonwy Pumped Storage Generating Station Order 2017



1.4.13 Part 3 of NPS EN-1 also outlines that considerations of need should be given considerable weight when determining applications for energy developments. Paragraph 3.2.3 sets out more detail around the importance that Government attaches to the need for new energy infrastructure and to its energy policy, including combating climate change, by stating that:

*"...the Government considers that, without significant amounts of large-scale energy infrastructure, the objectives of its energy and climate change policy cannot be fulfilled."*

1.4.14 However, it goes on to add the caveat that:

*"However, as noted in Section 1.7, it will not be possible to develop the necessary amounts of such infrastructure without some significant residual adverse impacts. This Part also shows why the Government considers that the need for such infrastructure will often be urgent. The [Secretary of State] should therefore give substantial weight to considerations of need. The weight which is attributed to considerations of need in any given case should be proportionate to the anticipated extent of a project's actual contribution to satisfying the need for a particular type of infrastructure."*

1.4.15 EN-1 recognises that the climate change policy objectives set on different policy levels cannot be met without the development of low carbon/renewable energy infrastructure. The policy acknowledges that residual adverse impacts may arise as a result of such developments; nonetheless, the need for the development will be given substantial consideration. The need for the Proposed Development, which has been established in the energy related NPSs and the Planning Statement (**7.1, APP-102**) and the Project and its Benefits Report (**7.2, APP-103**), directly supports international and national policy objectives for tackling climate change.

1.4.16 Paragraph 3.3.2 of EN-1 states that new generating capacity is required because of the need to ensure energy security, and that the need to ensure sufficient capacity is a key objective of Government energy policy:

*"The Government needs to ensure sufficient electricity generating capacity is available to meet maximum peak demand, with a safety margin or spare capacity to accommodate unexpectedly high demand and to mitigate risks such as unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events."*

1.4.17 The benefits of an energy mix in ensuring a secure energy supply are also recognised in that the characteristics of different types of electricity generation, including low carbon / renewable energy and other technologies, can complement each other. Paragraph 3.3.7 of EN-1 states that in the UK at least 22 GW of existing electricity generating capacity will need to be replaced in the coming years, particularly to 2020. This is as a result of tightening environmental regulation and ageing power stations.

1.4.18 If consented, the Proposed Development will make a contribution to the replacement of the existing capacity with the latest technology. Paragraph 3.3.12 of EN-1 states the need for the installation of supporting technologies, but highlights

that there will none the less be a requirement for greater generating capacity to act as backup to the existing renewable technologies:

*"There are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage, interconnection and demand-side response, without building additional generation capacity. Although Government believes these technologies will play important roles in a low carbon electricity system, the development and deployment of these technologies at the necessary scale has yet to be achieved. The Government does not therefore consider it prudent to solely rely on these technologies to meet demand without the additional back-up capacity [...]. It is therefore likely that increasing reliance on renewables will mean that we need more total electricity capacity than we have now, with a larger proportion being built only or mainly to perform back-up functions."*

- 1.4.19 At the time the NPSs were adopted, some of the technologies comprised in the Proposed Development were either not yet proven, or not financially sustainable. Since then, with advances in technology, concepts such as the Proposed Development are a reality, enabling a mixture of technologies that are low carbon/renewable (the ERF, solar photovoltaic, anaerobic digestion) and electricity storage (the battery storage facility) to be built. The Proposed Development is an innovative concept, that utilises the latest technology to generate electricity and store electricity, thus helping with the management of the grid.
- 1.4.20 Paragraph 3.4 of EN-1 sets out the role of renewable electricity generation, concluding that *"the need for new renewable electricity generation projects is therefore urgent."* The Secretary of State should, therefore, consider this statement as both important and relevant in his decision making and apply it not only to the ERF, but also to the solar photovoltaic, anaerobic digestion and battery storage facility.
- 1.4.21 Part 4 of EN-1 sets out a number of assessment principles against which applications are to be decided, including the presumption to grant consent for applications for energy NSIPs, and the need to balance potential benefits against potential adverse impacts.
- 1.4.22 Paragraph 4.1.2 of EN-1 sets out the presumption to grant consent for NSIP applications relating to low carbon / renewable energy developments:
- "Given the level and urgency of need for infrastructure of the types covered by the energy NSPs set out in Part 3 of the NPS, the [Secretary of State] should start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant National Policy Statements clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Planning Act 2008 referred to at paragraph 1.1.2 of this NPS."*
- 1.4.23 Overall, Part 4 of EN-1 recognises the urgency of the need for low carbon / renewable energy infrastructure and advises that there is a presumption in favour of granting consent, unless other policies indicate refusal. The DCO Application,

particularly the Planning Statement (7.1, APP-102) and the Project and its Benefits Report (7.2, APP-103), demonstrates that there are no reasons to indicate refusal.

1.4.24 With an overview of the assessment above, the principle of the Development is assessed to fully comply with the provisions of NPS EN-1.

### **National Policy Statement on Renewable Energy Infrastructure (EN-3)**

1.4.25 The National Policy Statement on Renewable Energy Infrastructure (EN-3) was adopted in July 2011 and provides national planning policy in respect of renewable energy infrastructure.

1.4.26 Paragraph 1.1.1 of EN-3 underlines the importance of the generation of electricity from renewable sources by stating:

*"Electricity generation from renewable sources of energy is an important element in the Government's transition to a low-carbon economy. There are ambitious renewable energy targets in place and a significant increase in generation from large scale renewable energy infrastructure is necessary to meet the 15% renewable energy target."*

1.4.27 Whilst EN-3 provides assessment and technology-specific information on certain renewable energy technologies, including for the ERF, it does not include solar photovoltaic, anaerobic digestion and battery storage.

1.4.28 Paragraph 1.8.2. of EN-3 explains the reasoning for this, i.e. at the time of drafting EN-3 which was published in 2011, Government did not consider other forms of renewable energy generation to be viable over the relevant NSIP threshold. However, these elements are being proposed as part of an electrical generation mix, that are intrinsically linked with each other which enables the solar photovoltaic, anaerobic digestion and battery storage facility to be viable and provide a clean, affordable and reliable energy to the consumers. The Proposed Development is considered to comply in principle, as it will contribute to the Government's objective for transition to a low carbon economy and increasing the energy generation from large scale renewable energy infrastructure.

### **Conclusion:**

1.4.29 There is currently no NPS for solar development, anaerobic digestion or battery storage. Section 105 of the Act states the Secretary of State must have regard, as the decision maker to an application for an order granting development consent where a NPS does not exist for the type of development applied for, to any Local Impact Report and to any other matters which the Secretary of State considers are both important and relevant to the decision. This may include a variety of national planning and local planning documents, including NPSs.

1.4.30 In previous applications where no NPS applies, the Secretary of State applied relevant related NPSs as if the NPS governed the development in question. Therefore, the Applicant submits that both NPS EN-1 and NPS EN-3 are important and relevant to his decision in respect of the whole of the REP.

- 1.4.31 If consented, the Proposed Development will make a contribution to the replacement of the existing capacity with the latest technology. At the time the NPSs were adopted, some of the technologies comprised in the Proposed Development were either not yet proven, or not financially sustainable. Since then, with advances in technology, concepts such as the Proposed Development are a reality, enabling a mixture of technologies that are low carbon/renewable (the ERF, solar photovoltaic, anaerobic digestion) and electricity storage (the battery storage facility) to be built. The Proposed Development is an innovative concept, that utilises the latest technology to generate electricity and store electricity, thus helping with the management of the grid.
- 1.4.32 Elements are being proposed as part of an electrical generation mix, that are intrinsically linked with each other which enables the solar photovoltaic, anaerobic digestion and battery storage facility to be viable and provide a clean, affordable and reliable energy to the consumers. The Proposed Development is considered to comply in principle with NPS EN-3, as it will contribute to the Government's objective for transition to a low carbon economy and increasing the energy generation from large scale renewable energy infrastructure.

## 1.5 ExA Written Question Reference Q1.0.5

### 1.5.1 Written Question Q1.0.5 states:

*"Alternatives for the construction of a steam turbine and electrical generator are included in work no 1 and work no 2. Please explain why it is necessary to include these alternatives."*

#### **Response:**

- 1.5.2 It is commonplace for Energy Recovery Facilities (ERFs) to be constructed with the steam turbine and electrical generator located either inside an enclosure within the main ERF building (also containing tipping hall, storage bunker, boiler hall and flue gas treatment areas), or within a separate building located adjacent to the main ERF building.
- 1.5.3 In either case, the electrical generator would be located directly next to the steam turbine as the two plant items are mechanically coupled. This approach minimises power losses associated with the transmission system and also minimises associated safety risks.
- 1.5.4 The location of the steam turbine and electrical generator has not yet been finalised, although the anticipated design at this stage is for the construction of a separate steam turbine building (as shown on the Illustrative Site Layout Plan (**2.4, APP-010**)).
- 1.5.5 As the final design and layout will not be known until post grant of the DCO, the DCO Application seeks the flexibility for both design approaches that could be chosen. As stated in the answer to FWQ 1.0.6, as all assessments are based on the Rochdale Envelope parameters (ensuring a reasonable worst case approach), the potential environmental effects of the alternatives for Works Number 1 and 2 are inherently included within the assessments and therefore both options have been assessed.

## 1.6 ExA Written Question Reference Q1.0.6

### 1.6.1 Written Question Q1.0.6 states:

*"Please set out how the environmental impacts of the alternatives for works no 1 and 2 have been assessed in the ES."*

#### **Response:**

- 1.6.2 It is assumed that reference to alternatives for works no 1 and 2 relates to the steam turbine and electrical generator and a steam turbine building that could be constructed as part of work no 1A or work no 2(b), the potential environmental impacts of which are assessed and reported in **Chapters 6 – 14** of the **Environmental Statement (ES) (6.1)**.
- 1.6.3 Through **Schedule 1** of the **Draft Development Consent Order (DCO) (3.1, Rev 1)**, the Applicant has elected to include some flexibility around siting the steam turbine and electrical generator.
- 1.6.4 As detailed in **Section 3.4** of **Chapter 3 Project and Site Description** of the **ES (6.1, Rev 1)**, to provide for the flexibility sought within the Proposed Development, the assessments undertaken and reported in the ES are based on development parameters using the 'Rochdale Envelope' approach which is described in Planning Inspectorate Advice Note Nine: Rochdale Envelope (July 2018) (Version 3). This approach is '...employed where the nature of the Proposed Development means that some details of the whole project have not been confirmed when the application is submitted and flexibility is sought to address uncertainty' (Advice Note Nine, Para 1.2).
- 1.6.5 The parameters assessed using the Rochdale Envelope approach are shown on **Figure 1.3a, b and c** of the **ES (6.2, APP-056)** and the **Works Plans (2.2, Rev 1)**. The parameters set out in **Section 3.4** of **Chapter 3** of the **ES Project and Site Description (6.1, Rev 1)** and **Works Plans (2.2, Rev 1)** provide the flexibility sought through the Draft DCO, including flexibility around siting the steam turbine and electrical generator. As all assessments are based on the parameters (ensuring a reasonable worst case approach), the potential environmental effects of the alternatives for works no 1 and 2 are inherently included within the assessments and therefore the alternatives do not need to be assessed individually.
- 1.6.6 **Chapter 16 Summary of Findings and In-Combination Effects** of the **ES (6.1, APP-053)** provides an overview of the assessment conclusions.

## 1.7 ExA Written Question Reference Q1.0.7

### 1.7.1 Written Question Q1.0.07 states:

*"Work no 1 refers to up to two emission stacks. Two stacks are shown in the illustrative elevations. Is an option with only one stack under consideration?"*

#### **Response:**

1.7.2 Whilst a single stack solution would be permissible under the provisions of the draft DCO, it is not being considered by the Applicant at this time or as the preferred design solution.

1.7.3 As set out within Paragraph 3.3.5 of Chapter 3 Project and Site Description of the ES (**6.1, Rev 1**), each line within the Energy Recovery Facility (ERF) requires a flue/stack. The same paragraph of the ES notes that the single existing Riverside Resource Recovery Facility stack actually encases 3 separate flues; one flue for each line in that ERF.

1.7.4 The ability to have two separate flues for REP is identified as a design opportunity and is captured within the commentary to Principle DP 1.11 in the Design Principles (**7.4, APP-105**) which states:

*"Subject to detailed engineering design, the stack(s) will not be wholly encased, but remain individual, giving the feeling of enhanced slenderness..."*

1.7.5 Schedule 2 Requirement 2(2) of the **Draft DCO (3.1, Rev 1)** requires that the design of the stack(s) (being Work 1A(iv)) must be in accordance with the **Design Principles (7.4, APP-105)** and therefore the Applicant is committed to delivering a slender two stack solution unless significant engineering issues dictate otherwise.



## 1.8 ExA Written Question Reference Q1.0.8

### 1.8.1 Written Question Q1.0.08 states:

*"Paragraph 3.3.4 of the ES states that the ERF would likely be two streams to allow for maintenance. This is not shown in the illustrative layout or specified in the draft DCO. Please clarify what is intended. How will this be secured in the draft DCO."*

#### **Response:**

- 1.8.2 The presence of two streams ('lines') is evident in the Illustrative Site Layout Plan (**2.4, APP-010**) by reference to the two stacks shown, one for each line. Each stream requires its own emissions stack. The only element shown on the Illustrative Site Layout Plan (**2.4, APP-010**) which relates to the number of streams is the stacks. All other elements of the streams are incorporated with the parameters of the Main REP Building.
- 1.8.3 Schedule 1 of the draft Development Consent Order (**3.1, Rev 1**), includes Work Number 1A(iv), being "up to two emission stacks". This therefore means that there can be no more than 2 streams in the ERF. No further controls are considered necessary in the DCO.



## 1.9 ExA Written Question Reference Q1.0.09

### 1.9.1 Written question Q.1.0.09 states:

*"Paragraph 3.2.2 of the ES lists a number of activities which currently take place on the REP site. Who is responsible for these activities and how will they be accommodated if the REP is developed?"*

#### **Response:**

1.9.2 This response is in two parts. The first part of the response explains the land within the REP site that is in the control of the Applicant, or in the control of a Cory Group company (see paragraph 1.2 of the Funding Statement (**4.2, APP-017**) for the definition of "Cory Group"), what existing land use activities relating to the Applicant's/Cory Group operational activities occur at the REP site and what alternative provision would be made should REP be developed and operate alongside the existing Riverside Resource Recovery Facility (RRRF).

1.9.3 The second part deals with the same issues but in relation to third party and unregistered land interests.

#### **Part 1: The Applicant's/Cory Group Land and Existing Land Use Activities**

1.9.4 **Paragraph 3.2.2 of the Environmental Statement (ES) (6.3, Rev 1)** states:

*"The majority of the REP site is currently used for private vehicle circulation areas, the jetty access ramp, staff and visitor parking, open container storage, contractor maintenance, an electrical substation and associated landscape/habitat areas."*

1.9.5 Riverside Resource Recovery Limited (RRRL) and Cory Environmental Limited (CEL) together own the freehold of 84.24% of the total REP site area (6.264 Hectares). RRRL and CEL are subsidiaries of the Applicant, and all three are members of the Cory Group.

1.9.6 It follows, therefore, that the existing land use activities occurring on the REP site are overwhelmingly owned by the Applicant/Cory Group and thereby associated with the operation of RRRF. Alternative provision would either be accommodated through modifications to existing infrastructure and shared use of assets between REP and RRRF, re-provided on site through the development of REP, or provided on land off site within the Applicant's/Cory Group's site portfolio.

1.9.7 By selecting the REP site, the Applicant would therefore achieve greater efficiency in the use of land and keep any impacts or disturbance to third party businesses to a minimum.

1.9.8 Table 1.1 below summaries the existing activities currently occurring on each of the plots within the REP site that is in the Applicant's/Cory Group's freehold; the party responsible for those activities (RRRL or CEL) and any alternate re-provision being considered as a consequence of REP.

Table 1.1: Summary of Applicant's Existing Land Uses and Potential Re-Provision

Applicant Group Company	Plot as identified in Land Plans, Revision 1 submitted at Deadline 2	Pre REP - Existing Land Use Activity	Post REP - Potential Re-Provision
RRRL	02/02	<p>Operational vehicle access and circulation roads</p> <p>RRRF Operational storage of empty waste and IBA containers</p> <p>Wasteland habitat area</p>	<p>Shared use of assets between REP and RRRF by agreement and modifications to existing infrastructure. The Illustrative Circulation Plan (2.6, APP-13) displays an indicative layout and arrangement</p> <p>Containers would be accommodated at other sites owned and operated by companies within the Cory Group</p> <p>In terms of re-provision of the wasteland habitat, the Applicant's Outline Biodiversity and Landscape Mitigation Strategy (7.6, APP-107) provides for both on-site and off-site re-provision, the latter would be provided through the Environment Bank.</p>
CEL	02/04	No operational activities currently occur on site	n/a
RRRL	02/07	Access road from Norman Road along southern boundary of REP site.	Shared use of assets between REP and RRRF by agreement and modifications to existing infrastructure. The Illustrative Circulation Plan (2.6, APP-13) displays an indicative layout and arrangement
RRRL	02/08, 02/09, 02/11, 02/12	Small existing electrical substation unit, HGV vehicle	Shared use of assets between REP and RRRF by agreement and modifications to existing infrastructure. The Illustrative Circulation Plan (2.6, APP-13) displays an indicative layout and arrangement

		weighbridges	
CEL and RRRL	02/22, 02/23	Parking for staff working in plot 02/06 and an open amenity area.	Car parking would be accommodated within the existing RRRF staff and visitor carpark and new provision through REP  Shared use of assets between REP and RRRF by agreement and modifications to existing infrastructure. The Illustrative Circulation Plan (2.6, APP-13) displays an indicative layout and arrangement
RRRL	02/16, 02/17, 02/24, 02/26, 02/27, 02/28, 02/30, 02/35 and 02/56	Access to RRRF	Shared use of assets between REP and RRRF by agreement and modifications to existing infrastructure. The Illustrative Circulation Plan (2.6, APP-13) displays an indicative layout and arrangement

**Part 2: Third Party Land and Unregistered Land: Existing Land Use Activities**

1.9.9 The remaining land (15.76%) that comprises the REP site is in the freehold ownership of two third parties or is unregistered.

**SAS Depot Land (RRRL Contractor Area)**

1.9.10 SAS Depot Limited (SASDL) owns the freehold of plot 02/06 (0.636 hectares or 8.55% of the overall REP site).

1.9.11 This parcel of land is leased to RRRL until the end of 2019. The land is therefore an investment asset for the landowner, SASDL. No separate business operates from the land. RRRL uses the land as a contractor maintenance area for RRRF including temporary office accommodation and scaffolding storage.

1.9.12 RRRL has formally agreed that an area of contractor maintenance can be accommodated within the existing RRRF building footprint.

1.9.13 Taking into account RRRL’s lease of plot 02/96, the Applicant / Cory Group owns the freehold or is currently in occupation of c. 93% of the total REP site area (6.264 Hectares).

1.9.14 The Applicant is in active commercial discussions with SASDL with the aim of reaching a voluntary agreement as soon as possible.

**S Wernick & Sons**

1.9.15 S Wernick & Sons (Holdings) Limited (Wernick) owns the freehold of plot 02/05 (0.468 hectares or 6.29% of the REP site). This parcel of land is used by its third-party business for the open storage of temporary modular accommodation units. The Applicant is in active commercial discussions with Wernick with the aim of reaching a voluntary agreement as soon as possible.

### **Unregistered Land**

1.9.16 Remaining land parcels (02/20, 02/21, 02/36 and 02/37) are unregistered (0.068 hectares or 0.92% of the REP site). However, these plots currently form part of the access route into the REP site.

### **Conclusion**

1.9.17 The existing land use activities described in **Paragraph 3.2.2** of the **Environmental Statement (ES) (6.3, Rev 1)** are overwhelmingly associated with the operation of RRRF.

1.9.18 Alternative provision with REP in place would either be accommodated through modifications to existing infrastructure, through the development of REP itself, or, where appropriate, through the utilisation of land off site within the Applicant's/Cory Group's site portfolio.

1.9.19 SASDL does not operate a business from plot 02/06.

1.9.20 Wernick does operate a business from plot 02/05, which would need to re-locate.

1.9.21 The Applicant is in active commercial discussions with SASDL and Wernick with the aim of reaching a voluntary agreement as soon as possible.

## 1.10 ExA Written Question Reference Q1.0.10

### 1.10.1 Written Question Q1.0.10 states:

*"Paragraph 3.2.8 of the ES refers to existing and proposed businesses on the site of the main temporary construction compound. Please explain how these businesses would be affected by the proposed development and how this is taken into account in the ES and the Draft DCO."*

### Response

- 1.10.2 **Paragraph 3.2.8 of Chapter 3 Project and Site Description of the Environmental Statement (ES) (6.1, Rev 1)** states that the northern extent of the area proposed for the temporary construction compound most recently received planning permission for the erection of three industrial units for mixed use within Class B1 (business), Class B2 (general industrial) and B8 (storage/distribution), with associated ancillary works (Local Planning Authority reference: 13/00918/FULM). Part of the southern portion comprises an existing joinery business.
- 1.10.3 This is no longer accurate due to changes made at Deadline 2. Since submission of the DCO Application, the Applicant has taken into account relevant representations made and considered how it could revise its construction proposals so as to move the temporary construction compound on to land mainly within its own ownership. As a result of the work undertaken, and as a result of a change in the delivery programme of the data centre, the Applicant has submitted revised versions of the **Book of Reference (4.3, Rev 1)** and **Land Plans (2.1, Rev 1)** which remove from the Order Land plots 02/53 and 02/55.. No powers of temporary possession or indeed compulsory acquisition are therefore sought over these plots. Note that the land on which the existing joinery business, known as Munster Joinery is located (plot 03/07), was already carved out of the Order Land on the Land Plans at submission.
- 1.10.4 The Main Temporary Construction Compound will now consist of plots 02/43, 02/44, 02/48, 02/49, 02/51, 02/52 and 03/05.
- 1.10.5 As a consequence of the original carve out of plot 03/07 and the removal of plots 02/53 and 02/55 at Deadline 2, the existing joinery business and its car parking/yard will remain in operation during the construction of the Proposed Development.
- 1.10.6 A separate **Environmental Statement Supplementary Report (ESSR)** has been prepared and submitted at Deadline 2 **(6.6, Rev 0)**.
- 1.10.7 The ESSR confirms that as a result of moving the Main Temporary Construction Compound to the north of the existing joinery business, there would be no new or different likely significant effects on the joinery business.
- 1.10.8 Indeed, there is likely to be a beneficial impact to the joinery business, in comparison to the temporary construction compounds proposed at submission, as it would now remain in operation with its car parking and yard during construction of the Proposed Development.

## 1.11 ExA Written Question Reference Q1.0.11

### 1.11.1 Written Questions Q1.0.11 states:

*"Paragraph 3.3.37 of the ES refers to bottom ash from the incinerator (IBA) being transported off-site by barge. Please consider including a requirement to this effect in the draft DCO."*

#### **Response:**

- 1.11.2 The Applicant is content to include a new requirement in the draft Development Consent Order (**3.1; APP-014**) (dDCO) that the incinerator bottom ash (IBA) from the REP ERF will be transported off-site by barge under normal operating conditions. This requirement would not apply in the event of a jetty outage.
- 1.11.3 This amendment is reflected in a new requirement in Schedule 2 to the dDCO (**3.1, Rev 1**) submitted at Deadline 2.

## 1.12 ExA Written Question Reference Q1.0.12

1.12.1 Written Question Q1.9.12 states:

*"Paragraph 3.3.41 of the ES sets out options for the use of biogas from the anaerobic digester. Please explain how these have been taken into account in the ES and set out how any infrastructure associated with the use of this biogas has been included in the proposed development."*

### Response:

- 1.12.2 **Paragraph 3.3.41** of **Chapter 3 Project and Site Description** of the **ES (6.1, Rev 1)** states that the biogas resulting from the Anaerobic Digestion process would be passed through a gas-upgrading and filtering system suitable for the production of Compressed Natural Gas (CNG) and/or for injection into a local gas network. CNG can be used as a fuel for vehicles, including through converting onsite vehicles (which shuttle waste containers within the site). CNG would be the preferred option if feasible and viable. However, if a CNG option is not progressed, then REP would incorporate a Combined Heat and Power (CHP) engine which would use biogas to generate electricity and heat. The additional heat and energy could be used to support the Anaerobic Digestion process or provide additional energy export from REP.
- 1.12.3 **Plate 3.12** in **Chapter 3 Project and Site Description** of the **ES (6.1, Rev 1)** discusses the infrastructure associated with the use of biogas. This includes both a gas storage tank and Combined Heat and Power (CHP) infrastructure which would be required for either combustion of biogas in a CHP engine or storage of biogas for use as a fuel for on-site vehicles. Work number 1B(x) in Schedule 1 of the draft Development Consent Order (**3.1, Rev 1**) identifies the gas storage and upgrading equipment and Work number 1B(viii) in Schedule 1 of the draft Development Consent Order (**3.1, Rev 1**) identifies the CHP infrastructure.
- 1.12.4 **Paragraph 3.4.4** of **Chapter 3 Project and Site Description** of the **Environmental Statement (ES) (6.1, Rev 1)** sets out the approach to the assessment of the worst case maximum parameters for the Proposed Development.
- 1.12.5 Each topic-specific assessment presented in **Chapters 6 - 14** of the **ES (6.1)** was undertaken based on reasonable worst case parameters for that given topic to ensure a precautionary approach to assessment, It should be noted that the worst case parameters may differ for each topic (for example a taller stack would be worse case for visual impact yet best case for air quality). **Section 4** of each chapter of the ES, includes a clear description of the reasonable worst case adopted for that topic.
- 1.12.6 As stated in **Paragraph 3.4.1** of **Chapter 3 Project and Site Description** of the **ES (6.1, Rev 1)** these reasonable worst case parameters have been captured within the 'Rochdale Envelope' of the Proposed Development which includes the infrastructure associated with biogas production and processing.
- 1.12.7 For the majority of EIA topics, the two options for dealing with biogas from the anaerobic digestion (i.e. combustion in a CHP engine or CNG production) have no

bearing on the assessment. However, there are implications for potential air quality effects (and corresponding effects on ecological receptors) and potential effects on townscape and visual receptors.

- 1.12.8 As set out in **Paragraph 7.4.4 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** burning the biogas in a gas engine would provide a worst-case impact in terms of emissions to air (modelled as being emitted 100% of the time) and this has therefore been assessed. The ES goes on to state that emissions from operational REP site traffic (excluding vehicles delivering material to and from the REP site), will not be significant in themselves and the potential use of biogas for fuel would mean that the vehicles would have lower emissions than conventional diesel or petrol powered vehicles.
- 1.12.9 No likely significant residual effects have found to arise from on-site traffic emissions or combustion of biogas in a CHP engine (paragraph 7.5.53 of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**).
- 1.12.10 The assessment presented in **Chapter 9 Townscape and Visual Impact Assessment** of the **ES (6.1, Rev 1)** assumes a worst case visual envelope for REP including a CHP engine. Any effects resulting from using biogas on site to power vehicles would be less, as less above ground infrastructure would be required.



## 1.13 ExA Written Question Reference Q1.0.13

### 1.13.1 Written Question Q1.0.13 states:

*“Paragraph 3.3.55 of the ES refers to a stack no taller than 14m associated with the anaerobic digester; in ES table 7.19 there is reference to a stack height of 8m. Please clarify the height proposed for the emissions stack and gas flare proposed in work no 1B and whether this refers to one stack or two.”*

#### **Response:**

1.13.2 The emissions stack from the proposed combined heat and power (CHP) engine would have a height of 8m (nominal/ above surround ground level). This is set out in **paragraph 7.5.53, Table 7.19 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)**. The height specified in the Environmental Statement is consistent with the Environmental Permit (EP) application and has been demonstrated to be appropriate within the air quality assessment submitted as part of the EP application. This is secured in Requirement 3, Schedule 2 of the draft Development Consent Order (**3.1, Rev 1**).

1.13.3 The stack from the proposed gas flare would have a height of up to 14m (nominal/ above surround ground level). This is set out in paragraph 7.5.55 of **Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)**:

*“When the CHP engine is unavailable, the biogas would be flared in a 14 m high enclosed ground flare.”*

1.13.4 The height specified in the Environmental Statement is consistent with the EP application and has been demonstrated to be appropriate within the air quality assessment submitted as part of the EP application. This is also secured in Requirement 3, Schedule 2 of the draft Development Consent Order (dDCO). Requirement 3(2) of the dDCO (**3.1, Rev 1**), requires that the surround ground level be no less than 1m and no more than 3m AOD.

## 1.14 ExA Written Question Reference Q1.0.14

1.14.1 Written Question Q1.0.14 states:

*"Paragraph 3.3.66 of the ES refers to the installation of district Heating (DH) pipes. Please explain how the potential environmental impacts resulting from the construction of the DH network have been considered in the ES?"*

### Response:

- 1.14.2 **Paragraph 3.3.65 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** states that the Proposed Development includes the Combined Heat and Power (CHP) export/return pipes to be installed up to the REP site boundary so that the CHP infrastructure is ready once a future end user of heat from REP has been identified.
- 1.14.3 **Paragraph 3.3.66 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** states that this infrastructure would comprise pipes approximately 500-600 mm (external diameter) which would be buried below ground, with around 600 mm cover, and would be spaced close together, thereby minimising the need for an extensive pipe trench.
- 1.14.4 **Paragraph 3.4.4 of Chapter 3 Project and Site Description of the Environmental Statement (ES) (6.1, Rev 1)** sets out the approach to the assessment of the worst case maximum parameters for the Proposed Development.
- 1.14.5 Each topic-specific assessment presented in **Chapters 6 - 14 of the ES (6.1)** was undertaken based on reasonable worst case parameters for that given topic, to ensure a precautionary approach to assessment. This may differ depending upon the topic being assessed. Within Section 4 of each chapter of the ES, there is a clear description of the reasonable worst case adopted for that topic.
- 1.14.6 As stated in **Paragraph 3.4.1 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** these reasonable worst case parameters have been captured within the 'Rochdale Envelope' of the Proposed Development which includes the infrastructure associated with district heating pipes.
- 1.14.7 All topic assessments presented in the **ES (6.1)** assess the potential effects of the on-site CHP infrastructure up to the REP site boundary. This work has been included as part of the summary of the primary components of REP as set out in **paragraph 3.3.1 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** which have been considered for each construction and operational effects topic assessment.
- 1.14.8 It is acknowledged that any future supply of waste heat (e.g. to district heat network scheme for a local residential area) could give rise to potential effects on the local environment. The assessment of this is reported in the cumulative assessment discussed at **Paragraphs 7.10.5, 8.10.4, 9.10.19, 10.10.17, 11.10.9, 12.10.3, 13.10.4 and 14.10.7 of Chapters 7 – 14 of the ES (6.1)**. However, until the end users are identified, the routing of the heat network cannot be identified. Such work can only come later.

- 1.14.9 Further, such development would be subject to a separate planning application which, depending on its scale, would be subject to a requirement to undertake an environmental impact assessment. Such assessment would take into account REP either as part of its baseline or its cumulative assessment. The ExA can therefore be confident that the environmental effects of the further infrastructure required for the installation of any district heating scheme will be assessed as part of any future planning application.
- 1.14.10 Given the nature of any such scheme (likely to consist mainly of a network of buried pipes), potential effects would be limited to the construction phase which is unlikely to overlap with the construction of REP. Also, given that the network would most likely serve new Thamesmead/Peabody development nearby, potential effects would most likely be restricted and relate to burying pipes in or adjacent to existing roads. It is possible that the pipework infrastructure for any new heat network could be installed, as a matter of course, alongside other services required for the new developments, thereby further limiting the potential to give rise to additional adverse environmental effects. It is therefore considered highly unlikely that there would be any likelihood of significant cumulative effects.
- 1.14.11 In conclusion, it is therefore considered that the potential environmental effects arising from the construction of the DH network have been adequately addressed within the DCO application.

## 1.15 ExA Written Question Reference Q1.0.15

### 1.15.1 Written Question Q1.0.15 states:

*"The ES states that the proposed development will comply with the waste hierarchy by reducing the volume of waste sent to landfill. Please set out what consideration has been given to ensuring that the full use has been taken of opportunities for recycling of waste before it is considered for incineration."*

### Response:

1.15.2 The Energy Recovery Facility (ERF) component of REP will recover residual waste and avoid its disposal to landfill or export overseas.

1.15.3 The Applicant has demonstrated within **Table 4.2** of the **Project and its Benefits Report (7.3, APP-103)** that even if the challenging and aspirational high recycling targets for London are met in full, there is still a need for additional residual waste management infrastructure capacity.

1.15.4 The ERF component of REP will operate as a 'recovery' operation which is higher in the waste hierarchy than disposal. The Applicant submitted an application for 'Preliminary' R1 status to the Environment Agency (EA) on 7 February 2019. The EA issued formal confirmation that REP has been granted 'Preliminary' R1 status by the EA on 9 April 2019 which confirms REP's status as 'recovery' and thereby above 'disposal' in the waste hierarchy.

1.15.5 The legislative requirement (through the Waste (England and Wales) Regulations 2011/988) is for waste producers to consider options which are higher in the waste hierarchy and therefore, the requirement for considering recycling components of the waste is placed upon the waste producer rather than the the ERF itself.

1.15.6 The Environment Agency (EA) is the competent authority for waste management within England. As the Competent Authority in England for waste management, the EA has a 'duty of care' to ensure that the waste hierarchy is suitably implemented. The EA applies a European Union wide system for the categorisation of wastes, which is referred to as the EWC (European Waste Catalogue) code. The EWC code system provides for the identification of the source of the waste; the hazardous status/nature of the waste; and a description of the waste type. The EP will constrain the types of wastes which can be accepted for processing at the individual waste treatment facilities by limiting the waste types to a specific list of EWC codes. The EA will prohibit the waste treatment facilities from processing wastes other than those stated in the EP.

1.15.7 An application for an Environmental Permit (EP) to operate the ERF and Anaerobic Digestion facility at REP was submitted to the EA in December 2018. The Applicant will need to have the EP in place before any waste can be received at the ERF and Anaerobic Digestion facility. If granted, the EP will restrict the types of wastes which can be processed at the the ERF and Anaerobic Digestion facility to a series of EWC codes. Therefore, in granting the EP for the ERF and Anaerobic Digestion facility, the EA will only permit the ERF and Anaerobic Digestion facility to process wastes which are suitable for processing in the ERF and Anaerobic Digestion

facility, i.e. they are representative of residual waste, and will have undergone a level of pre-treatment, through either off-site processing or source-segregation, to ensure that the wastes permitted to be processed are 'residual' and not suitable for recycling.

- 1.15.8 The duty of care in relation to the appropriate application of EWC codes to wastes is the responsibility of waste producers. In implementing the waste pre-acceptance and waste acceptance procedures the Applicant will undertake its own duty of care investigation into whether the Applicant believes that the appropriate EWC codes has been applied to the waste; and whether it is an acceptable waste stream for REP. If the Applicant believes the waste to be either incorrectly coded and/or unsuitable for processing at REP, the Applicant would not accept the waste and it will be transferred off-site to a suitably licenced waste treatment facility.
- 1.15.9 In addition to this, there is a significant commercial imperative for waste producers to recycle waste prior to sending it for recovery/ disposal. Waste management follows the most cost-effective solution. As explained within **paragraph 4.2.8** of the **Project and its Benefits Report (7.3, APP-103)**, the ERF component of REP will not hinder recycling rates as recycling is a cheaper process for waste producers and it has been demonstrated that the median gate fees at material recycling facilities and organic waste treatment facilities (e.g. anaerobic digestion facilities), which are preferred in the waste hierarchy, are significantly lower than gate fees at energy from waste plant and landfill facilities, with the median anaerobic digestion gate fee for England continuing to decline. As such, REP will support the drive to move waste further up the waste hierarchy by preventing residual waste going to landfill.
- 1.15.10 Finally, as explained in the **Operational Waste Statement (6.3, APP-097)**, the residues (Incinerator Bottom Ash and Air Pollution Control Residue) which are generated by the ERF will be transferred by river or recycling. Therefore, the residual waste processed at the ERF will be subject to further recycling of the residues generated by the ERF.
- 1.15.11 Taking all of the above into consideration, the Applicant considers that the residual waste processed, and the residues generated, by the ERF will be subject to the maximum opportunities for recycling, and REP, being higher in the waste hierarchy, will minimise the quantities of waste transferred for disposal to landfill in accordance with UK waste policy as explained in **Section 2** of **Project and its Benefits Report (APP-103)**.

## 1.16 ExA Written Question Reference Q1.0.16

### 1.16.1 Written Question Q1.0.16 states:

*“Paragraph 3.3.4 of the ES states that waste received is previously processed off site. It is noted that additional checks will be carried out inside the tipping hall. Please will the Applicant identify where non-compliant waste will be stored while waiting to be transported off site, where this waste will be sent and what means of transport will be used.”*

### **Response:**

- 1.16.2 Any non-compliant waste identified from the waste acceptance checks will be stored in a designated area within the Tipping Hall within the main Riverside Energy Park (REP) building, as identified on **Figure 1.3 the Illustrative Site Layout and Parameters Plan** of the ES (**6.2, APP-056**). The precise location within the Tipping Hall will be subject to detailed design.
- 1.16.3 Procedures will be developed by the Applicant to control the inspection, storage and onward disposal of non-compliant waste. Within the Environmental Permit application for the ERF and Anaerobic Digestion facility, the Applicant has proposed a pre-operational condition is included within the Environmental Permit which will require that these procedures are developed and approved by the Environment Agency prior to commencement of commissioning of REP. Certain non-compliant wastes will require specific action for safe storage and handling (for example a drum of flammable liquid such as oil). From the operation of the adjacent Riverside Resource Recovery Facility (RRRF), the Applicant can confirm that less than 0.01 % of the incoming waste will be non-compliant waste.
- 1.16.4 The Applicant can confirm that non-compliant waste will be transferred off-site to a suitably licensed waste management facility. The specific location of where non-compliant waste will be sent will be dependent on the nature of the waste. This could either be an alternative waste treatment facility or a landfill/ disposal facility.
- 1.16.5 The Applicant can confirm that the proposed method of transport for non-compliant waste is via road given the likely location of the particular facilities that would need to receive the non-compliant waste.

## 1.17 ExA Written Question Reference Q1.0.17

1.17.1 Written Question Q1.0.17 states:

*"The proposals for the electrical connection contain alternative routes. Please provide an update on the status of these alternatives and reasons for not specifying a single route".*

### Response:

- 1.17.2 A detailed update on the status of the Electrical Connection is provided in the report **Electrical Connection Progress Report (Ref 8.02.07)** comprising part of the submission for Deadline 2.
- 1.17.3 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.
- 1.17.4 This refinement is reflected in updated submissions of the **Works Plans (Rev 1)**, **Land Plans (Rev 1)**, **Access and Public Rights of Way Plans (Rev 1)**, **Book of Reference (Rev 1)**, **Statement of Reasons (Rev 1)** and **Development Consent Order (Rev 1)** submitted at Deadline 2. The revised Application Boundary is also reflected in Appendix A Revised Electrical Connection Route Boundary Plan of the **Electrical Connection Progress Report (Ref 8.02.07)**.
- 1.17.5 At the Scoping stage, the proposed DCO Application Boundary included two potential connection points at Littlebrook and Barking. Subsequently, by the time of submission of the application, the Applicant (in conjunction with the Distribution Network Operator UK Power Networks (UKPN)) had identified a single proposed connection location at the Littlebrook substation in Dartford. However, the Applicant had not yet obtained sufficient information from UKPN to identify a single connection route that UKPN considered was deliverable, whilst also being an economic and efficient solution that protects features of environmental and historic interest (further to the terms of paragraph 2.2.6 of EN-5). However, subsequent non-intrusive and intrusive investigations by UKPN, completed in March 2019, have identified and confirmed a single Electrical Connection route which is now represented in the revised Application Boundary.
- 1.17.6 In summary, revised plans submitted for Deadline 2 show the DCO Application as having a single Electrical Connection route.



## 1.18 ExA Written Question Reference Q1.0.18

1.18.1 Written question Q1.0.18 states:

*"The construction of a new utility tunnel along the River Thames has been ruled out (ES 5.5.4). Please provide more information showing why this route is not viable".*

### Response:

- 1.18.2 The report **Electrical Connection Progress Report (Ref 8.02.07)**, comprising part of the submission for Deadline 2, includes additional commentary to that provided in **Paragraphs 5.5.2 and 5.5.3 of Chapter 5 of the ES (6.1, Rev 1)**.
- 1.18.3 The report confirms that the use of the existing utilities tunnel under the River Thames to a Barking substation connection was one of the route options considered at the EIA scoping stage. The existing Riverside Resource Recovery Facility (RRRF) is connected to Barking substation via this route.
- 1.18.4 UK Power Networks (UKPN) explored both the potential to use the existing RRRF cables as well as installing additional cables, finding that neither option was technically feasible due to potential overheating of cables within the existing tunnel and lack of available space for additional new cables. Seeking a cable connection to Barking substation would therefore have required the construction of a new and separate utilities cable tunnel under the River Thames in excess of 500m in length with all the associated environmental effects.
- 1.18.5 UKPN therefore determined, given the very significant cost and engineering complexity of delivering a new river tunnel, that an entirely land and highways based route to Littlebrook represented an economic and efficient solution to connect Riverside Energy Park (REP). This solution is in line with UKPN's statutory obligations under the Electricity Act 1989 and as set out in Paragraph 3.7.10 of NPS EN-1:

*"The [Secretary of State] should consider that the need for any given proposed new connection or reinforcement has been demonstrated if it represents an efficient and economical" means of connecting a new generating station to the transmission or distribution network"*

and 2.2.2 of EN-5:

*"In neither circumstance [being connected to the location of a generating station or the need for strategic network reinforcement] is it necessarily the case that the connection between the beginning and end points should be via the most direct route (indeed this may be practically impossible), as the applicant will need to take a number of factors, including engineering and environmental aspects, into account."*

- 1.18.6 Whilst a connection to Barking via a new Thames tunnel may have been viable in engineering terms, its cost, complexity and associated environmental effects weighed against it in favour of an economic and efficient connection to Littlebrook, and the latter was therefore included in the submitted application for Development Consent.



## 1.19 ExA Written Question Reference Q1.0.19

1.19.1 Written question Q1.0.19 states:

*"The construction of the electrical connection is predicted to commence in 2022 and last 24 months. Please explain to what extent a deviation from the assumed start date and length of construction would affect the assessment of the likely significant effects of the work."*

### Response

- 1.19.2 It is not anticipated that a deviation from the assumed start date or duration of construction of the Electrical Connection would affect the assessments presented in **Chapters 6 – 14 of the Environmental Statement (ES) (6.1)**. This is because, as reported in **Paragraphs 3.5.28 and 3.5.31 of Chapter 3 of the ES (6.1, Rev 1)** and shown on **Figure 1.2 of the ES (6.2, APP-056)**, a typical section of the Electrical Connection trench would be constructed on a rolling programme along the route, the potential effects on specific environmental receptors would therefore only be short term (typically 7 days per 200 m section of electrical connection route (with an overall 300m working stretch fenced off)).
- 1.19.3 Therefore, a change to the overall duration of construction would not alter the short term temporary nature of effect on receptors from construction of the Electrical Connection.
- 1.19.4 **Paragraph 3.5.24 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** states that the construction period for the Electrical Connection is estimated to be up to 18 – 24 months in duration.
- 1.19.5 **Table 3.2 in Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** provides further details on the estimated construction programme for the Electrical Connection.
- 1.19.6 The developer and ultimate owner of the Electrical Connection, UK Power Networks (UKPN), has advised the Applicant that 24 months is a worst case upper estimate for the duration of construction works although there is the possibility that the construction works could be completed in a shorter timeframe.
- 1.19.7 The Applicant has regularly consulted with UKPN throughout the application process, and the latter has supplied information relating to the assessment assumptions for the start date and duration of the Electrical Connection construction works, based on the most accurate information available at the time and from experience of similar projects.
- 1.19.8 There is flexibility built into the construction programme for REP (shown in **Table 3.2 in Chapter 3 Project and Site Description of the ES (6.1, Rev 1)**) such that even if the construction start date of the Electrical Connection was delayed, it would be unlikely to delay the overall completion date for the Proposed Development.
- 1.19.9 The cumulative assessment presented in **Appendix 1.4 Cumulative Assessment Matrix of the ES (6.3, APP-065)** includes all reasonably foreseeable development

(at the time of writing the ES) which could be constructed at the same time as the Proposed Development (including the Electrical Connection) and could potentially give rise to cumulative effects. Should there be a delay in construction start date for the Electrical Connection, it is possible that this could have a knock-on effect to the overall construction completion date for the Proposed Development. However, this is not anticipated to result in any new or different likely significant cumulative effects with other development not already considered as part of the assessment presented in **Appendix 1.4 Cumulative Assessment Matrix** of the **ES (6.3, APP-065)**. The assessments are based on reasonable assumptions including the most likely construction start and end dates of all developments considered. There is inherently flexibility in construction programmes, and although there may be a delay in the construction of the Electrical Connection for REP, there may also be changes to construction programmes for other proposed development.

- 1.19.10 It is acknowledged that a shorter construction period (e.g. 15-18 months) may result in a more intense level of construction activity and therefore give rise to a potential for greater likely significant effects compared to a longer 24 month programme. As such, each of the technical assessments presented in **Chapters 6-15** of the **ES (6.1)** considers the potential effects of construction of the Electrical Connection based on a reasonable worst case basis for that topic. Where appropriate, (for example, **Chapter 6 Traffic and Transport** of the **ES (6.1, Rev 1)**) this reasonable worst case considers a shorter, more intense construction period of 15 months, as this would focus a greater number of traffic movements in one place over a shorter period of time.
- 1.19.11 Other assessments (for example, **Paragraph 8.6.1** of **Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)**) assume that all construction activities would be carried out simultaneously at each of the receptors for the entire construction period.
- 1.19.12 **Chapters 6 – 14** of the **Environmental Statement (ES) (6.1)** report that no likely significant residual effects would arise from the construction of the Electrical Connection. Given this, it is considered unlikely that new, different or changes to the significance of effects are likely to arise if the start date or duration of construction were amended.
- 1.19.13 Additionally, the Applicant can confirm that, following further technical design work carried out with UK Power Networks, the Applicant is removing the Electrical Connection route option through Crossness LNR shown on **Figure 1.2** of the **ES (6.2, APP-056)**. Accordingly, the Electrical Connection will not directly affect the LNR and the potential effects of this route option as reported in the ES are therefore no longer relevant.
- 1.19.14 The removal of the Electrical Connection route option through the Crossness LNR is reported in the Applicant's submission to the Examination at Deadline 2 and the updated **Land Plans (2.1, Rev 1)**, and **Works Plans (2.2, Rev 1)** submitted to the Examination at Deadline 2 do not contain this route option.

## 1.20 ExA Written Question Reference Q1.0.20

1.20.1 Written Question Q1.0.20 states:

*"The Environment Agency (EA) in its Relevant Representation (RR) has raised concern that the crest of Thames Tidal Flood Defence will need to be raised to 7.7m AOD as part of the Thames Estuary 2100 second stage within the lifetime of the development. The EA is concerned that the proximity of the proposed development will restrict future defence raising options. Can the Applicant demonstrate that, with the proposed development in place, there will be no restriction which would prevent the raising of the Thames Flood Defence create as required? The EA is suggesting a 16m exclusion zone from the landward side of the flood defence. Would the Applicant confirm that no restrictions will be in place which would prevent inspection and maintenance of the flood defence?"*

### **Response:**

#### **No restriction preventing the raising of the Thames Flood Defence crest**

1.20.2 Since submission of the Relevant Representation (RR) the Applicant has met and been in consultation with the Environment Agency (EA).

1.20.3 The Applicant has demonstrated to the EA that the Proposed Development will not restrict options for future raising of the Thames Flood Defence. This was achieved through the production of a series of indicative drawings which illustrated potential technical solutions that could be adopted in the future, should the need ever arise to raise the flood bank. These were sent to the EA on 9th March 2019, who confirmed and agreed the information demonstrated on the drawings at a meeting on 22nd March 2019. These drawings are appended to the **draft Statement of Common Ground (SOCG) between the Applicant and the EA (Ref 8.01.03)**.

1.20.4 As agreed with the EA, the indicative drawings demonstrate that the Proposed Development does not preclude the raising of the flood defence to 7.7m AOD as part of the Thames Estuary 2100 second stage and does not restrict future defence raising options.

#### **No restrictions to prevent inspection and maintenance of the flood defence**

1.20.5 The Applicant is the riparian owner of the flood defence located within the REP site and has the responsibility to maintain the flood defences. The Applicant can confirm that the Proposed Development will not restrict or prevent the inspection or maintenance of the flood defences.

1.20.6 A Flood Risk Activity Permit Area (FRAPA) for REP has been identified following discussions with the EA, identifying an area 16 metres from the flood defences (see the DCO Boundary Flood Risk Activity Permit Drawings in Appendix B within the **SOCG between the EA and the Applicant (Ref 8.01.03)**). It should be noted that the FRAPA is not an 'exclusion zone', it is an area in which new development must demonstrate that access, maintenance and function of the flood defences are not compromised.

- 1.20.7 The necessity to apply for a Flood Risk Activity Permit will be disapplied as part of the DCO, with all necessary controls being provided for in the protective provisions for the benefit of the EA to be included in **Part 4 of Schedule 10 of the Draft DCO (3.1, Rev 1)**. This will include a requirement for the Applicant to notify the EA of any works anticipated within the FRAPA (both during construction and operation). The wording of the protective provisions has been updated to include the necessary controls in relation to the FRAPA (please see response to Q7.0.7 for an update on the protective provisions) and was provided to the Environment Agency for comment on 17 April 2019.
- 1.20.8 During construction, activities within the FRAPA are anticipated to include material storage and part of a laydown area required during the erection of a mobile crane.
- 1.20.9 During operation of REP, the primary use of the area within the FRAPA will be the provision of a service road. Both the Applicant and the EA agree that no buildings (as defined within the **Draft DCO (3.1, Rev 1)** as "*...includes any structure or erection or any part of a building, structure or erection*") will be placed within the FRAPA.
- 1.20.10 The provision of a service road within the FRAPA was discussed with the EA at the meeting on 22nd March 2019 where they confirmed these would not impact the access for inspection and maintenance and function of the flood defences.

### **Summary**

- 1.20.11 It is therefore confirmed that there would be no restrictions to raising the Thames Flood Defence crest, nor would there be restrictions preventing inspection and maintenance of the flood defences.

## 2 Air Quality and Emissions

### 2.1 ExA Written Question Reference Q2.0.1

#### 2.1.1 Written Question Q2.0.1 states:

*"Concern about the impact of the proposed development on Air Quality Management Areas (AQMA) was raised during the consultation stage. Can the Applicant explain the extent to which Air Quality impacts within the Borough of Dartford have been assessed? Can the Applicant also explain whether the Proposed Development is likely to threaten delivery of the measures contained within the AQMA Action Plan."*

#### **Response:**

- 2.1.2 Potential air quality effects on receptors in the Borough of Dartford have been assessed for construction, operational and de-commissioning phases within **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**.
- 2.1.3 Potential effects arising during the construction and de-commissioning phases of the Proposed Development are associated with fugitive dust emissions and construction traffic. With appropriate mitigation in place, as per the Outline Code of Construction Practice (secured by **Requirement 11** of **Schedule 2** of the **dDCO (3.1, Rev 1)**), potential effects from construction dust are not significant (in accordance with **Paragraph 7.5.13** of **Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1, Rev 1)**). More widely, no significant air quality effects during the construction and de-commissioning phases are predicted (see the response to **ExA Q2.0.4**).
- 2.1.4 In relation to the operational phase, **Figure 7.7** of the **ES (6.2, APP-056)** shows that NO<sub>x</sub> emissions from the Energy Recovery Facility (ERF) will not have a significant effect on annual mean NO<sub>2</sub> concentrations within the Borough of Dartford as the process contributions will be far lower than 0.4µg/m<sup>3</sup> and therefore well below the level at which significant effects would occur. **Table 7.34** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** shows that predicted annual mean PM<sub>10</sub> concentrations from the ERF are less than 1% of the assessment level and hourly mean NO<sub>2</sub> and daily mean PM<sub>10</sub> concentrations are less than 10% at the point of maximum concentration (which is not within the Borough of Dartford) and therefore impacts would be not significant.
- 2.1.5 **Tables C.2.2.9** and **C.2.2.10** of **Appendix C.2 (6.3, Rev 1)** set out the potential combined effects of road traffic emissions together with emissions from the ERF, and **Table C.1.6.2** of **Appendix C.1 (6.3, Rev 1)** contains the potential effects of road traffic emissions alone. Receptor 27 (R27) is located on the operational road traffic route for the REP ERF in the London Borough of Dartford, approximately 16m south of the A206, as it is the closest residential location alongside this section of the A206.
- 2.1.6 The changes in pollutant concentrations as a result of operational road traffic emissions and emissions from the REP ERF are all imperceptible at R27 which

would also be representative of the level of change within the A282 Tunnel Approach Road Junctions 1A-1B AQMA. The Dartford Town and Approach Roads AQMA extends from the A206/A2026 roundabout towards Dartford town centre. The closest residential property to the roundabout is approximately 40m to the south of the roundabout adjacent to the A2026. The A2026 is not part of the construction or operational traffic route for the Proposed Development and therefore the changes in pollutant concentrations due to road traffic emissions will arise solely from the traffic on the A206 and not as a result of the construction or operation of the Proposed Development. As this residential property is further from the A206 than R27, it will potentially receive smaller increases in concentrations as a result of traffic from the Proposed Development and therefore the changes within the Dartford Town and Approach Road AQMA will also be imperceptible and therefore negligible.

- 2.1.7 It is considered that air quality impacts within the Borough of Dartford have been adequately assessed and the Proposed Development will have no significant effects on NO<sub>2</sub> or PM<sub>10</sub> concentrations within the Borough of Dartford AQMAs. As a result, it is considered that the delivery of the measures contained within the AQMA Action Plan will not be threatened. In addition, the Applicant has proposed in its **dDCO (3.1, Rev 1)** submitted at Deadline 2, a Requirement that limits the number of HGV movements for waste delivery to the REP ERF.
- 2.1.8 Furthermore, the Applicant has recently had their Environmental Permit Application duly made by the Environment Agency. Within the Environmental Permit the Applicant is proposing additional modern emissions control technology meaning that the NO<sub>x</sub> emissions from the ERF reported in the ES would be further reduced.



## 2.2 ExA Written Question Reference Q2.0.2

### 2.2.1 Written Question Q2.0.2 states:

*"Paragraph 7.5.7 of the ES states that that an initial study area of 10km radius from the REP was considered for human health receptors and 15km radius for internationally and nationally designated sites. A further 2 km radius has been considered for locally designated nature sites. However, paragraph 7.5.34 states that for the ERF emission modelling, a 4km by 4km Cartesian Grid (presumably from the point source) was used to predict the maximum predicted contribution to ground level concentration. Please explain how the 4km grid is used to inform the assessment findings over the wider study area? Can the Applicant also explain any limitations to the approach adopted."*

### Response:

- 2.2.2 The 4km by 4km Cartesian Grid was used to identify where in the wider study area the highest ground level concentrations as a result of emissions from the Energy Recovery Facility (ERF) occur, and to provide the isopleths of predicted concentrations, **Figures 7.5 (6.2; Rev 1), Figure 7.6 and 7.7 of Chapter 7 Air Quality** of the **Environmental Statement (ES), (6.2, APP-056)**. As shown by the green triangle in the figures, the point of maximum concentration occurs relatively close to REP and higher concentrations occur to the north east of REP. A smaller (4km x 4km) grid square was used to identify these specific points of maximum concentration as the smaller grid size reduces the grid spacing between the receptor points, thereby giving more accurate results for concentrations close to the ERF (as the number of receptor points is limited in the model). Knowing where the highest concentrations are likely to occur enabled the location of specific human health receptors to be better identified, albeit specific human health receptors are located in all directions from REP. Specific terrestrial biodiversity receptors were identified where they occurred within the 10km and 2km distance criteria referenced in the question.
- 2.2.3 The predicted maximum concentrations are provided in **Table 7.34 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** and, as explained in **Paragraph 7.9.21 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**, for those pollutants which have predicted maximum ground level concentrations that cannot be screened out as negligible for human health impacts, the process contributions (PCs) and predicted environmental concentrations (PECs) are provided at sensitive receptor locations in **Appendix C.2** of the **ES (6.3, Rev 1)**. Where the maximum PC is negligible, then the predicted concentration at all other locations, including sensitive receptor locations must also be negligible and therefore the results at sensitive receptor locations are not reported for pollutants with negligible maximum ground level concentrations. The 4km by 4km grid was therefore used to inform the assessment of human health impacts at receptor locations identified within the overall 10km radius, to provide a more accurate estimate of ground level concentrations. The 4km by 4km grid was not used to predict concentrations at terrestrial biodiversity sites.
- 2.2.4 There are no specific limitations to the approach adopted as the impacts from the ERF have been assessed at specific receptor locations in accordance with the

stated distance criteria and using best practice methodology as reported in **Section 7.5 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**. The use of a smaller Cartesian Grid to identify where maximum concentrations occur and for the production of contour plots is standard practice for an air quality modelling assessment such as this.



## 2.3 ExA Written Question Reference Q2.0.3

### 2.3.1 Written Question Q2.0.3 states:

*"Appendix C.2 shows the predicted concentrations of the REP + RRRF + Crossness. Can the Applicant confirm that the REP PC included at Table C2.2.1 includes the anaerobic digester and the REP?"*

#### **Response:**

- 2.3.2 The assessment of Riverside Energy Park (REP), Riverside Resource Recovery Facility (RRRF) and Crossness Sewage Sludge incinerator reported in **Table C2.2.1** of **Appendix C.2 (6.3, Rev 1)** does not include the potential effect of the anaerobic digester as the effects of emissions from the combustion of the biogas occur in a different location to those from the Energy Recovery Facility (ERF), primarily as a result of the very different stack heights. The potential effects of the emissions from the combustion of the biogas are considered separately in the Environmental Statement (ES).
- 2.3.3 There is no significant interaction between the effects of emissions from the anaerobic digester Combined Heat and Power (CHP) unit and emissions from the ERF. The potential effects of emissions from the CHP unit occur in the immediate vicinity of REP as shown in **Figures 7.8** and **7.9** of **Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.2, APP-056)**. **Figure 7.8** shows the predicted hourly average NO<sub>2</sub> concentration from the CHP; the 10µg/m<sup>3</sup> contour is the point at which the hourly average concentrations from the CHP are not significant. As shown in **Table 7.34** of the **ES (6.1, Rev 1)**, the predicted maximum hourly average NO<sub>2</sub> concentration from the ERF is not significant at the point of maximum impact and therefore, as stated in the answer to Q2.0.2, the results for hourly average NO<sub>2</sub> concentrations are not reported in **Appendix C2.2** of the **ES (6.3, Rev 1)**.
- 2.3.4 In terms of the annual mean NO<sub>2</sub> concentrations, there are no human health receptors within the vicinity of Crossness Local Nature Reserve that are relevant receptors for annual mean impacts in accordance with the criteria outlined in **Paragraph 7.2.20** of the **ES, (6.1, Rev 1)**. **Figure 7.9** of the **ES (6.2, APP-056)** shows annual mean NO<sub>x</sub> concentrations from the CHP unit, with the 5µg/m<sup>3</sup> contour extending approximately 60m from the Application Boundary at the REP site. Applying a conversion factor of 0.7 to convert NO<sub>x</sub> to NO<sub>2</sub> (**Paragraph 7.5.41** of the **ES, 6.1, Rev 1**), shows that the annual mean NO<sub>2</sub> contour from the CHP engine would be 3.5µg/m<sup>3</sup> at this point, reducing rapidly as one moves further from REP site. To the south of REP, Receptor 19A has the highest predicted concentration from the ERF and road traffic emissions, with predicted environmental concentration (PEC) of 26.3µg/m<sup>3</sup> (**Table C.2.2.9, Appendix C.2, 6.3 Rev 1**). This location is over 700m from the REP site boundary and at this location, the CHP engine contribution will be far less than 3.5µg/m<sup>3</sup> and therefore in accordance with **Table 7.21** of the **ES (6.1, Rev 1)**, the total potential impact would be negligible.
- 2.3.5 Furthermore, the Applicant has recently had their Environmental Permit Application duly made by the Environment Agency. Within the Environmental Permit the Applicant is proposing additional modern emissions control technology for the ERF

meaning that the NOx emissions and consequential impacts would be reduced from those reported and assessed in the **ES (6.1, Rev 1)**.

## 2.4 ExA Written Question Reference Q2.0.4

### 2.4.1 Written Question Q2.0.4 states:

*“Paragraph 7.9.12 states that the number of trips during construction is not known but that it will not be significant and therefore the impact on air quality will not be significant either. It is noted that this statement is not substantiated, and it is contradicted by the information included in Chapter 6 (transport) which included estimated trips for both workers and material delivery during construction. Given that an estimate of traffic generation during construction for both workers and material delivery is provided in the ES at Chapter 6, can the Applicant explain paragraph 7.9.12 and why the assessment of the effects of construction traffic is not included.”*

### Response:

- 2.4.2 As explained in **Paragraph 7.9.12** of the **Environmental Statement (ES), (6.1, Rev 1)**, an assessment of the air quality effects of construction traffic has been included by reference to the modelling of operational traffic impacts.
- 2.4.3 The information presented in **Chapter 6 Transport** of the **ES (6.1, Rev 1)** for construction movements is for the peak construction month (month 13) (see **Paragraph 6.4.5** of **Chapter 6 Transport** of the **ES, (6.1, Rev 1)**) as the transport assessment is focussed on assessing the likely worst-case effects on highway capacity. For the modelling of road traffic effects on air quality, traffic data in the form of Annual Average Daily Traffic (AADT) is used, as the assessment predicts changes in annual mean pollutant concentrations. In order to calculate AADT traffic movements it is necessary to know the distribution of traffic outside of the peak month over a 12-month period. An analysis of the trip distribution of construction traffic movements for the other months of the construction period was not available at the time of the assessment as it was too early in the design process, but has been undertaken below.
- 2.4.4 As stated in **Paragraph 7.9.12** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**, the number of construction heavy duty vehicle (HDV) traffic movements (in AADT terms) will be lower than the operational traffic movements based on the 100% by road scenario and the latter has been assessed as negligible and not significant. This is illustrated by comparing the maximum 12-month rolling average construction traffic movements with the operational traffic movements presented in **Tables 6.9** and **6.10** of **Chapter 6 Transport** of the **ES (6.1, Rev 1)**.
- 2.4.5 The construction activities will occur over a 5.5 day week (Monday to Saturday). Assuming that the full workforce is present on every working day (i.e. 6 days) and that half the HDV movements occur on a Saturday compared to a normal working day, an estimate of the peak 12-month rolling average construction traffic can be made in AADT format and is shown below in **Table 2.1**.

**Table 2.1: Comparison of Construction and Operational Phase Traffic Movements**

Heading	Peak Construction Rolling 12 Month Period			Operational Traffic		
	LDV	HDV	Total	LDV	HDV	Total
Norman Road (north of Picardy Manorway)	521	17	538	104	686	790
A2016 Eastern Way (west of Yarnton Way)	31	9	40	27	427	454
Yarnton Way (south of A2016 Eastern Way)	52	0	52	0	8	8
A2016 Picardy Manorway (between Eastern Way and Norman Road)	521	17	538	66	686	752
A2016 Picardy Manorway (east of Norman Road)	521	17	538	66	686	752
B253 Picardy Manorway (south of Horse Roundabout)	193	0	193	30	8	38
A2016 Bronze Age Way (south of Horse Roundabout)	245	9	253	48	244	292
A2016 Northend Road (north of A2000 Perry Street)	245	9	253	33	244	277
A2000 (Perry Street (south of Howbury Lane Roundabout)	0	0	0	7	0	7
A206 Thames Road (south of	245	9	253	26	244	270

Heading	Peak Construction Rolling 12 Month Period			Operational Traffic		
	LDV	HDV	Total	LDV	HDV	Total
Howbury Lane Roundabout)						
A206 Thames Road (west of A2026 Burnham Road Roundabout)	245	9	253	23	244	267
A2026 Burnham Road (south of A206 Thames Road Roundabout)	0	0	0	4	0	4
A206 Bob Dunn Way (north of A2026 Burnham Road Roundabout)	245	9	253	19	244	263
A206 Bob Dunn Way (east of Marsh Street N)	245	9	253	19	244	263

2.4.6 In conclusion, as shown in **Table 2.1** above, over the 12-month rolling average, the number of construction HDV traffic movements is lower than the HDV movements in the 100% by road operational traffic scenario, and for the majority of the assessed roads, far lower. The potential effect of traffic emissions during the construction period will therefore be lower than has been assessed for the operational phase assessment, as stated in **Paragraph 7.9.12 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** and would therefore also be negligible and not significant.

## 2.5 ExA Written Question Reference Q2.0.5

### 2.5.1 Written Question Q2.0.05 states:

*"Due to the different presentation of traffic flows used in air quality assessment (which are usually presented as Annual Average Daily Traffic or AADT) and transport assessment (Chapter 6), the two are not easily comparable. While it is clear that the transport assessment has been conducted using different scenarios (Scenario 1 - 100% waste coming to the site by road and Scenario 2 - 100% waste coming by vessels) and combining the two waste streams, i.e. waste destined to the ERF and green waste for the anaerobic digestion, this clarification is not presented in the air quality assessment. Can the Applicant confirm that the assessment included in Appendix C1 of the ES has been conducted assuming 100% of waste coming to the site by road for both waste streams (i.e. both ERF and green waste for the anaerobic digestion process)? Can the Applicant clarify if the assessment represents the worst-case scenario?"*

#### **Response:**

- 2.5.2 The Applicant can confirm that the assessment included in **Appendix C.1 of Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.3, Rev 1)** has been conducted assuming 100% of waste coming to the site by road for both waste destined to the ERF and green waste for anaerobic digestion.
- 2.5.3 The assessment included in **Appendix C.1 of Chapter 7 Air Quality** of the **ES (6.3, Rev 1)** represents the likely worst-case scenario for the reasons set out in **Paragraphs 6.4.1 to 6.4.4 of Chapter 6 Transport** of the **ES (6.1, Rev 1)**.

## 2.6 ExA Written Question Reference Q2.0.6

### 2.6.1 Written Question Q2.0.6 states:

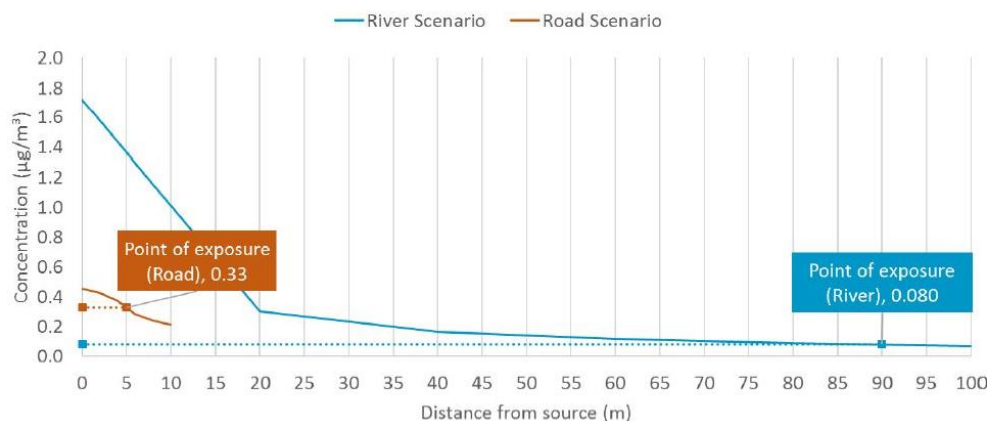
"Paragraph 7.9.16 of the ES states that for the emission vessel movements currently used at the existing RRRF, the annual mean NO<sub>x</sub> concentration at the point of exposure was modelled to be 0.08µg/m<sup>3</sup>. Can the Applicant explain Paragraph 7.9.16 by clarifying how the annual mean reported NO<sub>x</sub> concentration has been derived? Please provide a definition of the term 'emission vessel movements'"

### Response:

2.6.2 The NO<sub>x</sub> concentration of 0.08µg/m<sup>3</sup> reported at **Paragraph 7.9.16 of Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1, Rev 1)** is taken directly from the Port of London Authority (PLA) Air Quality Strategy for The Tidal Thames updated in June 2018 and represents the predicted NO<sub>x</sub> concentration at a distance of 90m from a vessel on the River Thames with emissions corresponding to Tier II controls (emissions standards for vessels constructed after 1st January 2011).

2.6.3 The distance of 90m is the minimum exposure distance to a residential property as a result of vessel movements on the river (residential receptors are worst-case receptors for the consideration of impacts of NO<sub>x</sub> emissions). The reduction in pollutant concentration with distance can be seen in the following graph in **Figure 2.1** (which is Figure 2 – comparison of NO<sub>x</sub> exposure from river and road sources (scenario 1) taken from PLA's Air Quality Strategy for The Tidal Thames. As a point of comparison, the width of the River Thames at the existing Riverside Resource Recovery Facility (RRRF) is approximately 700m.

Figure 2.1: Predicted NO<sub>x</sub> concentrations from river vessel (Port of London Authority)



2.6.4 The NO<sub>x</sub> concentration from the existing vessels on the river was used to estimate the increase in pollutant concentrations at receptor locations along the river due to the increase in vessel movements as a result of REP (see response to ExA Q2.0.7).

2.6.5 The term 'Tier II emission vessel movements' refers to emissions as a result of vessel movements on the River Thames from vessels with emissions complying with Tier II emission standards. Vessels used for RRRF have equivalent emission levels and those for REP are expected to comply with this standard, as a minimum.

## 2.7 ExA Written Question Reference Q2.0.7

### 2.7.1 Written Question Q2.0.7:

*"Paragraph 7.9.17 of the ES states that the increase in movements at Barking Reach, Halfway Reach and Tilbury Dock as per separate Navigation Risk Assessment will result in an increase of approx.  $0.006\mu\text{g}/\text{m}^3$  of  $\text{NO}_2$  annual mean concentration at Barking Reach,  $0.008\mu\text{g}/\text{m}^3$  at Tilbury Docks and  $0.02\mu\text{g}/\text{m}^3$  at Halfway Reach. Can the Applicant explain how these concentrations were derived?"*

#### Response:

2.7.2 The  $\text{NO}_2$  annual mean concentrations have been derived by applying the anticipated increase in river vessel movements as a result of REP, as estimated in the **Navigational Risk Assessment (6.3; APP-067)** to the predicted  $\text{NO}_2$  concentration at a distance of 90m, as described in **Paragraph 7.9.15** of the **Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1; Rev 1)**. The increases in vessel movements at Barking Reach, Halfway Reach and Tilbury Docks are estimated to be 11%, 13% and 27% respectively. Applying these percentage increases to the  $\text{NO}_2$  concentration of  $0.06\mu\text{g}/\text{m}^3$  gives the stated increases in  $\text{NO}_2$  concentrations.



## 2.8 ExA Written Question Reference Q2.0.8

### 2.8.1 Written Question Q2.08.8 states:

*"It is unclear what the concentrations of NO<sub>2</sub> will be at the REP jetty where all the vessels will deliver waste. Can the Applicant say what the concentrations generated by the vessel transportation will be at the REP site?"*

#### **Response:**

- 2.8.2 The concentrations of NO<sub>2</sub> at the existing jetty which serves the existing Riverside Resource Recovery Facility (RRRF) have not been estimated as the existing jetty is not a receptor location of relevant exposure for National Air Quality Strategy Objectives as outlined in **Paragraph 7.2.20 of Chapter 7 Air Quality of the Environmental Statement (ES), (6.1, Rev 1)**. The REP site is classified as a workplace and is not a location where members of the public will be present, but the ES has considered Barking Reach and Halfway Reach, which are the nearest receptors to REP and enable consideration of the effects from the movement of vessels. This is explained in more detail in **Paragraph 7.9.17 of Chapter 7 Air Quality of the ES (6.1, Rev 1)**.
- 2.8.3 For compliance with EU Limit Values, Article Two of Directive 2008/50/EC defines ambient air as excluding workplaces and locations where members of the public do not have regular access. The existing jetty that serves RRRF is therefore not a location where ambient air quality requires assessing.
- 2.8.4 It should be noted that the Applicant is not seeking any powers of development over the existing jetty as the jetty already has planning permission for use on a 24-hour basis. At present, the jetty is only on a 12-hour working day basis. Accordingly, there is capacity at the existing jetty within the terms of the extant planning permission for the jetty's usage to increase, which has already been through a determination process.

## 2.9 ExA Written Question Reference Q2.0.9

### 2.9.1 Written Question Q2.0.9 states:

*"Paragraph 7.9.14 of the ES states that the Port of London Authority Air Quality Strategy reports that the minimum point of exposure for receptors was estimated to be 90m from the vessel. However, it is noted that the receptors considered are residential properties. Although the majority of Crossness Local Nature Reserve (LNR) appears to be further away from the jetty, it is unclear whether the thresholds used in the Port of London Authority Strategy for residential properties are appropriate for coastal marshes habitats. Can the Applicant explain why Crossness LNR was not considered a sensitive receptor in the assessment of the potential impacts generated by increased air emissions from increased waste transportation by vessel during operations?"*

#### **Response:**

2.9.2 The assessment reported in **Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)** does not consider the potential air quality effects of river vessel movements on Crossness Local Nature Reserve (LNR) as the closest point of Crossness LNR is over 200m from the jetty. At this separation distance, emissions from the jetty would not have a significant effect on Crossness LNR. This is shown in the dispersion of emissions from vessels illustrated in **Figure 2.1** presented in response to ExA Q2.0.6. In addition, as noted in **Paragraph 7.2.22** of the **ES (6.1, Rev 1)**, impacts of road traffic emissions on terrestrial ecosystems are only considered within 200m of a road. A similar distance is appropriate for emissions from vessels as they effectively occur at or around ground level (i.e. they are not elevated sources).

## 2.10 ExA Written Question Reference Q2.0.10

### 2.10.1 Written Question Q2.0.10 states:

*"The summary of the air quality dispersion modelling carried out in connection with the ERF stacks is provided at Appendix C2. The Applicant has identified the pollutants which required additional modelling following the guidance included in the Environment Agency air quality risk assessment for environmental permit. Table C2.2.8 in Appendix C2 reports a Minor impact due to predicted annual average nickel concentrations at 7 receptors. Although 2 are within a business park, the remaining 5 are residential areas. The Applicant states that this is not significant. However, it should be noted that at paragraph 7.5.62 (methodology) the Applicant has stated that according to IAQM guidance the assessment of significance should be based on professional judgement taking into account several factors, including the number of properties affected. This information has not been found in the ES. Can the Applicant explain how the IAQM guidance has been applied to determine the significance of the identified minor effects at Table C2.2.8?"*

#### Response:

2.10.2 As noted in **Paragraph 7.5.62 of Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1; Rev 1)**, the judgement of the level of significance takes into account a number of factors which are taken together:

- The number of properties with minor, moderate or major air quality effects and a judgement on the overall balance;
- The magnitude of the changes and the descriptions of the potential effects at the receptors;
- Whether or not an exceedance of an objective or limit value is predicted to arise in the operational study area where none existed before or an exceedance area is increased;
- The uncertainty, comprising the extent to which worst-case assumptions have been made; and
- The extent to which an objective or limit value is exceeded.

2.10.3 In terms of the number of properties, the judgement is to balance the number of properties that receive different levels of effect across the whole of the study area. Whilst the results at individual receptor locations are representative of the area in which they are located and there will be additional receptors subject to minor effects than those presented in **Table C.2.2.8 of Appendix C.2 of the ES (6.3, Rev 1)**, it is also true that the majority of receptors in the study area will receive negligible impacts.

2.10.4 The extent of the potential effects for nickel is illustrated in **Figure 7.5 of Chapter 7 Air Quality** of the **ES (6.2 Rev 1)**. The receptors with minor adverse effects are located in the residential parts of Rainham closest to REP. Residential areas further away (as illustrated by receptor R22) have negligible impacts which would be the majority of the exposed population in Rainham. As the majority of the

population exposure is negligible and the maximum level of exposure is minor, and in particular, there are no breaches of assessment levels with the maximum Predicted Environmental Concentrations (PECs) well below (less than 25%) of the assessment level, then the overall significance is judged to be negligible, which is a not significant effect. The rationale is summarised in **Paragraph 7.9.30 of Chapter 7 Air Quality** of the **ES, (6.1 Rev 1)**.

## 2.11 ExA Written Question Reference Q2.0.11

### 2.11.1 Written Question Q2.0.11 states:

*“The ES does not include an assessment of the ecological features of interest potentially affected by the NOx and Ammonia emission concentrations from the REP neither in the ecology nor air quality chapters. Therefore, it is not possible to determine whether there is significant impact considering the Predicted Environmental Concentrations (PEC) at both sites are high. Can the Applicant explain how potential effects of the predicted NOx and Ammonia concentration generated by the REP on features of interest at Inner Thames Marshes SSSI and Ingrebourne Marshes SSSI have been assessed and whether there would be significant effects at the SSSIs?”*

#### Response:

- 2.11.2 An assessment of the potential significance of the impact of NOx and ammonia concentrations has been included and is presented in **Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1; Rev 1)** and in **Appendix C.2.3 of Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.3; Rev 1)**.
- 1.1.1 Information on the nitrogen deposition arising from the NOx and ammonia concentrations has been updated from that presented at the time of the original submission in **Chapter 7 Air Quality** of the **ES (6.1, APP-044)** in relation to **Paragraph 7.9.43**, as reported in the **Clarifications and Corrections** document submitted at Deadline 2. Where the impacts of nitrogen deposition are potentially significant in terms of the air quality criteria, the potential effects on the ecological features of interest are discussed in **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**, with **Paragraph 11.9.23** being updated as per the **Clarifications and Corrections** submitted at Deadline 2.
- 2.11.3 The significance of effects on air quality from the predicted concentrations is unaltered from the information provided in the original **Paragraphs 7.9.42 to 7.9.43** of **Chapter 7 Air Quality** of the **ES (6.1 APP-044)**.
- 2.11.4 The significance of the change in nitrogen deposition on the features of interest is discussed in the revised **Paragraph 11.9.23 to 11.9.30** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**. The updated information presented **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** has been discussed with Natural England. As confirmed in **Paragraph 2.3.18** of the **SOCG** with Natural England, it is agreed that the predicted effects through nitrogen deposition are Not Significant.

## 2.12 ExA Written Question Reference Q2.0.12

### 2.12.1 Written Question Q2.0.12 states:

*“Paragraph 7.9.46 of the ES states that a small area of Crossness LNR is predicted to experience an hourly mean NO<sub>2</sub> concentration above 10% of the air quality objective. The area is shown on Figure 7.8. The ES states that the area is not an area where members of public will be regularly present. However, it is open to the public. Paragraph 7.9.47 states that the predicted NO<sub>x</sub> concentrations are potentially significant for terrestrial biodiversity receptors in Crossness LNR. Chapter 11– paragraph 11.9.25 states that the NO<sub>x</sub> concentration could result in changes to the habitats through an increase in dominant grass species and reduction in broadleaved species. Can the Applicant provide additional information regarding the changes predicted at Crossness LNR due to the predicted hourly mean NO<sub>x</sub> concentration exceeding the objective? What is the extent of the area likely to be affected? Can the Applicant explain the level of confidence, with reference to relevant criteria, it has in the conclusion reached in the ES that this increase is not likely to be significant?”*

### Response:

2.12.2 There is a high level of confidence in the expert opinion of the Applicant's air quality expert, that the conclusion reached in the Environmental Statement that the increase in pollutant concentrations in the Crossness LNR are not significant in accordance with the criteria outlined in the following paragraphs. **Paragraph 7.5.61 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1 Rev 1)** discusses the predicted increase in hourly mean NO<sub>2</sub> concentrations with reference to human health impacts. A threshold of 10% has been used to indicate the point below which increases can be judged to be not significant and consideration of the Predicted Environmental Concentration (PEC) is not required (as per paragraph 6.39 of the IAQM guidance).

2.12.3 The definition of a location that is relevant for public exposure is provided in **Paragraph 7.2.20 of Chapter 7 Air Quality of the ES (6.1, Rev 1)**; i.e. a location where members of the public are likely to be regularly present for the averaging period of the objective, in this case an hour. **Paragraph 7.2.20 of the ES (6.1, Rev 1)** references Defra Technical Guidance 2016 (TG16) which contains guidance on where the objectives apply and examples of locations relevant for the short-term objective. Paragraph 1.51 of TG16 states *‘For the purposes of LAQM, regulations state that exceedances of the objectives should be assessed in relation to “the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present”’*. In Box 1.1 of TG(16), the examples include *‘pavements of busy shopping streets’* and *‘Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more’*. It is considered that, whilst the area where the predicted concentrations exceed 10% of the objective is open to the public, members of the public are unlikely to regularly spend an hour in the small area where the predicted concentration is above 10% as there are no specific features of interest in the area.

2.12.4 Nevertheless, the PECs can be calculated for the contours presented in **Figure 7.8** of the **ES (6.2 APP-056)** and the results are presented in **Table 2.2**, below. The PEC is compared against the hourly mean NO<sub>2</sub> objective of 200µg/m<sup>3</sup>.

**Table 2.2: Hourly Mean NO<sub>2</sub> Concentrations – Crossness LNR**

PC Contour (µg/m <sup>3</sup> )	PEC (µg/m <sup>3</sup> )	PEC (%)	Impact Severity
10	43.8	21.9	Negligible
20	53.8	26.9	Negligible
30	63.8	31.9	Slight
50	83.8	41.9	Moderate

2.12.5 The impact severity is based on the criteria set out in **Table 7.22** of **Chapter 7 Air Quality** of the **ES (6.1; Rev 1)** and is based on the magnitude of the process contribution (PC) alone. Whilst the 40µg/m<sup>3</sup> contour is not shown, this is the threshold between slight and moderate impacts. However, due to the limited extent of the area above 40µg/m<sup>3</sup>, it is unlikely that members of the public would be regularly present in this area for an hour as there are no specific features of interest in the area, and therefore the area subject to moderate impacts is not considered to be an area of relevant exposure.

2.12.6 Overall therefore, the potential effects of emissions from burning biogas in the CHP engine, on human health are considered to be at worst, slight adverse and therefore not significant with a high degree of confidence in the expert opinion of the Applicant's air quality expert.

2.12.7 As outlined in **Table 7.8** of **Chapter 7 Air Quality** of the **ES (6.1; Rev 1)** for the potential effects on biodiversity sites, the relevant critical levels are the annual mean NO<sub>x</sub> concentration and the daily mean NO<sub>x</sub> concentration (i.e. not the hourly mean NO<sub>2</sub> concentration). The air quality assessment criteria as to whether the increases in NO<sub>x</sub> concentrations are potentially significant are defined in **Paragraph 7.5.65** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** and in both cases, for Local Nature Reserves (LNR), the PC would need to be greater than 100% of the critical level for the effect to be potentially significant.

2.12.8 As shown in **Figure 7.9** of the **ES (6.2, APP-056)**, the annual mean NO<sub>x</sub> concentration does not exceed the critical level of 30µg/m<sup>3</sup> beyond the REP site boundary and therefore annual mean NO<sub>x</sub> concentrations are not significant.

2.12.9 **Figure 7.10** of the **ES (6.2, APP-057)** shows that the daily mean critical level of 75µg/m<sup>3</sup> is exceeded in two small areas immediately adjacent to the REP site in Crossness LNR. As explained in **Paragraph 11.9.32** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** older marshes, such as this, are less sensitive to nitrogen deposition than new or evolving habitats (apis.ac.uk, 2018) and the areas of the LNR affected are limited to marginal habitats in the immediate vicinity



of the REP site. The habitats in the location where the daily mean NO<sub>x</sub> concentration is above 75µg/m<sup>3</sup> are not of high botanical diversity, consisting of tall ruderal, semi-improved grassland, and scrub. There is therefore a high degree of confidence in the expert opinion of the Applicant's air quality expert that the increase in daily mean NO<sub>x</sub> concentration will not have a significant effect on the LNR.



## 2.13 ExA Written Question Reference Q2.0.13

2.13.1 Written Question Q2.0.13 states:

*"A stack height of 90m has been assumed as the worst case in modelling emissions from the ERF. At paragraph 7.4.6 of the ES it is stated that the stack height is 93m AOD but in the draft DCO Table 1 the minimum stack height is set at 90m AOD. Please can the Applicant confirm whether the minimum stack height assumed in the ES is consistent with the minimum height to be included in the draft DCO."*

### Response:

- 2.13.2 A nominal stack height of 90m has been used in the air quality assessment. It has been assumed that the ground level could vary between 1 metre AOD and 3 metre AOD. These parameters have now been included in **Requirement 3, Schedule 2** of the **draft Development Consent Order (dDCO) (3.1, Rev 1)**, submitted at Deadline 2, so that the Examining Authority can be confident that the parameters used in the environmental impact assessment are secured in the draft Development Consent Order.
- 2.13.3 The reference in **Paragraph 7.4.6 of Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1, Rev 1)** to the stack height of 93 metres AOD is correct and represents a worst case scenario. The maximum nominal height of the stack is 90 metres and the highest ground level on the REP site for Work No.1 is 3 metres AOD equating to a maximum stack height of 93 metres AOD measurement.

## 2.14 ExA Written Question Reference Q2.0.14

2.14.1 Written Question Q2.0.14 states:

*"The stack height for the anaerobic digester is shown as 8m in Table 7.19. Is this the nominal height or AOD? Please confirm that this is the stack referred to in Work no 1B (vi) and explain how this minimum height is to be secured in the draft DCO. There is a separate reference in paragraph 7.5.55 of the ES to a 14m high enclosed ground flare. Please explain how this is related to the 8m stack."*

### Response:

- 2.14.2 **Table 7.19** of **Chapter 7 Air Quality** of the **Environmental Statement (ES) (6.1, Rev 1)** makes reference to the 8m stack. This stack will release the exhaust of the combined heat and power (CHP) engine to atmosphere. The CHP engine will be used to combust the biogas from the anaerobic digestion plant. The maximum stack height for the CHP engine is measured from the base of the stack at finished ground level i.e. not Above Ordnance Datum (AOD). However, the Applicant has provided the heights AOD for the top of the CHP engine stack and the flare within this response.
- 2.14.3 It is confirmed that the 8m CHP engine stack (maximum 11m AOD) referenced in **Table 7.19** of **Chapter 7** of the **ES (6.1, Rev 1)** is the emission stack listed as item (vi) under Work No. 1B in **Schedule 1** to the **draft Development Consent Order (dDCO) (3.1, Rev 1)**.
- 2.14.4 The CHP engine stack height has been determined by, and will be enforced through, the Environmental Permitting process, as regulated by the Environment Agency (EA). A CHP engine stack height of 8m (maximum 11m AOD) has been proposed within the Environmental Permit (EP) application. Within the air quality assessment submitted in support of the EP application, this has been demonstrated to have an acceptable impact on local air quality, in accordance with the EA's Air Emissions Guidance.
- 2.14.5 **Paragraph 7.5.55** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** explains that the emissions generated from the operation of the gas flare are lower than from the CHP engine, and would be released at a higher temperature and from a higher stack. The gas flare is work number 1B(vii) in **Schedule 1** to the **dDCO (3.1, Rev 1)**.
- 2.14.6 The CHP engine emission stack and gas flare are separate structures which serve different purposes, but are both related to the Anaerobic Digestion facility. Under normal operating conditions, assuming the CHP engine option is progressed, pre-treated biogas would be combusted in the CHP engine and exhausted via the stack. The generated electrical power would be added into the site network while the excess heat would be used for digester heating and for drying of the digestate, or as additional heat available for local district heating.
- 2.14.7 **Paragraph 7.5.55** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** refers to a gas flare, no more than 14m in height (17m AOD), which would ensure that any excess biogas is combusted (e.g. when biogas utilisation is stopped or in case of an

emergency). The flare is estimated to operate between 200 and 400 hours per year. The flame of the flare is not visible outside the associated stack.

2.14.8 The maximum heights of Work No 1B (vi) and (vii) are secured by **Requirement 3** of **Schedule 2** of the **dDCO (3.1, Rev 1)** submitted at Deadline 2. The minimum heights of Work No 1B(vi) and (vii) would be 4m above surrounding ground level and are also secured by the same requirement.

## 2.15 ExA Written Question Reference Q2.0.15

2.15.1 Written Question Q2.0.15 states:

*"The building parameters used for modelling as set out in Table 7.15 of the ES are different from those set out in Table 1 of the draft DCO. Please can the Applicant explain the relationship between these two sets of parameters and confirm that the parameters in the draft DCO are no greater than the worst case which has been assessed in the ES."*

### Response:

- 2.15.2 As noted in **Paragraph 7.5.38 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)**, the building parameters used in the air quality dispersion model are simplified because only rectangular buildings of fixed height can be modelled in the dispersion modelling software.
- 2.15.3 The modelled buildings are shown in **Figure 7.1 of the ES (6.2, APP-056)**. It can be seen that there is an overlap in the footprint of the buildings. In the region of the overlap of the buildings, it is the building with the highest height that will affect the dispersion of emissions from the stack. In this case, this is the Main REP Building. The modelled width of the anaerobic digestion building and the ancillary process buildings are therefore only important in so far as the horizontal extent of the buildings matches the maximum extent of the Rochdale Envelope which is being applied for, which it does (i.e. the modelled width of these buildings in the ES is consistent with the parameters in the **draft Development Consent Order (DCO) (3.1, Rev 1)**).
- 2.15.4 The width of the modelled REP building is 1m narrower than in **Table 1 of the dDCO (3.1, Rev 1)** as the width is limited by the application site boundary which cuts off the north east corner of the building and therefore the actual building width will be less than its maximum extent of 103m. The **dDCO** submitted at Deadline 2 has been updated, so that the maximum width of the Main REP Building is 102m. The only other difference is that the modelled Main REP Building is 201m long versus 200m long in **Table 1 of the draft DCO (3.1, Rev 1)** and therefore the modelled parameter is larger than the parameter in **Table 1 of the dDCO (3.1, dDCO)**.
- 2.15.5 In conclusion, the parameters in the **dDCO (3.1, Rev 1)** are therefore no greater than those that have been assessed and the effects reported in **Chapter 7 Air Quality of the ES (6.1, Rev 1)**.

## 2.16 ExA Written Question Reference Q2.0.16

2.16.1 Written Question Q2.0.16 states:

*"Biogas from the anaerobic digester would either be burned in a biogas engine or burnt in a flare. It is assumed in the ES paragraph 7.5.52 that the flare would only operate for between 200 and 400 hours per year. Please indicate how these operating hours would be controlled."*

### Response:

- 2.16.2 The gas flare for the Anaerobic Digester (AD) is provided as part of a three-tier safety system to ensure safe and environmentally acceptable discharge of biogas in the event that the primary biogas utilisation option for the AD is not available, or in the case of an emergency.
- 2.16.3 Inclusion of the gas flare for the AD therefore eliminates any possibility of excessive gas accumulation. The process will, however, be designed to prioritise biogas utilisation through either upgrade to compressed natural gas (CNG) production and/or for injection into a local gas network, or for combustion and energy recovery in a combined heat and power (CHP) engine (biogas engine).
- 2.16.4 A 'typical' Environmental Permit (EP) for an AD facility, of the capacity proposed, will not include conditions which constrain the hours of operation of the flare given the flare is required from a safety perspective. However, the EP will contain the conditions under which the flare is permitted to operate. The EP will require that the operation of the flare is minimised and limited to short periods of breakdown or maintenance. Furthermore, the EP will require that the hours of operation of the flare are recorded and reported to the Environment Agency (EA) on an annual basis. In the event that hours of operation of the flare are not limited to short periods of breakdown or maintenance, the EA could take regulatory action against the Applicant if warranted.
- 2.16.5 The Applicant is commercially incentivised to prioritise utilisation of biogas in a manner that facilitates the production and distribution of a fuel, or energy generation. In the event that gas is flared, this would mean that a potential revenue stream is sacrificed since biogas would be combusted without any associated energy generation. The Applicant is therefore incentivised to minimise gas flare operational hours wherever possible.
- 2.16.6 Taking account of the above permit obligations and commercial drivers, flare operational hours are highly unlikely to exceed 200 to 400 hours per year and the assumptions used in the ES considered appropriate. Given the safety aspect of the flare, any restriction on the DCO would be unjustified.

## 2.17 ExA Written Question Reference Q2.0.17

2.17.1 Written Question Q2.0.17 states:

*"The location of the stacks for the biogas engine and for flaring are not indicated on Figures 1.3a, 1.3b and 1.3c and are not shown on the works plans. Please identify where these stacks are to be located."*

### **Response:**

- 2.17.2 The location of the stacks for the biogas engine and for flaring can be located anywhere within Work No 1B as shown on the **Works Plans (2.2, Rev 1)**. The reasons for this are discussed below.
- 2.17.3 The combined heat and power (CHP) engine (biogas engine), and associated gas flare, if progressed, would be located outside of Work Area 1A within the Anaerobic Digestion system area (Work Area 1B) to the south west of the REP site (see **Works Plan (2.2, Rev 1)**). The gas flare would be located directly on top of the anaerobic digestion tank.
- 2.17.4 Whilst a specific CHP engine discharge stack location was modelled at grid reference 549391, 1807594, as set out in **Table 7.19 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)**, dispersion of the emissions from the gas engine is primarily influenced by the fact that it is located adjacent to the taller Energy Recovery Facility (ERF) building identified at Work No 1A on the **Works Plans (2.2, Rev 1)**.
- 2.17.5 Accordingly, locating the CHP engine discharge stack anywhere within Work Area 1B would not alter the results of the dispersion modelling or the conclusions of the Environmental Statement.

## 2.18 ExA Written Question Reference Q2.0.18

### 2.18.1 Written Question Q2.0.18 states:

*"The CHP engine in which biogas from the anaerobic digester would be burnt appears to be located away from the digester next to the steam turbine building. Please explain how the two elements of the plant are connected."*

#### Response:

- 2.18.2 The question states that the biogas engine is located away from the digester next to the steam turbine. The Applicant assumes the question is referring to the Combined Heat and Power equipment area (Work No. 3), refer to **Sheet 2 of 16, Works Plans (2.2, Rev 1)**, located adjacent to the steam turbine building. The CHP engine would not be located in the Combined Heat and Power equipment area (Work No. 3), it is located within the Anaerobic Digestion system area (Work No. 1B) to the south west of the site, refer to **Sheet 2 of 16, Works Plans (2.2, Rev 1)**. There will be no transfer of biogas from the Anaerobic Digestion system area (Work No. 1B) to the Combined Heat and Power equipment area (Work No. 3) as part of the Proposed Development.
- 2.18.3 The CHP engine would be located within approximately 10m of the anaerobic digester to keep routing of biogas within the smallest practicable area and within appropriately designated atmospheric zoning. The biogas is transferred to the CHP engine via either underground or overground pipework within this area.
- 2.18.4 The Combined Heat and Power equipment area (Work No. 3), located adjacent to the steam turbine building, would contain the heat exchange equipment associated with export of heat from the Energy Recovery Facility (ERF) to offsite consumers. This equipment would include heat exchangers, flow/return pipework, valving, pumps, pressurisation and water treatment systems. This location has been selected to minimise the length of steam supply and condensate return pipelines from the ERF turbine steam extraction(s) and/or steam header(s) in the steam turbine building, which would be required to facilitate heat export to offsite consumers. This approach is determined in **Section 5.4** of the Combined Heat and Power Assessment (**5.4; APP-035**), applying best practice methodology as set out in the Environment Agency's CHP-Ready Guidance.
- 2.18.5 In the event that heat is recovered from the CHP engine to supplement the heat offtake capacity (in addition to heat which could be provided by the ERF exclusively), pre-insulated hot water flow and return pipework would be routed from the CHP engine to the CHP equipment area.
- 2.18.6 Final routing of the pipework would be subject to detailed design but would be programmed to ensure that the timescales for realisation of any future offsite heat export (or additional capacity which would be served by the CHP engine) would not be impeded.



## 2.19 ExA Written Question Reference Q2.0.19

### 2.19.1 Written Question Q2.0.19 states:

*“Paragraph 7.11.1 of the ES states that emissions from the biogas (anaerobic digestion) can be reduced by the provision of further abatement systems. However, this is not examined further because it was considered that the NOx emissions were not likely to generate a significant impact on Crossness LNR. There is uncertainty regarding how this conclusion was reached. With regard to the response provided to Q2.0.12 please will the Applicant explain whether this response has any implications for the inclusion of and design of any additional abatement measures?”*

#### **Response:**

2.19.2 The response to AQ Q2.0.12 provides an explanation of how the conclusion in **Paragraph 7.11.1 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1, Rev 1)** was reached and confirms that the emissions from the biogas (anaerobic digestion) will not have a significant effect on Crossness Local Nature Reserve (LNR).

2.19.3 In the light of that conclusion, no additional abatement is considered necessary. For completeness the response to AQ Q2.0.12 is presented below.

#### **AQ Q2.0.12 Response:**

*There is a high level of confidence in the expert opinion of the Applicant's air quality expert, that the conclusion reached in the Environmental Statement that the increase in pollutant concentrations in the Crossness LNR are not significant in accordance with the criteria outlined in the following paragraphs. **Paragraph 7.5.61 of Chapter 7 Air Quality of the Environmental Statement (ES) (6.1 Rev 1)** discusses the predicted increase in hourly mean NO<sub>2</sub> concentrations with reference to human health impacts. A threshold of 10% has been used to indicate the point below which increases can be judged to be not significant and consideration of the Predicted Environmental Concentration (PEC) is not required (as per paragraph 6.39 of the IAQM guidance).*

*The definition of a location that is relevant for public exposure is provided in **Paragraph 7.2.20 of Chapter 7 Air Quality of the ES (6.1, Rev 1)**; i.e. a location where members of the public are likely to be regularly present for the averaging period of the objective, in this case an hour. **Paragraph 7.2.20 of the ES (6.1, Rev 1)** references Defra Technical Guidance 2016 (TG16) which contains guidance on where the objectives apply and examples of locations relevant for the short-term objective. Paragraph 1.51 of TG16 states ‘For the purposes of LAQM, regulations state that exceedances of the objectives should be assessed in relation to “the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present”’. In Box 1.1 of TG(16), the examples include ‘pavements of busy shopping streets’ and ‘Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more’. It is considered that, whilst the area where the predicted concentrations exceed 10% of the objective is open to the*



public, members of the public are unlikely to regularly spend an hour in the small area where the predicted concentration is above 10% as there are no specific features of interest in the area.

Nevertheless, the PECs can be calculated for the contours presented in **Figure 7.8** of the **ES (6.2 APP-056)** and the results are presented in **Table 2.3**, below. The PEC is compared against the hourly mean NO<sub>2</sub> objective of 200µg/m<sup>3</sup>.

**Table 2.3: Hourly Mean NO<sub>2</sub> Concentrations – Crossness LNR**

<b>PC Contour (µg/m<sup>3</sup>)</b>	<b>PEC (µg/m<sup>3</sup>)</b>	<b>PEC (%)</b>	<b>Impact Severity</b>
10	43.8	21.9	Negligible
20	53.8	26.9	Negligible
30	63.8	31.9	Slight
50	83.8	41.9	Moderate

The impact severity is based on the criteria set out in **Table 7.22** of **Chapter 7 Air Quality** of the **ES (6.1; Rev 1)** and is based on the magnitude of the process contribution (PC) alone. Whilst the 40µg/m<sup>3</sup> contour is not shown, this is the threshold between slight and moderate impacts. However, due to the limited extent of the area above 40µg/m<sup>3</sup>, it is unlikely that members of the public would be regularly present in this area for an hour as there are no specific features of interest in the area, and therefore the area subject to moderate impacts is not considered to be an area of relevant exposure.

Overall therefore, the potential effects of emissions from burning biogas in the CHP engine, on human health are considered to be at worst, slight adverse and therefore not significant with a high degree of confidence in the expert opinion of the Applicant's air quality expert.

As outlined in **Table 7.8** of **Chapter 7 Air Quality** of the **ES (6.1; Rev 1)** for the potential effects on biodiversity sites, the relevant critical levels are the annual mean NO<sub>x</sub> concentration and the daily mean NO<sub>x</sub> concentration (i.e. not the hourly mean NO<sub>2</sub> concentration). The air quality assessment criteria as to whether the increases in NO<sub>x</sub> concentrations are potentially significant are defined in **Paragraph 7.5.65** of **Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** and in both cases, for Local Nature Reserves (LNR), the PC would need to be greater than 100% of the critical level for the effect to be potentially significant.

As shown in **Figure 7.9** of the **ES (6.2, APP-056)**, the annual mean NO<sub>x</sub> concentration does not exceed the critical level of 30µg/m<sup>3</sup> beyond the REP site boundary and therefore annual mean NO<sub>x</sub> concentrations are not significant.

**Figure 7.10** of the **ES (6.2, APP-057)** shows that the daily mean critical level of 75µg/m<sup>3</sup> is exceeded in two small areas immediately adjacent to the REP site in

*Crossness LNR. As explained in **Paragraph 11.9.32** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** older marshes, such as this, are less sensitive to nitrogen deposition than new or evolving habitats (apis.ac.uk, 2018) and the areas of the LNR affected are limited to marginal habitats in the immediate vicinity of the REP site. The habitats in the location where the daily mean NO<sub>x</sub> concentration is above 75µg/m<sup>3</sup> are not of high botanical diversity, consisting of tall ruderal, semi-improved grassland, and scrub. There is therefore a high degree of confidence in the expert opinion of the Applicant's air quality expert that the increase in daily mean NO<sub>x</sub> concentration will not have a significant effect on the LNR.*

## 3 Biodiversity

### 3.1 ExA Written Question Reference Q3.0.1

#### 3.1.1 Written Question Q3.0.1 states:

*"Section 11.4 of the Environmental Statement (ES) states that two alternative routes – Option 1 and Option 1A -have been considered for the first part of the electrical connection from the REP but that only one route is likely to be granted. Please will the Applicant provide an update on its consideration of these two routes and indicate when it will make a choice between them."*

#### **Response:**

- 3.1.2 A detailed update on the status of the Electrical Connection is provided in the **Electrical Connection Progress Report (Ref 8.02.07)** comprising part of the submission for Deadline 2.
- 3.1.3 Furthermore, the Applicant's response to Q1.0.17 also provides information as to how the Electrical Connection route has been refined to an overall single route.
- 3.1.4 The updated **Land Plans (2.1, Rev 1)** and **Works Plans (2.2, Rev 1)** confirm that, following further detailed work by UKPN, a decision has been made by the Applicant to follow route 1A (via Norman Road). The part of route 1 (via Crossness Nature Reserve) has therefore been removed by the Applicant from the Application.
- 3.1.5 In conclusion, no works would take place within Crossness Local Nature Reserve. Accordingly, the potential effects reported in **Chapters 6-14** of the **ES (6.1)** arising along the removed section of Electrical Connection route option 1 will not occur.

### 3.2 ExA Written Question Reference Q3.0.2

#### 3.2.1 Written Question Q3.0.2 states:

*"Paragraph 11.7.42 of the ES describes the anticipated changes in rainfall resulting from climate change and states that any habitats created as part of the proposed development would be resilient to climate change. This statement makes no reference to the operational lifespan of the REP and it is not clear how the potential for the effects of climate change have been assessed over the life of the plant. Please would the Applicant provide clarification in support of the claim that the effects of climate change are not anticipated to be significant and should not be taken into account in the habitat creation."*

#### **Response:**

3.2.2 The assessment of ecological effects takes into account the potential effects of climate change throughout the operation of the facility, as discussed at **Paragraph 11.5.20, Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.1, Rev 1)**. The assessment of ecological effects of climate change takes into account potential effects from climate change, including an increase in river flows, tide levels, and an increase in rainfall intensity of 40%. These potential effects have been informed using information provided in **Paragraph 12.7.35, Chapter 12 Hydrology, flood risk and water resources** of the **ES (6.1, Rev 1)** and **Paragraphs 8.1.1-8.2.3 of the Flood Risk Assessment (5.2, APP-033)**.

3.2.3 The type and location of habitats to be created (or enhanced) to provide sufficient compensation for potential effects from the Proposed Development, as well as providing biodiversity net gain in line with national and local planning policy, will include on-site measures and off-site habitat creation, as described at **Paragraphs 11.9.5 and 11.9.55, Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**. The potential effects of climate change are acknowledged as relevant to the detailed design of the habitats to be created, as described at **Paragraph 11.7.42, Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.1, Rev 1)**:

*"Any habitats created by REP as described within the OBLMS will be designed to be resilient to climate change and agreed with relevant stakeholders".*

3.2.4 Although the exact type and locations of habitats to be created / enhanced are not yet confirmed, the intention is to create open mosaic habitat within the REP site and to deliver off-setting to achieve overall biodiversity net gain, in partnership with the Environment Bank. **Requirement 5 of Schedule 2 of the Development Consent Order (3.1, Rev 1)** ensures that any offsetting would be in accordance with the biodiversity offsetting principles set out at **Paragraphs 5.1.4 and 5.1.5 of the Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**. The OBLMS is secured by **Requirement 5 of Schedule 2 of the Development Consent Order (3.1, Rev 1)** which requires that the final BLMS is in substantial accordance with the OBLMS.

3.2.5 In addition, it is envisaged that the long-term monitoring and management of habitats will provide reassurance that any changes brought about through climate

change would be addressed, as supported by the biodiversity offsetting principles set out at **Paragraph 5.1.4** of the **OBLMS (7.6, APP-107)**, which states:

*"Long-term outcomes: The design and implementation of the biodiversity offset should be based on an adaptive management approach, incorporating monitoring and evaluation, with the objective of securing outcomes that last as long as the effects from the Proposed Development".*

- 3.2.6 In conclusion, **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** states that the effects of climate change will not be significant because the potential effects of climate change will be taken into consideration as part of the detailed design of the habitat creation and long-term monitoring and management of habitats will provide reassurance that any changes brought about through climate change are addressed, as provided for by the OBLMS and secured by **Requirement 5** in the **draft Development Consent Order (3.1, Rev 1)**.

### 3.3 ExA Written Question Reference Q3.0.3

#### 3.3.1 Written Question Q3.0.3 states:

*"The ES does not include any methodology for the assessment of the effects of noise levels generated during construction on ecological receptors. Chapter 8 (Noise and Vibration) refers to Chapter 11, but the methodology is missing. Please will the Applicant provide the methodology and significance criteria used in the assessment of the likely significant impact of noise levels generated during construction on biodiversity receptors as reported at Table 11.7."*

#### **Response:**

- 3.3.2 When characterising noise effects to ecological receptors and establishing whether or not an effect is significant, the assessment examines potential impacts on that receptor with reference to the extent, magnitude, duration, timing, frequency, and reversibility of the impacts. This methodology is set out in **Paragraph 11.5.20 of Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.1, Rev 1)**.
- 3.3.3 Only potential effects on breeding birds and wintering birds have been identified as a result of increases in noise during construction of REP. No potential effects to other ecological receptors have been identified.

#### **Breeding Birds**

- 3.3.4 **Paragraph 11.9.10 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** describes how noise levels have been monitored and modelled with respect to existing and predicted noise levels during construction of REP at Location 3, a representative location within Crossness Local Nature Reserve (LNR) where breeding birds could be expected to be found. The assessment shows that the temporary construction noise levels at Location 3 would equate to 62 decibels (dB), an increase of 10 dB from the background noise levels of 52 dB. To provide further context, normal conversation noise levels are around 60 dB<sup>2</sup>. Therefore, the predicted construction noise levels at Location 3 will be marginally above normal conversation levels.
- 3.3.5 Unlike wintering birds, there is little published research or guidance on defining the criteria for establishing significance of effects to breeding birds from noise disturbance. Therefore, the assessment has followed the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EclA) methodology for establishing the significance of impacts on ecological receptors, as set out in **Paragraphs 11.5.28-11.5.31 of the ES (3.1, Rev 1)**. In determining significance, consideration is given to characteristics of the impact (such as magnitude, duration, reversibility) along with the conservation status of species, and the likely resilience of ecological features to change. The CIEEM methodology goes on to state:

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<sup>2</sup> Institute of Acoustics and Association of Noise Consultants (2015). Acoustic of schools: a design guide

*"When assessing potential effects on conservation status, the known or likely background trends and variations in status should be taken into account. The level of ecological resilience or likely level of ecological conditions that would allow the population of a species or area of habitat to continue to exist at a given level, or continue to increase along an existing trend or reduce a decreasing trend, should also be estimated."*

- 3.3.6 As shown on **Figure 11.5** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.2, APP-060)**, many of the breeding bird species of conservation concern, such as Cetti's warbler, linnet and reed bunting, have been recorded breeding within or in close proximity to the main REP site, where operational activities associated to the RRRF facility are ongoing, indicating they are resilient to disturbance from the operational facility.
- 3.3.7 Given the resilience of species nesting within habitats around the margins of the REP site, and that potential effects to breeding birds from minor increases in noise disturbance during construction will be temporary and localised to the REP site and its immediate surroundings, it is considered that the assemblage of breeding birds will continue to exist at the current level. Therefore, **Paragraph 11.9.11** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** concludes that construction disturbance will not affect the long-term distribution and abundance of the assemblage of breeding birds within the study area or its nature conservation importance. The effects are therefore considered as not significant.

#### **Wintering birds**

- 3.3.8 The noise modelling undertaken, described in **Paragraph 11.9.18** of **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**, shows that construction noise at two representative locations on the Thames foreshore where habitats are suitable for overwintering waterbirds, Location 1 and Location 2, will experience an increase from 55 to 57 dB and 54 to 68 dB respectively. For the reasons set out in Paragraph 11.9.19 of the ES and below, effects to overwintering waterbirds will be not significant.
- 3.3.9 Research<sup>3</sup> has shown that reactions of overwintering estuarine birds from construction activities can be broadly placed into the following categories:

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<sup>3</sup> Institute of Estuarine and Coastal Studies University of Hull (2009). Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance



Personnel and plant on mudflat:	High
Third Party on mudflat:	High
Personnel and plant on seaward toe and face:	High to Moderate
Intermittent plant and personnel on crest:	High to Moderate
Third Party on bank:	High to Moderate
Irregular piling noise (above 70 dB):	High to Moderate
Long term plant and personnel on crest:	Moderate
Regular piling noise (below 70dB):	Moderate
Irregular noise (50-70 dB):	Moderate
Regular noise (50-70dB):	Moderate to Low
Occasional movement of the crane jib and load above sight-line:	Moderate to Low
Noise below 50 dB:	Low
Long-term plant only on crest:	Low
Activity behind flood bank (inland):	Low

Figure 3.1: reactions of overwintering estuarine birds from construction activities (Institute of Estuarine and Coastal Studies University of Hull, 2009)

3.3.10 The reaction of birds to disturbance activities is dependent on the type of disturbance, e.g. irregular or regular noise, or visual disturbance. Construction disturbance from the Proposed Development could arise from two primary sources, noise or visual disturbance. The noise modelling shows that noise levels during construction at the locations modelled will be within the 50-70dB range. This is the same range as existing background levels of noise disturbance that the birds are currently subjected to, and so there would be no measurable effects above those caused by the existing background.

3.3.11 In addition to the research presented above, the assessment followed the CIEEM EclA methodology for establishing the significance of impacts, as set out in **Paragraphs 11.5.28-11.5.31** of the **ES (6.1, Rev 1)**. In determining significance, consideration is given to characteristics of the impact (such as magnitude, duration, reversibility) along with the conservation status of species, and the likely resilience of ecological features to change. The CIEEM methodology goes on to state:

*"When assessing potential effects on conservation status, the known or likely background trends and variations in status should be taken into account. The level of ecological resilience or likely level of ecological conditions that would allow the population of a species or area of habitat to continue to exist at a given level, or continue to increase along an existing trend or reduce a decreasing trend, should also be estimated."*

3.3.12 The assessment concludes that as the construction disturbance has been demonstrated to be of a similar magnitude to existing background levels of disturbance, it will not affect the long-term distribution and abundance of the assemblage of wintering birds within the study area, or its nature conservation importance and therefore the effects are considered to be not significant.



### 3.4 ExA Written Question Reference Q3.0.4

#### 3.4.1 Written Question Q3.0.4 states:

*"Section 11.6 of the ES describes a limitation in the assessment due to the baseline data for some areas of the electrical connection route options not yet being complete (due to seasonal restrictions, and or evolution of the scheme design). The assessment makes use of existing baseline data, along with published knowledge and professional experience to support the assessment of effects. The ES acknowledges that the assessment of impacts to biodiversity features is impinged by a lack of baseline information in some areas. The ES explains that professional judgement has been applied in respect to these areas and to address gaps in baseline understanding. Please will the Applicant explain the extent to which they consider that these gaps may affect the findings within the assessment and what (if any) measures are in place to address the inherent uncertainty in these areas."*

#### **Response:**

- 3.4.2 As set out in **Section 11.6 of Chapter 11 Terrestrial Biodiversity of the Environmental Statement (ES) (6.1, Rev 1)**, due to the evolution of the scheme design together with seasonal restrictions associated with ecological surveys, it was not possible to collect all ecological survey data for the Electrical Connection route. For these areas, the assessment drew on existing baseline data, along with ecological interpretation based on published information and professional experience. As reported in **Paragraph 11.6.1 of Chapter 11 Terrestrial Biodiversity of the ES Terrestrial Biodiversity (6.1, Rev 1)**, this is considered sufficient to determine the value of the ecological baseline and predict potential likely significant effects.
- 3.4.3 **Paragraph 11.9.59 of Chapter 11 Terrestrial Biodiversity of the ES (6.1, Rev 1)** explains how the limitations were only in relation to the absence of great crested newt (GCN) survey data for the Dartford Marshes area where installation of the Electrical Connection route may affect terrestrial habitat which could support GCN, if present. To ensure the assessment was robust, it was assumed that GCN were present in this area and the conclusions in relation to possible effects to GCN were made on this basis (see **Paragraph 11.9.59 of Chapter 11 Terrestrial Biodiversity of the ES (6.1, Rev 1)**).
- 3.4.4 **Table 3 of the Outline Biodiversity and Landscape Mitigation Strategy (7.6, APP-107)** sets out the principles of mitigation which would be employed were GCN to be found along the Electrical Connection route. The final Biodiversity and Landscape Mitigation Strategy, which would be substantially in accordance with the outline, is secured at **Requirements 4 and 5 of Schedule 2 of the Draft Development Consent Order (DCO) (3.1, Rev 1)**.
- 3.4.5 Therefore, the absence of data in relation to GCN does not affect the findings of the assessment, and the presence of GCN would not alter the conclusion of no significant effects.

- 3.4.6 Notwithstanding the above, in order to supplement the existing assessment and to ensure best practice survey methods have been applied, GCN eDNA surveys were carried out in May 2019 along the Electrical Connection route within the Dartford Marshes area. The results of these surveys are presented in **Riverside Energy Park: Great Crested Newt eDNA Survey 2019 (Ref 8.02.11)** report submitted at Examination Deadline 2. The great crested newt surveys have shown great crested newts to be absent from all waterbodies surveyed. Due to access constraints and health and safety reasons it was not possible to survey all waterbodies, however it is considered that the current level of survey provides reasonable confidence in the likely status of great crested newt within the Survey Area. This addresses the potential uncertainty in relation to baseline data for the Electrical Connection route.
- 3.4.7 In conclusion, it is therefore considered that the potential gap in the ecological baseline as described in the ES does not affect the assessment findings, and that appropriate surveys have been undertaken to address any perceived gaps. The Applicant can confirm that the conclusion of no significant effects in **Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, APP-048)** has not changed as a result of the supplementary survey data.

### 3.5 ExA Written Question Reference Q3.0.5

#### 3.5.1 Written Question Q3.0.5 states:

*“The area of semi improved grassland identified within the REP site forms part of the habitat creation. The ES states at paragraph 11.9.3 that the development will result in the loss of open mosaic habitat on previously identified land. The habitat to be lost is considered of local importance. However, the ES fails to identify the location of the area lost or the extent of the loss. It is believed that the loss of mosaic habitat is in fact the habitat creation required as a condition of the planning consent for the RRRF. Can the Applicant provide details of the extent of the loss of habitat in a tabulated manner and explain how value has been assigned to this habitat?”*

#### Response

3.5.2 Open Mosaic Habitat (OMH) within the REP site is identified by ‘Target Note 1’ on **Figure 11.3a** in the **Environmental Statement (ES) (6.2, 060)**, and ‘Areas 1-8’ on **Figure 11.9 (6.2, APP-060)**. A full description of the habitat is provided in **Paragraphs 3.2.1-3.2.3 of Appendix G.6 of the ES (6.3, APP-085)**.

3.5.3 The extent of OMH within the REP site is 0.46 ha as shown in **Table 4.1** of the **Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)** submitted at Examination Deadline 2. A full description of the methodology used for the assessment of valuation of habitats, in Biodiversity Unit terms, is provided in full within the **Biodiversity Accounting Assessment and Compensation Requirement Review** submitted at Examination Deadline 2. The valuation of the OMH habitat within the REP site is summarised in **Table 3.1** below.

**Table 3.1: Description of OMH, Extent of Loss and Valuation in Biodiversity Units.**

Habitat	Description	Area (Ha)	Distinctiveness	Condition	Biodiversity Value (Units)
Open mosaic on previously development land	Habitat of Principal Importance Dominated by mix of species-rich grassland and ephemeral/short perennial vegetation mosaic over a loose aggregate/rubble	0.46 ha	High (6) <sup>4</sup>	Moderate (2) <sup>1</sup>	5.57

<sup>4</sup> Numbers (in brackets) are numerical scores used to calculate the biodiversity value.

	<p>and aggregate bund. Precautionary condition assessment based on limited structure and presence of successional communities.</p>				
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- 3.5.4 Details of the area, distinctiveness and condition of all habitat types within REP, including OMH, are provided in **Tables 4.1-4.3** of the **Biodiversity Accounting Assessment and Compensation Requirement Review** submitted at Examination at Deadline 2 and are used to determine the Biodiversity Value (in Biodiversity Units) of REP.
- 3.5.5 The 0.46 ha of OMH habitat within the REP site will be lost. This is the habitat creation that was required as a condition of the planning consent for the RRRF. The revised DCO (**3.1, Rev 1**) has been amended to state that where any provision in the DCO prevents the undertaker from complying with the condition granted for the RRRF, the undertaker will not be in breach of that condition. The loss of this habitat is acknowledged in **Paragraph 11.9.3 of Chapter 11 Terrestrial Biodiversity of the ES (6.1, Rev 1)**.
- 3.5.6 As set out in **Table 11.6 of Chapter 11 Terrestrial Biodiversity of the ES (6.1, Rev 1)**, the OMH habitat has been classified as being of ‘Local’ conservation importance. The geographic criteria set out within Section 4.7 of the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018) have been used in assigning the level of conservation importance to biodiversity receptors (International, National, Regional, County/Metropolitan and Local) see **Paragraph 11.5.21 of Chapter 11 Terrestrial Biodiversity of the ES (6.1, Rev 1)**.
- 3.5.7 OMH is listed as a Habitat of Principal Importance for the Conservation of Biodiversity in England. The lists of Habitats and Species of Principal Importance in England were developed in response to the requirement of Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006) for the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision makers in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. The habitats identified as Habitats of Principal Importance are those habitats in England that were identified as requiring conservation action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. The inclusion of habitats as requiring conservation action does not however confer a specific value to all habitats of that type.

3.5.8 The CIEEM Guidelines (CIEEM 2018) recognise that determining the importance of an ecological feature is a complex process, which is a matter of professional judgement guided by the importance and relevance of a number of factors. These include designation and legislative protection as well as biodiversity value, potential value and secondary/supporting value. The small size of the area of OMH habitat within the REP site, along with the fact that it was recently created (in 2010) through seeding of wildflower mixes rather than through natural colonisation and the likely prevalence of other areas of OMH in the local area, lead to the conclusion that this parcel of OMH is unlikely to be higher than of 'Local' importance.

### 3.6 ExA Written Question Reference Q3.0.6

#### 3.6.1 Written Question Q3.0.6 states:

*"The proposed development will directly affect habitat that was deemed necessary to mitigate effects associated with the development of the existing RRRF. Please will the Applicant comment on whether the use of this land for the proposed development will result in the RRRF being in breach of its planning conditions."*

#### Response:

- 3.6.2 Should the Secretary of State grant consent for the Proposed Development, use of this land, being habitat considered to be 'open mosaic habitat on previously developed sites', as set out in **paragraph 11.9.3 of Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (6.1, Rev 1)**, for the Proposed Development would not result in a breach of RRRF's planning conditions. This is because the Riverside Energy Park Development Consent Order would take precedence to the extent that there is any inconsistency between the previous approvals and the approvals contained in the Development Consent Order.
- 3.6.3 However, to provide clarity (in particular for the relevant planning authority in monitoring and enforcing both consents), the Applicant has amended **Article 6** of the **draft Development Consent Order (3.1; APP-014)** to state that any approval, condition or agreement made under the Planning Acts or Energy Acts (as defined in the Development Consent Order) prior to the date on which the authorised development commences is excluded and does not apply. This amendment is reflected in the updated **Development Consent Order (3.1, Rev 1)** submitted at Deadline 2 in order to address any overlap of the various consents and planning obligations and to provide clarity (to the extent that there is any inconsistency) in terms of enforcement and which consent has effect. The effect of this amendment is that the RRRF condition is no longer enforceable. This is similar to the approach taken and tested in the draft Drax Power (Generating Stations) Order.

### 3.7 ExA Written Question Reference Q3.0.7

#### 3.7.1 Written Question Q3.0.7 states:

*"Can the Applicant also explain what (if any) relationship exists between the newly created habitat associated with the existing RRRF and the adjacent Local Nature Reserve?"*

#### **Response:**

- 3.7.2 The newly created habitat created as a result of a planning condition of the Riverside Resource Recovery Facility (RRRF) consent is located to the west of the REP site (as identified by **Areas 1-8** on **Figure 11.9** of the **Environmental Statement (ES) (6.2, APP-060)**). It is surrounded by areas of open hardstanding, currently being used for compounds for the maintenance of operational plant, machinery and car parking. It is classified in **Paragraph 11.7.8** of **Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.4, Rev 1)** as Open Mosaic Habitat (OMH) on previously developed land. This is a habitat typically associated with brownfield sites subject to historic anthropogenic disturbance and will contain a mosaic of bare substrates, early successional communities and scrub (UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)).
- 3.7.3 The Open Mosaic Habitat (OMH) and Crossness Local Nature Reserve (LNR) are separated by approximately 35m of hardstanding. As the two areas are physically separated, and contain different habitats, the principal relationship between them would be the interchange of fauna and flora between Crossness LNR and the OMH through normal natural processes, such as use of the OMH by foraging birds nesting within Crossness LNR or by invertebrates nesting in one area and foraging in the other. These are natural processes that will occur between most given habitats and the relationship between the OMH and Crossness LNR is considered to be typical of habitats in similar proximity.
- 3.7.4 As identified in **Table G.7.2** of **Appendix G.7 Designated Area Supplementary Information** of the **ES (6.3, APP-086)** Crossness LNR contains one of the last remaining areas of grazing marsh in Greater London and the largest reedbed in the London Borough of Bexley (LBB). Other habitats include a network of ditches and open water, scrub and rough grassland. Habitats within Crossness LNR are 'semi-natural' and will have been managed in a similar fashion for many years, whereas the OMH associated with the Proposed Development being an inherently artificial habitat created in recent years. In addition, the OMH is not one of the habitats for which Crossness LNR is designated, as identified in **Table G.7.2** of **Appendix G.7 Designated Area Supplementary Information** of the **ES (6.3, APP-086)**.
- 3.7.5 In conclusion, it is considered that whilst there is the potential for interchange of flora and fauna between Crossness LNR and the OMH, this is not fundamental to the identified value of Crossness LNR and therefore loss of the OMH will not adversely affect the ecological value of Crossness LNR.



### 3.8 ExA Written Question Reference Q3.0.08 & Q3.0.16

#### 3.8.1 Written Question Q3.0.08 states:

*"Paragraph 11.9.5 of the ES states that habitat compensation will be provided off-site. Can the Applicant explain what are the objectives for the delivery of off-site measures, how they will be secured, when and to what extent they will address effects associated with loss of habitat on site and what confidence there is in securing the mitigation in perpetuity? Can the Applicant also provide additional information on how the off-site measures will be monitored and which parameters will be used to ensure the compensation is successful?"*

#### 3.8.2 Written Question Q3.0.16 states:

*"Please will the Applicant provide information to explain its approach to the identification and delivery of off-site compensation having regard to its biodiversity characteristics and the ability to address the loss of open mosaic habitat? The explanation should also address the timescales associated with the delivery and the proposed mechanism that will secure its implementation and monitoring."*

#### **Response:**

- 3.8.3 The principles for the delivery of the off-site measures (biodiversity off-setting) are set out in **Section 5** of the **Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**. Biodiversity offsetting principles establish a framework for designing and implementing biodiversity offsets and verifying their success. These are expanded further within the **Biodiversity Accounting Report (Ref 8.02.09)** (submitted at Deadline 2) which sets out the standards required for the off-set delivery, including a commitment to a minimum 10% net gain in biodiversity value, as measured in Biodiversity Units through a biodiversity metric. The **Biodiversity Accounting Report (Ref 8.02.09)** presents the outcome of metric calculations based on "probable worst-case" and "likely case" impact scenarios.
- 3.8.4 The **OBLMS (7.6, APP-107)** confirms in **Paragraph 5.1.3** that the metric calculation will be updated at the detailed design stage, the outcome of which will be included in the final **Biodiversity Landscape and Mitigation Strategy (BLMS)**. In addition, the BLMS will include the mechanism for securing the off-setting value and (where appropriate and necessary) any long term management and monitoring commitments in respect of the off-setting. **Requirements 4 and 5** of the **draft DCO (3.1, Rev 1)** secure the provision of a final BLMSs covering both the pre-commencement works, and construction and operation phases.
- 3.8.5 Requirement 5 stipulates that the final **BLMS** will be substantially in accordance with the **OBLMS**. As stated in the **Biodiversity Accounting Report (Ref 8.02.09)**, the off-set will be secured through an underpinning legal agreement and means of enforcement, brokered by the Environment Bank. The revised **draft Development Consent Order (3.1, Rev 1)** contains amendments to **Requirement 4** to state that the pre-commencement biodiversity and landscape mitigation strategy must contain details of the value (biodiversity units) of the habitats affected by the

pre-commencement works and which will subsequently be combined with other habitat losses following detailed design.

- 3.8.6 In the meantime, and as stated above, the **Biodiversity Accounting Report (Ref 8.02.09)** provides the outcome of the metric calculations undertaken for the "probable worst case" and "likely case" impact scenarios. This provides certainty around the likely nature and scale of the off-set that needs to be secured by the Applicant to address the effects associated with loss of habitat on site and achieve the commitment to 10% biodiversity gain. The Applicant is working with the Environment Bank to identify options for off-setting which will be discussed and agreed with stakeholders and consultees.
- 3.8.7 The **Biodiversity Accounting Report (Ref 8.02.09)** provides a number of commitments in relation to the nature of the biodiversity offset, which include the parameters which will be used to ensure the compensation is successful. This includes commitments to provide an off-set which will include:
- habitat enhancement, restoration and creation proposals sufficient to provide an uplift in habitat value equivalent to residual biodiversity impact of the Proposed Development, plus a minimum of 10%, as determined by the final updated Biodiversity Metric calculations made with reference to the detailed design; and
  - provision for the enhancement and restoration of Habitats of Principal Importance<sup>5</sup> equivalent to the value of those to be affected by the Proposed Development.
- 3.8.8 These commitments confirm how the off-setting metric will address the effects associated with the loss of habitat on site (and provide a measurable minimum 10% net gain in biodiversity value).
- 3.8.9 The commitments set out in the **Biodiversity Accounting Report (Ref 8.02.09)** also confirm that the off-site measures will be monitored to secure successful compensation delivery. The **Biodiversity Accounting Report (Ref 8.02.09)** states:
- "...the off-set site/s and scheme/s will... enable the delivery of Biodiversity Offsetting Standards to achieve net gain for biodiversity taking into account local offset deliver, an adaptive management plan and pre-survey, fully funded management for a 25 years period, and a monitoring plan".*
- 3.8.10 The monitoring plan will be specific to the habitats being created and enhanced, and therefore will be developed once the details of biodiversity offset measures have been finalised through the final biodiversity metric delivered through **Requirements 4 and 5 of Schedule 2 of the Development Consent Order (3.1, Rev 1)**.
- 3.8.11 The 25 year period is the typical requirement for commitments to habitat management and monitoring and is considered to be sufficient to secure the target habitats. For example, the Open Mosaic Habitat is an early successional habitat,

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<sup>5</sup> As defined within UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

likely to reach target condition within a relatively short time-frame. Defra state in their recent Net Gain Consultation proposals (2018) that "*Currently, industry principles and common practice of biodiversity net gain suggest that compensatory habitat should be actively managed for 25-30 years*".

### **3.9 ExA Written Question Reference Q3.0.9**

#### 3.9.1 Written Question Q3.0.9 states:

*"Table 11.7 in the ES states that baseline noise levels recorded at location 3 represent levels at Crossness LNR. This location is not clearly identifiable from the noise plan. Please will the Applicant identify location 3."*

#### **Response:**

3.9.2 The position of Location 3 used to record baseline noise levels at Crossness LNR is shown on **Figure 11.10 Noise Assessment Locations** of the **ES (6.2, APP-060)**.

### 3.10 ExA Written Question Reference Q3.0.10

3.10.1 Written Question Q3.0.10 states:

*"Paragraph 11.9.11 of the ES states that there may be displacement of breeding/wintering birds during construction but that the impact of this is not significant. Please identify the criteria and the evidence that have been used in reaching this conclusion."*

#### Response:

##### **Breeding birds**

- 3.10.2 When characterising effects to ecological receptors (such as breeding and wintering birds) and establishing whether an effect is significant or not, the assessment examines potential impacts on that receptor with reference to the extent, magnitude, duration, timing, frequency, and reversibility of the impacts. This approach is set out in **Paragraph 11.5.20 of Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.1, Rev 1)**.
- 3.10.3 As shown on **Figure 11.5 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.2, APP-060)**, many of the breeding bird species of conservation concern, such as Cetti's warbler, linnnet and reed bunting, have been recorded breeding within or in close proximity to the main REP site, where operational activities associated to the RRRF facility are ongoing, indicating they are resilient to noise and visual disturbance from the operational facility.
- 3.10.4 Disturbance effects during construction of the Main REP Building will be temporary and localised to the REP site and its immediate surroundings. Effects of habitat loss during construction of the Main REP Building will be permanent. However the bare ground and grassland habitats are largely unsuitable for most species of bird to nest, within only a single robin territory identified within the footprint of the Main REP Building. Birds recorded breeding within the Application Boundary principally nested within habitats around the margins of the site, as can be seen on **Figure 11.5 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.2, APP-060)**, where construction activities may occur but effects would be temporary. Therefore, the ES concludes effects identified to the breeding bird assemblage of Local conservation importance will be Not Significant.
- 3.10.5 **Paragraph 11.9.10 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** identifies that noise levels were monitored with respect to existing and predicted levels during construction of REP at a representative location within Crossness Local Nature Reserve (LNR) where breeding birds could be expected to be found. The assessment shows that the temporary construction noise levels would increase from 52 decibels (dB) to 62 dB during construction). To provide further context to the absolute levels, normal conversation noise levels are around 60 dB<sup>6</sup>. Therefore, the predicted construction noise levels at Location 3 will be marginally above normal conversation levels.

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<sup>6</sup> Institute of Acoustics and Association of Noise Consultants (2015). Acoustic of schools: a design guide

3.10.6 Given the resilience of birds nesting within habitats around the margins of the site, and that potential effects to breeding birds from disturbance during construction will be temporary and localised to the REP site and its immediate surroundings, **Paragraph 11.9.11 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** concludes that construction disturbance will not affect the long-term distribution and abundance of the assemblage of breeding birds within the study area or its nature conservation importance. The effects are therefore classified as not significant.

### **Wintering birds**

3.10.7 The assessment of potential effects to overwintering birds during construction is set out in **Paragraphs 11.9.16-11.9.19 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**. The survey and assessment focused on the intertidal habitats along the River Thames foreshore known to be of value for wintering birds. The assemblage of overwintering birds recorded during the baseline surveys was classified as of county/metropolitan importance.

3.10.8 Noise modelling, described in **Paragraph 11.9.18 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**, shows that construction noise at two representative locations on the Thames foreshore where habitats are suitable for overwintering waterbirds, Location 1 and Location 2, will experience an increase from 55 to 57 dB and 54 to 68 dB respectively.

3.10.9 Research<sup>7</sup> has shown that reactions of overwintering estuarine birds from construction activities can be broadly placed into the following categories:

Personnel and plant on mudflat: **High**  
 Third Party on mudflat: **High**  
 Personnel and plant on seaward toe and face: **High to Moderate**  
 Intermittent plant and personnel on crest: **High to Moderate**  
 Third Party on bank: **High to Moderate**  
 Irregular piling noise (above 70 dB): **High to Moderate**  
 Long term plant and personnel on crest: **Moderate**  
 Regular piling noise (below 70dB): **Moderate**  
 Irregular noise (50-70 dB): **Moderate**  
 Regular noise (50-70dB): **Moderate to Low**  
 Occasional movement of the crane jib and load above sight-line: **Moderate to Low**  
 Noise below 50 dB: **Low**  
 Long-term plant only on crest: **Low**  
 Activity behind flood bank (inland): **Low**

Figure 3.2: reactions of overwintering estuarine birds from construction activities (Institute of Estuarine and Coastal Studies University of Hull, 2009)

3.10.10 The reaction of birds to disturbance activities is dependent on the type of disturbance, e.g. irregular or regular noise, or visual disturbance. Construction disturbance from the Proposed Development could arise from two primary sources, noise or visual disturbance. The noise modelling shows that noise levels during construction at the locations modelled will be within the 50-70dB range. This is the

<sup>7</sup> Institute of Estuarine and Coastal Studies University of Hull (2009). Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance

same range as existing background levels of noise disturbance that the birds are currently subjected to, and so there would be no measurable effects above those caused by existing background. This is equivalent to 'regular noise (50-70dB)' in the table above and is considered to result in a 'Moderate to Low' effect.

3.10.11 In terms of visual disturbance, the construction site and the areas where overwintering birds have been recorded are separated by the River Thames flood embankment. This structure (approximately 6m above Ordnance Datum (AOD)) provides a visual barrier between the construction areas and the habitats suitable for overwintering birds, meaning there will be no visual disturbance from the ground level construction activities. As the Proposed Development is constructed, there is potential for disturbance from crane movements and other activities above the sight-line but using the evidence in Figure 3 above 'occasional movements of the crane jib and load above sight-line' would have 'Moderate to Low' effects.

3.10.12 Therefore, the assessment concludes that as the construction disturbance has been demonstrated to be of a similar magnitude to existing background levels of disturbance, it will not affect the long-term distribution and abundance of the assemblage of wintering birds within the study area, or its nature conservation importance and therefore the effects are considered to be not significant.



### 3.11 ExA Written Question Reference Q3.0.11

#### 3.11.1 Written Question Q3.0.11 states:

*"Paragraph 11.9.23 of the ES states that the Proposed Development will exceed NO<sub>x</sub> levels critical loads at Inner Thames Marshes/Rainham Marshes SSSI and Ingrebourne Marshes SSSI. Baseline NO<sub>x</sub> levels at these two sites currently exceeds annual targets and the ES states that the impact of the project is not significant. However, it is unclear how this conclusion was reached. The ES fails to clearly identify the contribution to the site of each project included in the cumulative assessment therefore it is difficult to understand whether the project contribution will be significant in combination with other projects. Please will the Applicant clarify which evidence supports the statement that the impact of the proposed development is not significant."*

#### Response

##### Effects of REP in isolation

3.11.2 **Section 11.9 of Chapter 11 Terrestrial Biodiversity** of the **Environmental Statement (ES) (6.1, Rev 1)** reports that no significant effects from air quality to Inner Thames Marshes Site of Special Scientific Interest (SSSI) and Ingrebourne Marshes SSSI are identified. In addition, **Paragraph 11.10.17 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** concludes that there will be no significant cumulative operational effects from air quality on designated sites.

3.11.3 The assessment of air quality effects to Inner Thames Marshes SSSI and Ingrebourne Marshes SSSI from Riverside Energy Park (REP) is provided in **Paragraphs 11.9.23 – 11.9.31 of Chapter 11 Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** as corrected through **Section 3.2 of the Clarification and Corrections Document (Ref 8.02.05)** submitted at Deadline 2. Since submission of the ES, the ecological assessment of potential effects to these SSSIs has been amended due to changes in the predicted rates of Total Nitrogen deposition.

3.11.4 **Tables C.2.3.1 – C.2.3.7 in Appendix C.2 of the ES (6.3, APP-069)** set out the Process Contributions (PCs) from REP, along with the Predicted Environmental Contributions (PECs) at all designated sites within the study area (N.B **Table C.2.3.7** has been corrected through the **Clarification and Corrections Document (8.02.05)** submitted at Deadline 2 since the original submission of the ES). The corrected assessment finds no significant adverse effects to Ingrebourne Marshes SSSI or Inner Thames Marshes SSSI from NO<sub>x</sub> or Total Nitrogen deposition from REP.

##### Cumulative assessment

3.11.5 **Paragraph 7.5.50 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)** explains how the baseline for the air quality modelling includes existing emissions such as those from operational facilities including the Riverside Resource Recovery Facility (RRRF) and Crossness Sewage Sludge Incinerator. Therefore, the emissions from these other facilities are included in the baseline PEC and so form part of the assessment of effects from air quality, along with the PC from REP.

3.11.6 The assessment of potential cumulative air quality effects does not identify any other significant point source emissions which would "*significantly impact on the baseline to which the REP impacts have been added*", as reported in **Paragraph 7.10.4 of Chapter 7 Air Quality** of the **ES (6.1, Rev 1)**. Beyond identifying point source emissions, there is no mechanism to identify the contribution of air quality effects of each individual project included in the cumulative assessment. Therefore, an assessment of the total likely cumulative effects on the Inner Thames Marshes Site of Special Scientific Interest (SSSI) and Ingrebourne Marshes SSSI that could arise from identified committed developments, is assessed as described in **Appendix A.4** of the **ES (6.3, APP-065)**, and therefore there will be no significant cumulative effects.

### **Conclusion**

3.11.7 The conclusion of no significant effects to Inner Thames Marshes SSSI and Ingrebourne Marshes SSSI is supported by the air quality modelling assessment, including the assessment of cumulative effects, along with ecological interpretation of potential effects to habitats in the context of their current conservation status.

3.11.8 The conclusion of no significant effects is confirmed by Natural England, the Government's statutory nature conservation body responsible for SSSIs, as set out in **Statement of Common Ground between the Applicant and Natural England (Ref 8.01.05)**, submitted at Examination Deadline 2.

### 3.12 ExA Written Question Reference Q3.0.12

#### 3.12.1 Written Question Q3.0.12 states:

*"Chapter 11 of the ES makes no reference to vibration contributing to disturbance impacts. Please will the Applicant explain the extent to which vibration from the Proposed Development has been taken into account in the assessment of disturbance."*

#### Response:

- 3.12.2 **Paragraph 8.5.29 of Chapter 8 Noise and Vibration of the ES (6.1, APP-045)** states that, for human response to construction related vibration, it is considered appropriate to assess the likely Peak Particle Velocity (PPV mm/s) as suggested in BS 5228-2:2009+ A1:2014<sup>8</sup>. The onset of significant effects (above the Lowest Observable Effects Level (LOAEL)) is classified as 0.3mm/s PPV, the level at which construction vibration might just be perceptible in residential environments. **Paragraphs 8.9.17-8.9.18 of Chapter 8 Noise and Vibration of the ES (6.1, APP-045)** report no likely significant effects arising from construction related vibration.
- 3.12.3 The ES acknowledges construction activities such as piling could cause disturbance through both noise and vibration. However, the assessment of disturbance impacts to terrestrial biodiversity receptors focused on the potential for effects from noise, which was considered to have the potential to cause greater effects due to the greater distances over which noise can travel. This is supported by research into disturbance effects to overwintering waterbirds<sup>9</sup>, which assesses behavioural responses of birds to disturbance from construction activities which create both noise and vibration (e.g. piling) but focuses the conclusions on the response of birds to noise disturbance.
- 3.12.4 Given this, and in the absence of specific guidance relating to vibration on species disturbance, professional opinion considers this to be appropriate for an assessment of species disturbance. No significant effects were identified from construction disturbance to species.
- 3.12.5 In **Section 4.3 of the Scoping Opinion (Appendix A.1 of the ES, 6.3, APP-062)** the Secretary of State was content to scope out potential effects from operational vibration arising from the Proposed Development. Thus, potential effects from vibration on ecological receptors were also agreed by the Secretary of State to be scoped out as the vibration effects are predicted to be imperceptible and therefore were considered unlikely to have significant effects on either human or ecological receptors.

<sup>8</sup> British Standards Institution (2014); BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open Sites Part 2 Vibration. London: BSI.

<sup>9</sup> Institute of Estuarine and Coastal Studies University of Hull (2009). Construction and Waterfowl: Defining sensitivity, Response, Impacts and Guidance

### 3.13 ExA Written Question Reference Q3.0.13 & Q3.0.14

#### 3.13.1 Written Question Q3.0.13 states:

*"The EA in its Relevant Representation has raised concerns regarding the effects from lighting on the adjacent LNR. It is concerned that while there are statements of intent, there is no evidence to demonstrate how impacts will be managed. The ES states that lighting will be kept to a minimum and lighting that is needed will be designed taking into account the risk to the adjacent LNR. But there is no information suggesting how new lighting within the development area may increase light impact on the LNR. In absence of this information it is not clear if nocturnal species will experience significant effects. It is also unclear the extent to which the proposed mitigation/compensatory measures would be sufficient to address any effects. Please will the Applicant explain the extent to which the proposed Outline Lighting Strategy addresses any anticipated change in lighting impact on the LNR throughout relevant phases of the proposed development."*

#### 3.13.2 "Written Question Q3.0.14 states"

*"Concerns have been expressed in RRs about the impact of lighting at the proposed development on the Crossness LNR. Please will the Applicant explain the extent to which the proposed Outline Lighting Strategy addresses any anticipated change in lighting impact on the LNR through all of the relevant phases of the proposed development."*

#### **Response:**

- 3.13.3 It is considered that the Environmental Statement (ES) robustly addresses and assesses the potential effects to light sensitive biodiversity receptors (principally bats).
- 3.13.4 It is acknowledged that at the current stage of the design process, detailed information on lighting is not available for the construction and operational phases, it is therefore not possible to conduct a detailed assessment of lighting effects to light sensitive species at the Crossness Local Nature Reserve (LNR). However, the measures described below and the commitments in the **dDCO (3.1, Rev 1)** are such that the potential effects on the Crossness LNR and nocturnal light sensitive species, arising from the Proposed Development will be not significant.
- 3.13.5 **Paragraphs 11.9.2, 11.9.34 and 11.9.42** of the **Environmental Statement (ES) (6.1, Rev 1)** consider the potential effects associated with lighting during the construction and operational phases, such as disturbance to foraging and commuting bats, of the Proposed Development and refer to mitigation measures embedded in the scheme design, such that any potentially significant lighting effects on designated areas, including the Crossness LNR, will be avoided. The mitigation measures to address potential effects associated with lighting are described or referenced in **Section 4** of the **Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**. **Section 4.4** of the OBLMS states:

*"Construction impacts from lighting will be mitigated through the measures set out in the outline COCP" (**Outline Code of Construction Practice (7.5, APP-093)**)*

3.13.6 **Section 4.7** of the **Outline CoCP (7.5, Rev 1)** sets out the principles for mitigating effects from lighting during the construction phase, including avoidance of impacts to designated areas and habitats and species of ecological value. The requirement for a detailed Code of Construction Practice for each work item to be in substantial accordance with the Outline Code of Construction Practice, is secured via **Requirement 11** at **Schedule 2** of the **Draft Development Consent Order (DCO) (3.1, Rev 1)**, these would be produced prior to construction and approved by the relevant planning authority.

3.13.7 **Paragraph 4.11** of the **CoCP (7.5, Rev 1)** lists the guidance documents and relevant legislation relating to lighting which the contractor will need to follow during the construction phase to avoid significant effects on sensitive ecological receptors. This includes the recent publication by the Bat Conservation Trust, **Bats and Lighting in the UK Guidance Note 08/18 (Bat Conservation Trust and Institute of Lighting Engineers, 2018)**, which sets out the industry standards for mitigation of lighting impacts to bats.

3.13.8 In addition, **Paragraph 4.11** of the **CoCP (7.5, Rev 1)** also details specific methods of mitigating light effects such as "lighting should be directed away from all sensitive receptors", and "Use louvres and shields to prevent undesirable light break-out".

3.13.9 **Section 4.4** of the OBLMS also confirms that to address potential effects from lighting during operation:

*"An Outline Lighting Strategy (see Chapter 15 of the ES)..... [**Outline Lighting Strategy (Appendix K.3)**] ....has been produced which considers the potential effects of exterior lighting required for REP on light sensitive receptors, and establishes design objectives to minimise the effects of obtrusive light to within guideline levels.*

3.13.10 The detailed design of the lighting design is not yet fixed and will be developed as the scheme design evolves. Therefore, the principles for managing potential effects, arising from lighting, on sensitive biodiversity receptors are set out in the **Outline Lighting Strategy (6.3; APP-096)**. The **Outline Lighting Strategy Appendix K.3** to the **ES (6.3; APP-096)**, sets out the principles for mitigating effects from lighting during the operational phase. The requirement for an Operational Lighting Strategy, to be in substantial accordance with the Outline Lighting Strategy, is secured via **Requirement 16** at **Schedule 2** of the **Draft DCO (3.1, Rev 1)** to be produced and approved by the relevant planning authority.

3.13.11 **Section 1.4** of the **Outline Lighting Strategy (6.3, APP-096)** sets out the purpose of the document, **Paragraph 1.4.3** states:

*"This Strategy incorporates general principles and recommendations to mitigate identified adverse effects of external lighting on sensitive receptors. At the time of submission of the DCO application detailed design work for REP has not been completed. Therefore, detailed information on the external lighting to be used at REP is currently unknown. Nevertheless, it is recognised that potential impacts from*

*external lighting of REP may be a concern. Therefore, the Applicant has provided this Strategy in order to provide the principles that will be employed at REP for the final operational external artificial lighting scheme. A lighting design with modelling to show illuminance levels (as lux contour lines) will be prepared at the detailed design stage to demonstrate that the external lighting levels will be kept within the obtrusive light limitations that are appropriate for the site and immediate surrounding area."*

3.13.12 **Section 2.5** of the **Outline Lighting Strategy (6.3, APP-096)** describes the guidance documents which will be used in defining acceptable standards for the final lighting design. This includes the recent publication by the Bat Conservation Trust and the Institute of Lighting Engineers (2018) which sets out the industry standard for mitigation of lighting impacts to bats.

3.13.13 In **Section 5** of the **Outline Lighting Strategy (6.3, APP-096)** design principles and specific measures to mitigate effects on the Crossness LNR are set out, such as:

*"DP5.01 - Lighting will be appropriate to the local context and will mitigate lighting impacts upon identified habitats, neighbouring occupiers and the wider landscape.*

- *Intelligently designed low-glare fully shielded fittings pointing downwards will be used; and*
- *Blue light emissions will be mitigated by using low colour temperature lighting."*

*"DP 5.02 - Lighting will provide illumination for the safe operation of the various activities proposed to be carried out at REP, including access and wayfinding.*

- The lighting design will mitigate light spill within the Crossness Nature Reserve and be designed to maximise dark areas for wildlife;
- The lighting design will be determined by operational requirements for both day-time and night-time lighting of buildings and external areas whilst mitigating impacts on local ecology;"

*"DP 5.04 - Lighting elements will be designed to minimise spillage to Crossness Nature Reserve and the Thames Path.*

- The height and design of lighting columns will be considered to avoid light spill where possible;
- Lighting elements will be consistent in terms of materials, finish and colours and contribute to the appearance of REP;
- All luminaries will be of an energy efficient design and comply with the relevant British Standard; and
- Ease and safe maintenance will be considered as part of selection of light fittings and luminaries."

Paragraph 5.3.1 -



*"Further recommendations to be adopted alongside the Design Principles to mitigate any potential impacts from the external artificial lighting required at the REP site are as follows:*

...

- *Retained habitats such as scrub and ditch systems around the margins of the REP site would not be lit; and*
- *Any adjacent lighting (e.g. lighting required for safety purposes) would be directed to avoid light spill onto retained habitats around the margins of the REP site with after-dark lighting during the main period when bats are active (April to October) being minimised as far as is practicable."*

*The Applicant has made commitments within the **Draft DCO (3.1, APP-014)** to ensure that lighting is compliant with relevant industry standards, with the **CoCP (7.5, APP-106)** and the **Operational Lighting Strategy (6.3, APP-096)**, to be submitted to and approved by the relevant planning authority. The proposed measures will be in accordance with industry guidance and will be sufficient in addressing potential effects, therefore effects on sensitive biodiversity receptors such as the Crossness LNR and nocturnal light sensitive species, such as bats will be not significant.*



### 3.15 ExA Written Question Reference Q3.0.15

#### 3.15.1 Written Question Q3.0.15 states:

*"An Outline Biodiversity Landscape Management Strategy OBLMS has been produced which sets out the principal measures to minimise impacts to designated areas, habitats and species. The OBLMS states that the Applicant will provide off-site compensation. In both the on-site and off-site instances, the OBLMS does not set out the location and extent of proposed compensation. Please will the Applicant provide further details explaining how and where open mosaic habitat will be created on-site and include details relevant to the amount of land which will be required? Delivery of the on-site compensation measures necessary to off-set the harm caused by direct loss of open mosaic habitat should be clearly secured within the DCO or other legally binding agreement. For ease of reference could the applicant provide a table to show what the potential effects of the proposal would be pre and post mitigation on ecological receptors?"*

#### Response:

- 3.15.2 As set out in **paragraph 11.9.5 Chapter 11 of Terrestrial Biodiversity of the ES (6.1, Rev 1)** and **Table 1 of the Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)** the Applicant has committed to convert approximately 25% of the River Thames flood bank within the REP Site to Open Mosaic Habitat (OMH), a Habitat of Principal Importance for the Conservation of Biodiversity in England. The provision of OMH on the flood bank is the Applicant's preferred solution to compensate in part for ecological effects that will be incurred by the loss of existing OMH within the REP Site. Current proposals are that approximately 0.26ha of OMH will be created on site to compensate for the loss of 0.46ha of existing OMH. Additional off-site habitat creation and enhancement will provide compensation for remaining effects to habitats. This proposal ensures that the mitigation hierarchy is followed, and ensures that some of the compensation for loss of habitats is provided within the Application Site. The Applicant is currently consulting with the Environment Agency on the details of this proposal.
- 3.15.3 It is acknowledged the flood embankment currently supports semi-improved neutral grassland, which has biodiversity value of its own merit. The creation of OMH will result in the loss of semi-improved neutral grassland during construction (as identified in **paragraph 4.2.2 of the Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)**, submitted at Deadline 2). However, the provision of OMH would ultimately increase the overall biodiversity value of the flood bank area (see **page 10 of the OBLMS) (7.6, APP-107)**). The loss of semi-improved neutral grassland has been fully quantified in the Biodiversity Accounting Report along with all potential losses incurred during construction of REP. All losses will be balanced against biodiversity gains provided within the REP site; any deficit, along with a 10% biodiversity net gain, will be provided in the off-site compensation delivered by the Environment Bank secured through **Requirement 5 of Schedule 2 of the draft Development Consent Order (DCO) (3.1, Rev 1)**, such that there will be no significant adverse effects in relation to habitat loss and a biodiversity net gain will be achieved.

The extent of habitat loss is detailed in **Tables 5.1-5.4** of the **Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)** submitted at Deadline 2. For example, the extent and biodiversity unit value of retained and impacted Habitats of Principal Importance (Likely Route Scenario) are presented in **Table 5.2** of the **Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)**. This table is reproduced as **Figure 3.3** below.

Works Area	Retained		Assessed gross loss	
	Area/length (Ha/km)	Unit	Area/length (Ha/ km)	Unit
<b>REP</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

Figure 3.3. Screenshot of Table 5.2 from the REP Biodiversity Accounting Report (Environment Bank)

3.15.4 **Tables 6.1- 6.4** of the **Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)** set out the total area and value in biodiversity units for all habitat creation and restoration proposals. **Table 6.1**, which sets out areas and compensation value of restoration and compensation measures for the Proposed Development (Likely Route Scenario), is reproduced as **Figure 3.4** below.

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	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>

Figure 3.4. Screenshot of Table 6.1 from the REP Biodiversity Accounting Report (Environment Bank)

- 3.15.5 The principles for the delivery of the off-site measures (biodiversity off-setting) are set out in **Section 5** of the **OBLMS (7.6, APP-107)**. These are expanded on further within the **Biodiversity Accounting Report (Ref 8.02.09)** which sets out the standards required for the off-set delivery, including commitment to minimum 10% net gain in biodiversity value, as measured in Biodiversity Units through a biodiversity metric. The **Biodiversity Accounting Report (Ref 8.02.09)** presents the outcome of metric calculations based on the "realistic worst-case" and "realistic best case" impact scenarios.
- 3.15.6 The **OBLMS (7.6, APP-107)** confirms in **Paragraph 5.1.3** that the metric calculation will be updated at the detailed design stage, the outcome of which will be included in the final Biodiversity Landscape and Mitigation Strategy (BLMS). Final BLMSs covering both the pre-commencement works and construction and operation phases are secured via **Requirements 4 and 5** at **Schedule 2** of the **dDCO (3.1, Rev 1)**. As stated in the **Biodiversity Accounting Report (Ref 8.02.09)**, the off-set will be secured through an underpinning legal agreement and means of enforcement, brokered by the Environment Bank, which is secured through **Requirement 5** of **Schedule 2** of the **Draft Development Consent Order (DCO) (3.1, Rev 1)**. The revised **draft Development Consent Order (3.1, Rev 1)** contains amendments to **Requirement 4** to state that the pre-commencement BLMS must contain details of the value (biodiversity units) of the habitats affected by the pre-commencement works and which will subsequently be combined with other habitat losses following detailed design.
- 3.15.7 In the meantime, and as stated above, the **Biodiversity Accounting Report (Ref 8.02.09)** provides the outcome of the metric calculations undertaken for the "realistic worst case" and "realistic best case" impact scenarios. This provides

certainty around the likely nature and scale of the off-set that needs to be secured by the Applicant to address the effects associated with loss of habitat on site and achieve the commitment to 10% biodiversity gain. The Applicant is working with the Environment Bank to identify options for off-setting which will be discussed and agreed with stakeholders and consultees during development of the detailed design.

3.15.8 The **Biodiversity Accounting Report (Ref 8.02.09)** provides a number of commitments in relation to the nature of the biodiversity off-set. This includes commitments to provide an off-set which will incorporate:

- habitat enhancement, restoration and creation proposals sufficient to provide an uplift in habitat value equivalent to residual biodiversity impact of the Proposed Development, plus a minimum of 10% net gain, as determined by the final updated Biodiversity Metric calculations made with reference to the detailed design; and
- provision for the enhancement and restoration of Habitats of Principal Importance equivalent to the value of those to be impacted by the Proposed Development.

3.15.9 These commitments confirm how the off-setting will address the effects associated with the loss of habitat on site (and provide a measurable minimum 10% net gain in biodiversity value).

3.15.10 The commitments set out in the **Biodiversity Accounting Report (Ref 8.02.09)** also confirm that the off-site measures will be monitored to secure successful compensation delivery, stating:

3.15.11 *"...the off set site/s and scheme/s will... enable the delivery of Biodiversity Offsetting Standards to achieve net gain for biodiversity taking into account local offset deliver, an adaptive management plan and pre survey, fully funded management for a 25 years period, and a monitoring plan".*

3.15.12 The monitoring plan will be specific to the habitats being created and enhanced, and therefore will be developed once the details of biodiversity offset measures have been finalised through the final biodiversity metric delivered through **Requirements 4 and 5 of Schedule 2 of the Development Consent Order (3.1, Rev 1)**.

### 3.17 ExA Written Question Reference Q3.0.17

#### 3.17.1 Written Question Q3.0.17 states:

*"The EA has commented on the proposed cable route through the Crossness LNR and expressed concern about the proposal to convert 25% of the flood banks to open mosaic habitat. Please will the Applicant set out how it proposes to address the EA's concerns. Will the Applicant also explain how the potential impact of converting the flood banks to open mosaic grassland has been assessed and whether this could result in significant effects."*

#### **Response:**

#### **Impact on Crossness Nature Reserve**

- 3.17.2 Potential biodiversity effects on designated sites, including Crossness Local Nature Reserve (LNR), have been assessed and are reported in **Chapter 11, Terrestrial Biodiversity** of the **ES (6.1, Rev 1)**. **Paragraphs 11.12.1-11.12.4** of **Chapter 11, Terrestrial Biodiversity** of the **ES (6.1, Rev 1)** conclude that no likely residual significant effects are anticipated on terrestrial biodiversity receptors as a result of construction, operation or decommissioning of the Proposed Development, when considered either in isolation or in combination with other planned developments. This assessment and its conclusions have been agreed with Natural England.
- 3.17.3 Furthermore, the Applicant can confirm that following further technical design work and investigations carried out by the Applicant and UK Power Networks, the Applicant is removing the Election Connection route option (**Route 1**) through Crossness LNR. The removal of the Electrical Connection route option through the Crossness LNR is confirmed in the Applicant's submission to the Examination at Deadline 2 and the updated Land Plans (**2.1, Rev 1**) and Works Plans (**2.2, Rev 1**) submitted into the Examination at Deadline 2.

#### **Open Mosaic Habitat on the Flood Bank**

- 3.17.4 The principles of the biodiversity offsetting process are set out in **Paragraph 11.11.1** of **Chapter 11 Terrestrial Biodiversity (6.1, Rev 1)** and **Section 5** of the **OBLMS (7.6, APP-107)**. The detail will be set out in the **Biodiversity and Landscape Mitigation Strategy**, secured through **Requirement 5** of **Schedule 2** of the **Draft Development Consent Order (dDCO) (3.1, Rev 1)**, which will be in substantial accordance with the **Outline Biodiversity and Landscape Mitigation Strategy (OBLMS) (7.6, APP-107)**.
- 3.17.5 It is acknowledged the flood embankment currently supports semi-improved neutral grassland, which has biodiversity value of its own. The creation of the open mosaic habitat (OMH) will result in the loss of semi-improved neutral grassland during construction (as identified in **Paragraph 4.4.2** of the of the **Biodiversity Accounting Assessment and Compensation Requirement Review (Appendix to Ref 8.02.09)**, submitted at Deadline 2). However, the provision of OMH would ultimately increase the biodiversity value of the flood bank area and provide a diversity of habitats of value to invertebrates (see **Page 10** of the **OBLMS (7.6, APP-107)**). The loss of semi-improved neutral grassland has been fully quantified in

the **Biodiversity Accounting Report (Ref 8.02.09)**, along with all losses likely to be incurred during construction of REP. All losses will be balanced against biodiversity gains provided within the site and any deficit, along with a 10% biodiversity net gain, that will be provided in the off-site compensation delivered by the Environment Bank (secured through Requirement 5 of **Schedule 2** of the **Draft Development Consent Order (DCO) (3.1, Rev 1)**), such that there will be no significant adverse effects in relation to habitat loss and a biodiversity net gain will be achieved.

3.17.6 The EA's biodiversity specialist has commented on the proposed OMH being incompatible with the flood defence function of the flood bank, although no specific information on this point was provided. At the time of writing the Applicant has requested a meeting with the EA's biodiversity specialist to discuss this point further and identify a solution that could provide an OMH habitat which is compatible with the flood defence function of the flood bank. The Applicant has received no response from the EA at the time of writing.

3.17.7 If, after further consultation with the EA, there is no agreed solution, the Applicant will not convert any habitat on the flood back to OMH. Instead the Applicant will provide additional off-site compensation through the Environment Bank and the biodiversity metric to the same value of biodiversity units as that proposed on the flood bank, which will be delivered through Requirements 4 and 5 of **Schedule 2** of the **Development Consent Order (3.1, Rev 1)**.



### 3.18 ExA Written Question Reference Q3.0.18

#### 3.18.1 Written Question Q3.0.18 states:

*"The proposed development would intercept the southern area of the Joyce Green Quarry site. The land concerned is the subject of an approved mitigation strategy consisting of the construction of receptor sites for both water voles and reptiles. The owner of the quarry is concerned that the receptor sites, which have been approved by Kent County Council, the EA and Natural England should not be disturbed and has objected to the use of this land. Please will the applicant describe how the loss of land within a receptor site, and itself the subject of an approved mitigation strategy for another site has been taken into consideration, and how the cumulative effects of the existing permission and the proposed development have been addressed."*

#### **Response:**

- 3.18.2 Recent progress in the evolution of the design of the Electrical Connection by UK Power Networks has resulted in significant areas of land within Joyce Green Quarry being removed from the Application Boundary, as shown on the revised **Works Plans (2.2, Rev 1)**, **Land Plans (2.1, Rev 1)** and **Access and Public Rights of Way Plans (2.3, Rev 1)** submitted as part of Deadline 2. As such, the Application Boundary greatly reduces the overlap with the approved ecological mitigation strategy for Joyce Green Quarry. Furthermore, in respect of the fenced reptile and water vole receptor sites within Joyce Green Quarry, it has been confirmed by the Applicant to the landowner that these will not fall within the construction areas. This commitment will be captured in an updated **Outline Biodiversity and Landscape Mitigation Strategy (Rev 1)**, submitted for Deadline 3.
- 3.18.3 With respect to the changes in the Application Boundary described above, the Applicant has carefully reviewed the biodiversity commitments within the extant planning permission for Joyce Green Quarry which might still be affected, with respect to the identification of possible cumulative effects. The Ecological Mitigation Strategy, Joyce Green Quarry, Dartford (REC, Nov 2017) refers to "a section of replacement planting in the southwest or south east of the site along the boundary to compensate for the loss of hedgerow". The precise location is not given but it appears possible that this area could overlap or conflict with construction areas required for installation of the Electrical Connection along the boundary of Joyce Green Quarry. Any effects to this replacement planting would be temporary, and limited in extent, given the 10m working corridor required for the Electrical Connection route. Any planting affected would be replanted by the Applicant following installation of the Electrical Connection, to the specification required with the Ecological Mitigation Strategy, Joyce Green Quarry, Dartford (REC, Nov 2017). This is secured by **Requirement 6** of **Schedule 2** of the draft **Development Consent Order (3.1, Rev 1)** which states that no part of Work No. 9, being the construction and installation of the Electrical Connection, may commence until details of replanting are submitted to and approved by the relevant planning authority.
- 3.18.4 It is standard practice for UKPN to seek to restrict tree planting over its easement however it is the Applicant's understanding from the Joyce Green Quarry Ecological



Mitigation Strategy that the replacement planting would be hedgerow, which would ordinarily be acceptable to UKPN.

3.18.5 Therefore, the potential cumulative effects of the Joyce Green Quarry development and the installation of the Electrical Connection would be not significant.

## 4 Landscape and Visual

### 4.1 ExA Written Question Reference Q4.0.1

#### 4.1.1 Written question Q4.0.1 states:

*"The proposed development will occupy a significant part of the open view from Crossness Marsh to the River Thames filling in the space between the RRRF and the incinerator at the Crossness sewage works. Please explain why this is only classed as a moderate adverse effect in Table 9.6 of the ES."*

#### **Response:**

#### 4.1.2 As stated in **Paragraph 5.2.6 of Chapter 5 Alternatives Considered** of the ES (**6.1, Rev 1**), the location of REP has been selected for a number of reasons, including:

- It is situated adjacent to the existing Riverside Resource Recovery Facility (RRRF) and therefore would have access to shared services;
- It would have access to the existing purpose-built jetty and the River Thames network beyond allowing easy delivery and removal of products by river;
- It has existing road access to the road network via Norman Road;
- There is adequate footprint to accommodate the required REP plant and equipment;
- The REP site is situated within an existing industrial area setting, with a character of industrial development based around the river and the site layout seeks to take account of adjacent land uses and existing industrial character; and
- It is considered to be at a sufficient distance from sensitive residential receptors to limit impacts (i.e. in terms of noise), as RRRF is a similar development which operates highly successfully.

#### 4.1.3 Further information regarding the suitability and advantages of the site in relation to siting of the Proposed Development is included in the **Statement of Reasons (4.1, Rev 1)** which has been submitted to support the DCO Application at Examination Deadline 2.

#### 4.1.4 Open space remains between the Riverside Resource Recovery Facility (RRRF) and the Sludge Thermal Treatment Facility (STTF), as shown in **Figure 5.4 Selected Building Orientation – Illustrative Aerial View** and **6.4.1 Illustrative View – Indicative Design Solution No. 3 of the Design and Access Statement (DAS) (7.3, APP-104)**.

#### 4.1.5 Crossness Local Nature Reserve is considered in the Townscape and Visual Impact Assessment (TVIA) as a townscape receptor: Designated Public Open

Space, Landscapes and Scrubland Habits, noting that the Crossness Local Nature Reserve forms the western and southern boundaries of the REP site.

4.1.6 The potential residual effect upon Designated Public Open Space, Landscapes and Scrubland Habits is reported as moderate, adverse (significant) in **Table 9.6** of the **Environmental Statement (ES) (6.1, Rev 1)**. This arises from the combination of medium overall sensitivity and a moderate overall magnitude of change, reflecting that the Proposed Development would: lead to partial change in the key characteristics of the receptor's character; introduce elements which are uncharacteristic to the attributes of the receptor; and result in partial alteration of key elements, features or characteristics of the receptor. The criteria to determine the magnitude of townscape change are set out in **Table 3.5** of the **ES Technical Appendices E.1 Townscape and Visual Impact Assessment Methodology (6.3, APP-072)**.

4.1.7 Effects on people's views are assessed separately to townscape effects, in accordance with paragraph 2.20 to 2.22 of the Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute and Institute of Environmental Management & Assessment, 2013):

*"When the interrelationship between people ('human beings' or 'population' in the language of the Directive and Regulations) and the landscape is considered, this introduces related but very different considerations, notably the views that people have and their visual amenity – meaning the overall pleasantness of the views they enjoy of their surroundings.*

*Reflecting this distinction the two components of LVIA are:*

1. *assessment of landscape effects: assessing effects on the landscape as a resource in its own right;*
2. *assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people.*

*The distinction between these two aspects is very important but often misunderstood, even by professionals. LVIA must deal with both and should be clear about the difference between them. If a professional assessment does not properly define them or distinguish between them, then other professionals and members of the public are likely to be confused."*

4.1.8 People's views from a Public Right of Way (PROW) in Crossness Local Nature Reserve and at the REP site boundary are assessed from VP2: The Public Right of Way between Crossness Nature Reserve and Thames Path National Trail. The potential residual effect upon people's views at VP2 is reported as moderate, adverse (significant) in **Table 9.6** of the **ES (6.1, Rev 1)**. This arises from the combination of medium overall sensitivity and a moderate overall magnitude of change; reflecting that the Proposed Development would lead to a clearly noticeable change or contrast to part of the view. The criteria to determine the magnitude of visual change are set out in **Table 3.9** of the **ES Technical Appendices E.1 Townscape and Visual Impact Assessment Methodology (6.3, APP-072)**.

- 4.1.9 The verified view (wireframe) illustrating effects upon people's view towards the REP site from this location is included at VP2 of **ES Technical Appendices E.2 Photo Viewpoints (Part 1 of 2) (6.3, APP-073)**, which demonstrates that although the gap between the RRRF and the STTF would lessen, a gap between REP and the STTF would remain.
- 4.1.10 The changes which would arise from the Proposed Development on Designated Public Open Space, Landscapes and Scrubland Habitats and people's views from VP2 looking towards the REP site, would be partial and therefore the potential residual effects are moderate, as reported at **Table 9.6** of the **Environmental Statement (ES) (6.1, Rev 1)**.
- 4.1.11 The verified view (wireframe) illustrating effects upon people's views towards the REP site from VP4: PROW between Crossness Nature Reserve and Eastern Road, at VP4 of **ES Technical Appendices E.2 Photo Viewpoints (Part 1 of 2) (6.3, APP-073)**, also demonstrates that, although the gap between the RRRF and the STTF would lessen, a gap between REP and the STTF would remain. The effect upon people's views from VP4 is reported in **Table 9.6** of the **ES (6.1, Rev 1)** and determined as being as a potential minor, beneficial residual effect, which would be not significant. The visual effects assessment is based on the Design Parameters of the Proposed Development, which are defined maximum design parameters and therefore represents a reasonable worst case for the assessment, as described and illustrated in **Section 5.5** of the **Design and Access Statement (DAS) (7.3, APP-104)**. The Design Parameters for the REP site comprise several different heights of built form envelopes, as illustrated on **Figure 5.5.4** and **Figure 5.5.5** of the **DAS (7.3, APP-104)**. However, with the implementation of the **Design Principles (7.4, APP-105)**, those effects are expected to reduce. The **Design Principles** are secured by requirement 2(2) of Schedule 2 of the **dDCO (3.1, Rev 1)**.

## 4.2 ExA Written Question Reference Q4.0.2

### 4.2.1 Written Question Q4.0.2 states:

*In the consideration of the visual impact of the operational stage of the proposed development at paragraph 9.8.2 of the ES it is stated that orientation of the main REP building would allow for 'visual permeability through the REP site from Belvedere to the River Thames'. Please provide a further explanation of how this 'visual permeability' will work both in terms of the views from Belvedere and the nearer views from Crossness Marsh.*

### Response:

- 4.2.2 The orientation of the Main REP Building is cited as being part of embedded mitigation at **Paragraph 9.8.2** of the **Environmental Statement (ES) (6.1, Rev 1)**.
- 4.2.3 Options for the orientation and design of Riverside Energy Park (REP) were considered during the design process and are set out at **Section 5** and at **Section 6** of the **Design and Access Statement (DAS) (7.3, APP-104)**, and also outlined in **Section 5.3 of Chapter 5** of the **ES (6.1, Rev 1)**. The selected orientation, with the footprint of the Main REP Building on a north-south axis, was chosen, via an options appraisal exercise, and provides a balance between permeability of views to and from the River Thames as well as in relation to other factors such as access for traffic and seeking to minimise the potential for operational traffic congestion within the site.
- 4.2.4 The selected stepped building form is shown at **Figure 6.4.1 Illustrative View – Indicative Design Solution No. 3** and **Section 6.6** of the **DAS (7.3, APP-104)**.
- 4.2.5 The proposed orientation and stepped building arrangement take into account the relationship with the Crossness Local Nature Reserve. When compared with the other possible design solutions, (as shown in as shown in **Section 5** and **Section 6** of the **Design and Access Statement (DAS) (7.3, APP-104)**, the stepped roof design provides a reduced height and mass of the Main REP Building as well as a reduced width of built form which could be seen; and therefore allows visual permeability in views from the Belvedere area, located to the south of the Proposed Development, and from Crossness Local Nature Reserve shown in viewpoints (VP) 2,3,4,8 and 9 in **Appendix E2 Photo Viewpoints** of the **ES (6.3, APP-074)**.

### 4.3 ExA Written Question Reference Q4.0.3

#### 4.3.1 Written Question Q4.0.03 states:

*"The existing Crossness Sewage Works and RRRF incinerator buildings both have a curved roof form. Please explain why the proposed design for the REP does not adopt a form that is consistent with these existing buildings."*

#### Response:

- 4.3.2 The Applicant considers that the selected stepped building form is the correct optimum design solution based on the analysis of the three indicative design solutions as concluded in **Section 6.6** of the **Design and Access Statement (7.3, APP-104)** and therefore delivers a careful balance of sustainability, functionality, safety, visual mitigation and aesthetics as required to achieve 'good design' by NPS EN-1 Section 4.5.
- 4.3.3 The Applicant considers that the stepped building form for the Main REP building achieves the criteria for 'good design'.
- 4.3.4 The stepped building form has evolved through the pre-application process as a result of considered engineering design development (allowing form to follow function) and the consultation process which considered the scale, mass, form and profile of the Main REP building of the three indicative design solutions in **Section 6.6** of the **Design and Access Statement (7.3, APP-104)**.
- 4.3.5 The stepped building form allows potential landscape and visual effects to be mitigated due to the reduction in height mass as illustrated in **Section 6.1.1** Scale and Mass of the **Design and Access Statement (7.3, APP-104)**. This is further demonstrated by DP 1.04 Section 3.2.5 of the Design Principles (7.4, APP-105) which states '*the Main REP building will minimise vertical height to mitigate visual impact from all directions and in particular Lesnes Abbey, Crossness Conservation Area and the Thames Path*' and is in line with good design mitigating adverse impacts as stated in Section 4.5.2 of NPS EN-1.
- 4.3.6 Although REP is sited immediately between the curved roof form of RRRF and the Crossness Sewage Works Sludge Thermal Treatment Facility the surrounding skyline is punctuated by large industrial buildings providing a mixture of flat, curved and stepped profiles providing visual interest.
- 4.3.7 The Enhanced Digestion Facility, sited directly to the west of the Sludge Thermal Treatment Facility, has a similar stepped building form thus providing a contextual link between stepped and curved building profiles along the River Thames embankment creating a rhythm of architectural building forms.
- 4.3.8 The aim of REP is to generate as much low carbon renewable energy as possible within the space available. This would be achieved through utilising solar photovoltaic panels on the roof and therefore the three indicative design solutions were also studied to identify the potential for solar energy.
- 4.3.9 The stepped building form offered a 50% betterment in solar photovoltaic panel potential than the curved building form as outlined in **Section 6.5** of the **Design and**

**Access Statement (7.3, APP-104).** In addition, the illustrative views within **Section 6.4 and 6.4.1** of the **Design and Access Statement (7.3, APP-104)** further demonstrates the advantages of the stepped building form listed below:

- The stepped roofscape reduces the overall height and mass of the buildings and has the most efficient use of internal space allowing form to follow function.
- The stepped building arrangement reduces imposed views from all sides.
- The dual stacks have enhanced slenderness and a reduced height compared to indicative design solutions No.1 and No.2.
- The stepped building form has a considered relationship to the Crossness Nature Reserve.

The above considerations plus the maximum solar photovoltaic panel potential are considered by the Applicant to confirm that the stepped building form is the preferred design solution for REP.

4.3.10 Under The Construction (Design and Management) Regulations 2015 designers, when preparing designs, should '*eliminate foreseeable health and safety risks to anyone affected by the project (if possible)*'. Creating safe access for cleaning and maintenance of the solar photovoltaic panels has also been considered during the concept design with the stepped building form allowing integrated edge protection via the parapet walls and thus providing safe routine maintenance and access throughout the life of the building as identified in **Section 6.6** of the **Design and Access Statement (7.3, APP-104)** and **DP 1.09** and **DP 1.10** of the **Design Principles (7.4, APP-105)**.

4.3.11 The integrated parapet walls of the extended building facade will also provide screening to the solar photovoltaic panels which are mounted on the flat roof. The panels would not be visible from the ground and would have no visual effects from publicly accessible locations further away as described in **DP 1.09** of the **Design Principles (7.4, APP-105)**.

4.3.12 **Section 3.4.5** of the **Consultation Report (5.1, APP-019)** refers to the presented design options during the non-statutory consultations for the Main REP building which included three potential overall forms including: a curved roof, stepped roof and flat roof.

4.3.13 **Section 9.5.38** of the **Consultation Report (5.1, APP-019)** states: '*Several respondents considered the curved roof design would complement the surrounding infrastructure and be more in-keeping with the local townscape, thus providing less of a visual impact.*' It continues '*Respondents also understood the rationale behind the social, environmental and economic benefits of a stepped roof design and supported the stepped roof design if it maximised the provision of solar panels*'

4.3.14 The selected stepped building form provides a balance between the three indicative design solutions as summarised in **Section 6.6** of the **Design and Access Statement (7.3, APP-104)**:

- Establishing a separate and appropriate identity and character for REP.



- Maximising renewable energy outputs.
- Efficient operational and process requirements.
- Responding to the context of neighbouring land, building forms and property uses.
- Mitigating anticipated visual and shadowing effects to important neighbours.
- Requirements for safe routine maintenance and access throughout the life of the building.

4.3.15 **Section 2.4.3** of the **Design Principles (7.4, APP-105)** refers to NPS EN-1 4 Section 4.5.1 which states 'The visual appearance of a building is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object - be it a building or other type of infrastructure - including fitness for purpose and sustainability, is equally important. Applying 'good design' to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible'.

4.3.16 In conclusion, the Applicant considers that the stepped building form for the Main REP building will help deliver a careful balance of sustainability, functionality, safety, visual mitigation and aesthetics as required to achieve 'good design' as required by NPS EN-1 Section 4.5.

#### 4.4 ExA Written Question Reference Q4.0.4

##### 4.4.1 Written Question Q4.0.4 states:

*"Please explain how the visual impact of the installation of solar panels on the roof of the proposed development has been assessed."*

##### **Response:**

- 4.4.2 The visual effects assessment presented in **Chapter 9 Townscape and Visual Effects Assessment of the ES (6.1, Rev 1)** considers effects on people's views from publicly accessible locations including from close to the site (e.g. Viewpoints (VP) 1, 2 and 3) and at elevated positions further away (e.g. VP 8 at Lesnes Abbey).
- 4.4.3 As the panels would be set on flat horizontal elements of roof, facing upwards and screened from the ground by building facades, it is considered that neither the solar photovoltaic panels nor glare from those panels would be visible in people's views from ground level and therefore a separate assessment of the visual impact of the panels is not considered necessary.
- 4.4.4 However, the extent of the solar photovoltaic panels was assessed as part of the overall assessment of the design principles and maximum extent of the Proposed Development. The visual effects assessment is based on the extents of the Design Parameters of the Proposed Development, which are defined maximum (reasonable worst case) design parameters; described and illustrated in **Section 5.5 of the Design and Access Statement (DAS) (7.3, APP-104)**. The Design Parameters for the REP site comprise several different heights of built form envelopes, as illustrated on **Figure 5.5.4 and Figure 5.5.5 of the DAS (7.3, APP-104)**.
- 4.4.5 The verified views (wireframes) at **Environmental Statement (ES) Technical Appendices E.2 Photo Viewpoints (Part 1 of 2) (6.3, APP-073)** and **ES Technical Appendices E.2 Photo Viewpoints (Part 2 of 2) (6.3, APP-074)** illustrate the maximum Design Parameters set within the composition of assessed views, and these have informed the visual effects assessment.
- 4.4.6 In addition, the visual effects assessment considers the embedded mitigation provided through the application of the Design Principles to the Design Parameters. The Design Principles guide the detailed design of the scheme for approval under Requirement 2 of Schedule 2 of the **dDCO (3.1, Rev 1)** and have the dual purpose of achieving good design, as well as mitigating landscape and visual effects. This approach is in accordance with paragraphs 4.5.2 and 5.9.22 of National Policy Statement (NPS) EN-1.
- 4.4.7 The selected stepped roof form is shown at **Figure 6.4.1 Illustrative View – Indicative Design Solution No. 3** and **Section 6.6 of the DAS (7.3, APP-104)**. Solar photovoltaic panel locations for Indicative Design Solution No. 3 are illustrated in **Section 6.6 of the DAS (7.3, APP-104)**, set onto the flat roofs of the stepped building elements.

4.4.8 The overall area for proposed solar photovoltaic panels is also shown in the limits of deviation for Work No. 1C which is illustrated on the **Works Plans, Sheet 2 of 16 (2.2, Rev 1)**.

4.4.9 The following Design Principles and associated mitigation measures are set out in **Design Principles (7.4, APP-105)** and specifically apply in relation to the proposed solar photovoltaic panels:

- **DP 1.04** – The composition and massing of the Main REP Building will be designed to maximise renewable energy outputs whilst mitigating visual impacts, where practicable and appropriate, in particular from the Crossness Conservation Area, the Thames Path and Lesnes Abbey. Proposed mitigation measures include maximising the area of photovoltaic panels whilst taking into account mitigation of visual impacts, as set out on page 11 of the **Design Principles (7.4, APP-105)**;
- **DP1.09** – The Main REP Building roof will be designed to achieve an appropriate balance between maximising photovoltaic panel area for electricity generation and mitigating visual impacts whilst ensuring safe access for cleaning and maintenance. Mitigation measures include opportunities for photovoltaic panels on south facing roofs whilst minimising vertical heights, as set out on page 13 of the **Design Principles (7.4, APP-105)**; and
- **DP1.10** – The design of the Main REP Building upper volumes will extend above the roof line to screen photovoltaic panels, external process plant equipment and projections, maintenance access equipment and external services as far as practicable. Mitigation measures are to avoid visual elements above the roof of the process buildings, and that the facades of the Main REP Building upper volumes will extend above the roof line to screen photovoltaic panels, as set out on page 13 of the **Design Principles (7.4, APP-105)**.

4.4.10 The visual effects assessment determined that the solar photovoltaic panels would not be visible in people's views from the ground or from more elevated positions further away (e.g. VP8 at Lesnes Abbey), and therefore a separate assessment of their visual impact is not considered necessary. However, as illustrated above, the extent of the solar photovoltaic panels was assessed as part of the overall assessment of the design principles and maximum extent of the Proposed Development.

## 5 Noise and Vibration

### 5.1 ExA Written Question Reference Q5.0.1

#### 5.1.1 Written Question Q5.0.1 states:

*“Table 8.14 in the ES shows a predicted indicative construction noise level of 56 dB over a 12-hour period. Please explain how this estimate has been derived; how it relates to existing noise levels and why it represents the worst case for construction noise.”*

#### **Response:**

- 5.1.2 Detail of the construction commissioning and anticipated construction activities are set out in **Section 3.5 of Chapter 3 Project and Site Description** of the **ES (6.1, Rev 1)**. This information has been provided by a suitably experienced contractor, who has constructed a number of similar facilities, and from the Applicant’s own experience of building the adjoining Riverside Resource Recovery Facility (RRRF).
- 5.1.3 As stated in **Paragraph 8.9.11 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)**, an estimate of the likely construction noise level has been determined at a distance of 500 m from the Application boundary. As per **Paragraph 8.9.6 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)**, construction noise predictions have been undertaken, using the methodology outlined in BS 5228-1: 2009+A1:2014. BS 5228-1: 2009+A1:2014 which predicts noise as an equivalent continuous A- weighted sound pressure level over a period such as one hour (LAeq,1hr) over a typical 12 hour working day. The calculations only include distance attenuation correction at a distance of 500 m but no other acoustic factors, such as ground absorption, air absorption and screening, which would typically reduce the calculated construction sound level at the relevant receptors to a level below that reported in the ES. Consequently, the calculations that have fed into the noise assessment are precautionary.
- 5.1.4 **Paragraph 8.9.9 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** explains how sound levels associated with each construction activity have been taken from those set out in BS5228. The sound level for each construction activity has been corrected to reflect the operational duration over a typical working day. A distance attenuation correction has then been applied to each activity to determine the sound level at a distance of 500 m. The contribution from each activity has then been logarithmically summed to give the cumulative sound level at a distance of 500 m. This is summarised in Table 5.1 below which is based on **Table 8.13 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)**.

**Table 5.1: Summary of Construction Noise Calculations**

Mobile Plant	Typical $L_{Aeq,T}$ (dB) at 10 m (dB)	Number of Hours Operational in a Typical 12 Hour Period	Calculated Sound Level (dB $L_{Aeq,12hours}$ ) at 500 m	Cumulative Sound Level (dB $L_{Aeq,12hours}$ ) at 500 m
Dozer	75	7.2	39	56
Tracked Excavator	78	6.6	41	
Dump Truck	78	3	38	
Wheeled Loader	79	6	42	
Percussive Piling	89	4.8	51	
Concrete pumps	87	4.8	49	
Wheeled mobile telescopic crane	78	4.8	40	
Road Roller	80	9	49	
Vibratory Roller	75	6	43	
Asphalt Paver	75	6	44	

5.1.5 **Table 8.12 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** provides a summary of the existing noise levels at the relevant noise sensitive receptors. With reference to Table 8.12 and the calculated worst case sound level of 56 dB  $L_{Aeq,12hours}$ , the calculated sound levels associated with the construction works at a distance of 500 m are:

- 4 dB below the existing daytime ambient sound level ( $L_{Aeq,16hours}$ ) at Receptor 1 (Hackney House);
- Equal to the existing daytime ambient sound level ( $L_{Aeq,16hours}$ ) at Receptor 2 (Jutland House); and
- 3 dB above the existing daytime ambient sound level ( $L_{Aeq,16hours}$ ) at Receptor 3 (1 St Thomas Road).

5.1.6 **Paragraph 8.4.1 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** reports that, in the absence of a detailed construction plant methodology, which is not available at this stage of the project, a conservative worst case scenario, which considers all construction activities occurring simultaneously, has been assessed.

This includes piling activities occurring at the REP site. The highest noise emission levels listed in BS 5228, associated with percussive piling, have been used to assess noise from piling and this is considered to provide a conservative worst case assessment.

5.1.7 In addition, the assessment presented in the ES is considered to be a worst-case assessment for the following reasons:

- Construction activities and durations have been based on realistic worst-case durations for a typical working day;
- Receptors are located more than 500m from the relevant site boundary. The attenuation loss due to distance is therefore likely to be greater than that reported in the ES;
- Construction activities are likely to be undertaken at different locations across the site and not all taking place simultaneously at a distance of 500m from a receptor. The attenuation loss due to distance is therefore likely to be greater than that reported in the ES;
- Construction activities are unlikely to be undertaken concurrently. The cumulative sound level associated with construction works is therefore likely to be lower than that reported in the ES which assumes all construction activities taking place on the same day; and
- Acoustic attenuation factors such as ground absorption, air absorption and acoustic screening have not been considered in the assessment. Consideration of these factors would reduce the sound levels associated with construction works.

5.1.8 In conclusion, based on the above assessment assumptions, it is considered that a robust worst-case assessment of the potential construction noise impact has been undertaken and reported in the ES.

## 5.2 ExA Written Question Reference Q5.0.2

### 5.2.1 Written Question Q5.0.2 states:

*“The outline Code of Construction Practice (CoCP) which has been submitted would limit core construction hours to 7am – 7pm Monday to Friday and 7am – 1pm Saturday for noise activities. Paragraph 8.9.12 and 8.9.13 in the ES refer to activities that would be undertaken outside of core construction hours. Please identify which activities would be undertaken outside the core construction period. What noise levels will be associated with these activities and what mitigation measures will be adopted to ensure that these remain within acceptable levels? How will these noise levels be controlled through the DCO?”*

### Response:

- 5.2.2 A separate technical note providing a validation of the assessment of the potential noise and vibration impact associated with the proposed night-time working based on the latest available information has been prepared to address this question and is submitted at Examination Deadline 2, **Night-time Construction Noise Impact Validation (Ref 8.02.12)**. The results of this assessment are summarised in this response.
- 5.2.3 Typically, the activities which are undertaken outside of core construction hours relate to essential and time-sensitive activities on the construction site.
- 5.2.4 Following submission of the DCO Application, further details have been determined relating to the specific activities which might take place outside core construction hours, and their duration and noise levels.
- 5.2.5 The construction activities which are likely to take place outside of the core construction period would include concrete slip forming to create the waste bunker as described in **Paragraph 3.3.15-3.3.16 of Chapter 3 Project and Site Description of the ES (6.1, Rev 1)** and some activities associated with construction of the Electrical Connection. Typical noise levels associated with these works are provided below in **Tables 7 and 8**.

**Table 5.2.1 Typical Construction Plant Noise Levels for Slip Form Working**

Mobile Plant	Number of Plant	Typical LAeq,T (dB) at 10m (dB)	Typical on time*
Dump Truck	6	78	50%
Concrete pumps	2	87	50%
Vibratory Poker	15	75	50%



**Table 5.2.2: Typical Construction Plant Noise Levels for Night-time Electrical Connection Route Work**

Mobile Plant	Typical LAeq,T (dB) at 10m (dB)	Typical on time*
Tracked Excavator	78	15%
Floor Saw	87	5%
Vibratory Compacter	82	12%
Vibratory Roller	67	8%

\*(Percentage of the full time period between 22:00 and 07:00 that the equipment is operating at its maximum)

- 5.2.6 Works undertaken outside of core construction hours associated with slip forming are unlikely to generate significant impacts at the nearest noise sensitive receptors, as noise levels generated would not exceed the proposed Lowest Observable Adverse Effect Level (LOAEL) and are therefore not significant.
- 5.2.7 For works associated with the Electrical Connection, unmitigated noise levels generated at up to 100 m from the works are likely to exceed the proposed Lowest Observable Adverse Effect Level. Therefore, mitigation measures, as specified in the embedded mitigation **Section 8.8. of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** and specified in the **Outline CoCP (7.5, Rev 1)** would be included to attenuate the noise impacts. These measures include:
- Ensuring the use of quiet working methods and the most suitable plant where reasonably practicable.
  - Screening fixed and mobile plant to reduce noise which cannot be reduced by increasing the distance between the source and the receiver (i.e. by installing acoustic screens/enclosures). Temporary sound reducing screens/enclosures around plant and activities (where possible) could provide 10 dB of noise attenuation from construction activities.
  - Orienting fixed and mobile plant that is known to emit noise strongly in one direction so that the noise is directed away from dwellings or sensitive receptors, where possible; and
  - Closing acoustic covers to engines when they are in use or idling.
- 5.2.8 The CoCP is secured via **Requirement 11 at Schedule 2** to the **dDCO (3.1, Rev 1)** which requires that the final CoCP submitted to and approved by the local authority is in substantial accordance with the Outline CoCP submitted with the application.
- 5.2.9 With the incorporation of mitigation measures as specified in the embedded mitigation **Section 8.8** of **Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** and included in the outline CoCP, at distances of 20 m from the construction works noise levels are likely to be at the SOAEL. At distances of more than 20 m from the construction activities, noise levels are likely to be between the LOAEL and the SOAEL. At distances, greater than 50 m from the construction activities, noise levels are likely to be below the LOAEL.

- 5.2.10 However, it should be noted that the construction noise effect levels presented in Table 1 relate to the external noise levels which would be experienced at the dwelling (e.g. in the garden of a property), and are not the levels that would be experienced by residents inside a property. As the noise effects presented in this validation assessment would be experienced at night, it is likely that residents would be inside properties and most likely with closed windows. Conventional glazing is likely to provide a sound reduction,  $R_w$ , of 30 dB to the levels presented in Table 1. That noise reduction would result in all properties being below both the SOAEL and LOAEL internally. Therefore, the internal noise levels are likely to be in line with guidance provided in BS 8233:2014 with regards to suitable conditions for sleeping/resting.
- 5.2.11 Furthermore, it is noted that the duct installation is likely to be for a period of only 7 days per 200 m section of Electrical connection route. Therefore, the effects experienced at any particular property are only likely to be for a very short duration.
- 5.2.12 Therefore, with the incorporation of mitigation measures as specified in the embedded mitigation **Section 8.8 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** and included in the outline CoCP together with the temporary (typically 7 days per 200 m section of Electrical Connection route), nature of the construction and resulting internal noise levels, the effects are considered to be minor and therefore not significant.
- 5.2.13 Requirement 12(2)(d) of at Schedule 2 to the **dDCO (3.1, Rev 1)** allows for slip form working to take place outside the core construction hours. Works such as the Electrical Connection would require the prior approval of the relevant planning authority if they are to be carried out outside the core construction hours, pursuant to Requirement 12(2)(b).

### 5.3 ExA Written Question Reference Q5.0.3

#### 5.3.1 Written Question Q5.0.3 states:

*“Paragraph 8.9.3 in the ES states that there is unlikely to be an increase in road traffic flows resulting in a change in noise levels above more than 1dB. However, the assessment is not presented. Can the Applicant provide the assessment to confirm the results reported at paragraph 8.9.3?”*

#### **Response:**

- 5.3.2 As per **Paragraph 8.5.31 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** construction traffic noise has been assessed by considering the short-term increase in traffic flows during construction works following the principles contained in guidance in Control of Road Traffic Noise (CRTN) and Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 7. The traffic flows are as modelled and reported in **Chapter 6 Traffic and Transport** of the **ES (6.1, Rev 1)**. ‘Short term’ is considered to be a period of up to 1 year.
- 5.3.3 The road traffic noise assessment presented in **Paragraphs 8.9.1 – 8.9.3 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)** considers the change in ambient noise levels as a result of changes in traffic flows between future traffic flows in 2022 (peak construction) ‘without construction’ traffic and the future traffic flows in 2022 ‘with construction’ traffic.
- 5.3.4 The extent of the highway network to be assessed, based on the anticipated highway impacts of the proposed development, has been agreed with London Borough of Bexley, Kent County Council, Dartford Borough Council and TfL through the Transport Assessment scoping process.
- 5.3.5 **Table 5.3** presents the change in noise levels that are predicted to occur in 2022 as a result of the construction works. This follows the same approach used in **Table 8.16 of Chapter 8 Noise and Vibration** of the **ES (6.1, APP-045)**.

**Table 5.3: Predicted change in Noise Level Between 2022 ‘With construction traffic’ compared to 2022 ‘Without construction traffic’ Scenarios**

Road Link	Direction	Change in Noise Level in dB (With vs Without construction traffic, 2022)
A2016 Eastern Way (west of Yarnton Way)	Eastbound	+0.4
	Westbound	+0.4
Yarnton Way (south of A2016 Eastern Way)	Northbound	+0.3
	Southbound	+0.3
A2016 Picardy Manorway (between Norman Road and Eastern Way)	Eastbound	+0.5
	Westbound	+0.6
A2016 Picardy Manorway (east of Norman Road)	Eastbound	+0.5
	Westbound	+0.7
B253 Picardy Manorway (south of Horse Roundabout)	Northbound	+0.4
	Southbound	+0.3
A2016 Bronze Age Way (south of Horse Roundabout)	Eastbound	+0.5
	Westbound	+0.5
A206 Northend Road (north of A2000 Perry Street)	Northbound	+0.6
	Southbound	+0.7
A2000 Perry Street (south of A206 Thames Road)	Northbound	+0.5
	Southbound	+0.5
A206 Thames Road (south of Howbury Lane Roundabout)	Northbound	+0.5
	Southbound	+0.6
A206 Thames Road (west of A2026 Burnham Road Roundabout)	Eastbound	+0.6
	Westbound	+0.5

Road Link	Direction	Change in Noise Level in dB (With vs Without construction traffic, 2022)
A2026 Burnham Road (south of A206 Thames Road Roundabout)	Northbound	+0.5
	Southbound	+0.5
A206 Bob Dunn Way (north of A2026 Burnham Road Roundabout)	Eastbound	+0.6
	Westbound	+0.5

5.3.6 **Table 5.3** demonstrates that the potential noise impacts arising from construction traffic at all receptors assessed are predicted to be below 1 dB; construction road traffic noise impacts are therefore likely to be negligible and are not a significant effect.

## 5.4 ExA Written Question Reference Q5.0.4

### 5.4.1 Written Question Q5.0.4 states:

*"Paragraph 8.9.11 in the ES states that at distances of 500 m from the REP site, noise levels from construction are likely to be 56 dB LAeq,12hour. This is below the proposed LOAEL and therefore equates to a Negligible effect. The WHO guidance values for community noise specifies that LAeq dB limit should be 55 dB during daytime and evenings for outdoor living areas.*

*Can the Applicant provide the exact predicted construction noise levels at the Noise Sensitive Receptors (NSR) identified, consider the baseline and the combined effect of construction activities at the main construction compound and demonstrate the significance of the effect taking into account the WHO guidance? If predicted levels at NSRs are above the WHO guidance, can the Applicant show the construction to noise levels from the Proposed Development during construction and comment on whether additional mitigation measures be required at specific locations?"*

### Response:

5.4.2 **Paragraph 8.9.11 of Chapter 8 Noise and Vibration of the ES (6.1, APP-045)** states that the assessment of construction noise presents an estimate of the likely construction noise level at a location 500 m from the construction site boundary. **Table 5.4.1** below sets out the likely construction noise level at each of the noise sensitive receptors identified within the ES. The table includes a reduction in noise levels by 10 dB allowing for screening of plant as outlined in the embedded mitigation section of the ES.

**Table 5.4.1: 12-hour Construction Noise Summary at Noise Sensitive Receptors - Cumulative**

Noise Sensitive Receptor	Distance from Source to Noise Sensitive Receptor (m)		Calculated Sound Level (dB LAeq,12hours) at Noise Sensitive Receptor		
	REP Site	MTCC*	REP Site	MTCC*	Cumulative**
Hackney House	720	120	43	57	57
Jutland House	820	135	42	55	55
Dwellings on St Thomas Road	970	500	40	44	46

\* Main Temporary Construction Compound

\*\* both REP site and Main Temporary Construction Compound

5.4.3 **Table 8.12 of Chapter 8 Noise and Vibration of the ES (6.1, APP-045)** presents a summary of the existing noise levels at the relevant noise sensitive receptors. **Table 8.12** from the ES is replicated below in **Table 5.4.2**.

**Table 5.4.2: Baseline Sound Survey Summary**

Location	Period, T	L <sub>Aeq,T</sub> (dB)	L <sub>A90,T</sub> (dB)*
1 – Hackney House apartments (760 m from the REP site)	Daytime (07:00 – 23:00)	60	54
	Night-time (23:00 – 07:00)	54	45
2 – Jutland House apartments (860 m from the REP site)	Daytime (07:00 – 23:00)	56	51
	Night-time (23:00 – 07:00)	51	46
3 – 1 St. Thomas Road Dwellings (1000 m from the REP site)	Daytime (07:00 – 23:00)	53	48
	Night-time (23:00 – 07:00)	48	44
*arithmetic average of measured results			

5.4.4 In order to consider the baseline, a comparison has been undertaken of the calculated cumulative sound levels associated with the construction works at the nearest noise sensitive receptors against the measured baseline noise levels. This has been undertaken by comparing the calculated worst case sound levels set out in column 6 in **Table 5.4.1** and the measured ambient daytime noise levels in column 3 in **Table 5.4.2** and are as detailed below. A comparison with the proposed LOAEL is also presented.

- Receptor 1 (Hackney House): 3 dB below the daytime ambient sound level (L<sub>Aeq,16hours</sub>) and 13 dB below the proposed LOAEL (70dB L<sub>Aeq,12hours</sub>);
- Receptor 2 (Jutland House): 1 dB below the daytime ambient sound level (L<sub>Aeq,16hours</sub>) and 15 dB below the proposed LOAEL (70dB L<sub>Aeq,12hours</sub>); and
- Receptor 3 (1 St Thomas Road): 7 dB below the daytime ambient sound level (L<sub>Aeq,16hours</sub>) and 24 dB below the proposed LOAEL (70dB L<sub>Aeq,12hours</sub>).



- 5.4.5 It should be noted that the above findings assume that all noise generating activities which have the potential to take place at both the REP and the Main Temporary Construction Compound occur concurrently, at the relevant construction site boundary closest to the nearest noise sensitive receptor. This is unlikely to occur, particularly as noise generating activities at the Main Temporary Construction Compound will be associated with the construction of the compound itself rather than ongoing works during the construction of the REP. As construction of REP would follow construction of the Main Temporary Construction Compound, the worst-case calculated sound levels in **Table 5.4.1** should be considered in this context.
- 5.4.6 The use of World Health Organisation guidance to assess construction noise levels is not usually undertaken. This is because the WHO guidance does not take into account factors which are specific to construction noise including:
- The temporary nature of the impact; and
  - The change in tolerance levels associated with an acceptance that construction works are typically necessary and temporary.
- 5.4.7 In addition, paragraph 5.11.6 of the Overarching National Policy Statement for Energy (EN-1) refers to the use of appropriate British Standards in the assessment of construction noise impact and does not specifically reference WHO guidelines.
- 5.4.8 Notwithstanding the above, a comparison with WHO guidelines has been carried out and is described below.
- 5.4.9 WHO guidelines suggest that noise levels from 'community sources' greater than 55dB LAeq,16hours are considered to be of 'serious annoyance'. The 55dB within WHO guidelines relates to an outdoor living area and not internal noise levels within the dwelling.
- 5.4.10 To allow direct comparison with the levels stated by the WHO, the calculated construction noise levels have been corrected to reflect the longer assessment period (i.e. 16 hours rather than 12 hours). **Table 5.4.3** presents the cumulative sound level at the nearest noise sensitive receptors for comparison with the WHO guidance levels.

**Table 5.4.3: 16-hour Construction Noise Summary at Noise Sensitive Receptors – Cumulative**

Noise Sensitive Receptor	Distance from REP (m)	Distance from the Main Temporary Construction Compound (m)	Calculated Cumulative Sound Level (dB $L_{Aeq,16hours}$ ) at Noise Sensitive Receptor
Hackney House	720	120	56
Jutland House	820	135	54
Dwellings on St Thomas Road	970	500	45

5.4.11 With reference to **Table 5.4.3**, the calculated sound levels associated with the construction works at the nearest noise sensitive receptors are:

- Hackney House: 1 dB above the threshold level for ‘serious annoyance’ as defined by WHO guidelines at Receptor 1;
- Jutland House: 1 dB below the threshold level for ‘serious annoyance’ as defined by WHO guidelines at Receptor 2; and
- 1 St Thomas Road: 10 dB below the threshold level for ‘serious annoyance’ as defined by WHO guidelines at Receptor 3.

5.4.12 It should be noted that acoustic attenuation factors such as ground absorption, air absorption and acoustic screening associated with existing buildings have not been considered in the assessment. Consideration of these factors is likely to reduce the sound levels associated with construction works by more than 1 dB and therefore all receptors are likely to be within the threshold level. However, it should also be noted that the existing ambient noise levels measured at Hackney House currently exceed the WHO guidance levels by 5 dB. Therefore, exceedances of the WHO guidance due to construction are unlikely to be significant in comparison to the current baseline noise levels. Therefore, additional mitigation measures are not proposed at this receptor.

5.4.13 WHO guidelines are not considered an appropriate standard with which to assess construction noise impacts. However, a comparison has been undertaken to respond to the query raised. The assessment shows that the noise levels due to construction works at the nearest noise sensitive receptors are likely to be below the WHO guideline levels at two of the three receptors. At Hackney House the calculated sound levels associated with the construction works are likely to be 1 dB above the WHO guidelines. However, the calculations do not consider ground absorption, air absorption and acoustic screening associated with existing buildings

which is likely to reduce noise levels further by more than 1 dB and therefore bring all receptors to be below the WHO guidelines. Furthermore, the current ambient noise levels at this receptor exceed the WHO guidelines. Therefore, exceedances of the WHO guidance due to construction are unlikely to be significant in comparison to the current baseline noise levels.

5.4.14 As referenced in NPS EN-1 the appropriate standard is BS5228 which has been used to assess the potential construction effects of the Proposed Development. With reference to this standard and the assessment criteria identified within the ES, it is considered that the likely noise impacts associated with the construction of the scheme are negligible and not significant.

## 6 Transport and Traffic

### 6.1 ExA Written Question Reference Q6.0.1

#### 6.1.1 Written Question Q6.0.1 states:

*"London Borough of Bexley (LBB), Transport for London (TfL) and others have raised concerns about the volume of traffic that would be generated during construction of the plant and of the electrical connection and during operation of the plant. They have suggested that this has been under-estimated in the ES. What is the Applicant's response to these concerns?"*

#### **Response:**

6.1.2 The Applicant has addressed these concerns in the Applicant responses to Relevant Representations document, which responds to the relevant representations made, and has been submitted at Deadline 2. The Examining Authority's attention is drawn, in particular to the Applicant's response to LBB, TfL and Arriva found at RR-088, RR-087 and RR-055 respectively and its themed responses on construction and operational traffic impacts at TR-022 and TR-023.

## 6.2 ExA Written Question Reference Q6.0.2

### 6.2.1 Written Question Q6.0.2 states:

*"The ES has considered a worst-case scenario under which all waste is delivered to the site by road. But the Planning Statement states that the use of the river to transport materials to and from the REP will minimise road and vehicle use. Please consider a requirement setting a percentage of waste to be delivered to the site by river during normal operating conditions."*

### Response:

- 6.2.2 Following a review of the relevant representations received, the Applicant recognises that a concern of some local residents and some of the local authorities is the potential impact of the REP ERF on the road network.
- 6.2.3 Therefore, the Applicant has inserted into the revised **draft Development Consent Order (dDCO) (3.1, Rev 1)** submitted at Deadline 2, a requirement that restricts the number of heavy commercial vehicles delivering waste to Work Number 1A (the ERF) during the operational period to 90 vehicles in and 90 vehicles out, unless there is a jetty outage.

## 7 Draft Development Consent Order (DCO)

### 7.1 ExA Written Question Reference Q7.0.1

#### 7.1.1 Written Question Q7.0.1 states:

*"The definition of 'commence' in Article 2 of the draft DCO lists work which is not included in the definition. This 'pre-commencement' work is subject to the pre-commencement biodiversity and landscape mitigation strategy set out in Requirement 4. Please consider including a cross reference to Requirement 4 in the definition in Article 2. Please also ensure that the definition of pre-commencement work in Requirement 4 is consistent with the definition in Article 2."*

#### **Response:**

- 7.1.2 The Applicant has reviewed those operations carved out of the definition of "commence" in **Article 2** of the **draft Development Consent Order (3.1, APP-014)** and compared those operations to the "pre-commencement works" listed in **Requirement 4** of **Schedule 2** of the **draft Development Consent Order (3.1, Rev 1)**.
- 7.1.3 The Applicant has amended the definition of "commence" so that the operations carved out fully match those identified as "pre-commencement works" in **Requirement 4**. This amendment is made in the draft Development Consent Order **(3.1, Rev 1)** submitted at Deadline 2.
- 7.1.4 Accordingly, the Applicant does not consider that a cross reference to Requirement 4 in the definition of "commence" is necessary, as the definition is not subject to that Requirement.

## 7.2 ExA Written Question Reference Q7.0.2

### 7.2.1 Written Question Q7.0.2 states:

*"The definition of 'maintain' in Article 2 includes the wording 'insofar as such activities are unlikely to give rise to any materially new or materially different environmental effects ...' Please consider changing the words 'are unlikely to ...' to 'do not ...'. This would be in line with the wording used in e.g. the Keuper Underground Gas Storage Facility Order 2017."*

#### **Response:**

7.2.2 The Applicant is content to accept the amendment of the wording to "such activities do not" in the definition of "maintain".

7.2.3 In addition, the Applicant proposes to insert the words "which are worse than those", after the words "any materially new or materially different environmental effects", as it would be perverse for the Development Consent Order, if granted, to prevent maintenance works that would give rise to an improvement in environmental effects from those identified in the Environmental Statement.

7.2.4 These amendments have been made in the revised **draft Development Consent Order (3.1, Rev 1)** submitted at Deadline 2. The updated definition of 'maintain' reads as follows (changes shown in bold and underlined):

*"maintain" includes inspect, repair, adjust, alter, remove, refurbish, reconstruct, replace and improve any part, but not replace the whole of, the authorised development, but only insofar as such activities do not give rise to any materially new or materially different environmental effects which are worse than those identified in the environmental statement and "maintenance" and "maintaining" are to be construed accordingly.*



### 7.3 ExA Written Question Reference Q7.0.3

#### 7.3.1 Written Question Q7.0.3 states:

*"Article 3(3) provides for a downward deviation from the levels of the authorised development not exceeding 2 metres. Please explain why this degree of flexibility is required. Please also confirm that this flexibility does not apply to the minimum heights and maximum depths set out in Table 1 of Schedule 2."*

#### **Response:**

- 7.3.2 The degree of flexibility found in **Article 3(3)** of the **draft Development Consent Order (3.1; Rev 1)** is required to reduce the risk that the authorised development as approved cannot later be implemented for reasons which, at the time of the application and when the development consent was granted, could not reasonably have been foreseen. It gives a proportionate amount of flexibility for the detailed design of the scheme.
- 7.3.3 The Applicant can confirm that the minimum heights in Table 1 in Schedule 2 of the draft Development Consent Order are not subject to the downward deviation from the levels of the authorised development.
- 7.3.4 However, the limit of deviation applies to the maximum depths set out in Table 1 of Schedule 2 for the reason set out above, as otherwise there would be no purpose in Article 3(3). The Applicant can confirm that the effects assessed in the **Environmental Statement (6.1)** would not be altered by the inclusion of the -2m flexibility to the -8m AOD assumed for the solid fuel storage bunker in Table 1 of Schedule 2.

## 7.4 ExA Written Question Reference Q7.0.4

### 7.4.1 Written Question Q7.0.4 states:

*"Article 6(1) and 6(2) provide for the disapplication of consents that would be required from the Environment Agency (EA) and would be replaced with protective provisions for the EA. Please provide an update on discussions with the EA about these provisions."*

### Response:

- 7.4.2 The Applicant has been actively engaging in discussions with the EA on the protective provisions and sees no impediment to reaching an agreement with the EA during the course of the Examination so as to enable the EA to provide its consent in accordance with section 150 of the Planning Act 2008.
- 7.4.3 On 9 January 2019, the Applicant wrote to the EA enclosing a copy of the protective provisions included in Part 4 of Schedule 10 of the draft Development Consent Order (dDCO) (**3.1; APP-014**) and requested comments on the same. On 23 January 2019, the EA provided the Applicant with a copy of their standard form protective provisions. The Applicant reviewed the draft protective provisions and provided comments and amendments on 6 March 2019. The EA responded on 4 April 2019 and the Applicant provided further comments on 17 April 2019. The EA then responded on 1 May and the Applicant provided further comments on 3 May 2019. On 10 May 2019 the EA provided additional comments which the Applicant responded to on 14 May 2019. The EA responded on 15 May 2019 and the Applicant is reviewing the updated protective provisions. Part 4 of Schedule 10 of the dDCO has been amended at Deadline 2 of the Examination to reflect recent discussions (**3.1, Rev 1**).
- 7.4.4 The Applicant will continue to liaise with the EA to reach an agreement before the end of the Examination and will provide the Examining Authority with updates during the course of the Examination.

## 7.5 ExA Written Question Reference Q7.0.5

### 7.5.1 Written Question Q7.0.5 states:

*"Article 6(3) provides for the disapplication of the Neighbourhood Planning Act (NPA) in respect of temporary possession (TP) and its replacement with TP powers that have been included in other DCOs. Notwithstanding the precedent in other cases such as the Silvertown DCO, please justify why the current TP regime should not be modified to more closely reflect the statutory regime in the NPA which provides greater protection of parties affected by TP."*

### **Response:**

- 7.5.2 The Applicant's rationale for this is that the provisions relating to temporary possession in the Neighbourhood Planning Act 2017 have not yet come into force and that regulations required to provide more detail on the operation of the regime have not yet been made (or even consulted on).
- 7.5.3 The Applicant is of the view that it is not currently possible to understand or reflect accurately the temporary possession provisions in the Neighbourhood Planning Act 2017 as intended by Government in respect of Development Consent Orders (DCOs). For example, whilst the notice period is set out in section 20(3) of the Neighbourhood Planning Act 2017, it is not yet known whether this particular provision will apply to DCOs or whether there will be any transitional arrangements.
- 7.5.4 As such, it is considered appropriate to apply the 'tried and tested' temporary possession regime which has been included in numerous DCOs and Orders made under the Transport and Works Act 1992 to date until the relevant provisions in the Neighbourhood Planning Act 2017 come into force.
- 7.5.5 A similar provision was included, as well as in the Silvertown Tunnel Order 2018, in the Eggborough Gas Fired Generating Station Order 2018 (see Article 26(12)) and the A19/A184 Testo's Junction Alteration Development Consent Order 2018 (see Article 2(7)). There has been no material change in circumstances since those orders were made that would alter the position and justify a deviation from the reasoning given in making those Orders for disapplying the Neighbourhood Planning Act 2017 in respect of temporary possession.
- 7.5.6 It would be inappropriate, and is not for this application, to pre-empt, to pre-determine or fetter Government's intended regulation, especially in the absence of draft proposals or consultation.

## 7.6 ExA Written Question Reference Q7.0.6

### 7.6.1 Written Question Q7.0.6 states:

*"Article 9 provides for guarantees in respect of payment of compensation. This, in part, follows precedents in other DCOs. In other DCOs, e.g. Millbrook Power the guarantee or alternative form of security referred to in 9(a) and 9(b) have been subject to approval by the Secretary of State. Please consider including that requirement here or explain why this would not be appropriate."*

### **Response:**

7.6.2 The Applicant is content with amending Article 9 to include that the guarantee or alternative form of security referred to in Article 9(a) and 9(b) is subject to the approval of the Secretary of State. This amendment has been made by the Applicant to the **draft Development Consent Order (3.1, Rev 1)** submitted at Deadline 2.

## 7.7 ExA Written Question Reference Q7.0.7

### 7.7.1 Written Question Q7.0.7 states:

*“Article 32 relates to the rights of statutory undertakers. Please provide an update on the drafting of protective provisions for statutory undertakers.”*

### Response:

### 7.7.2 The Applicant can provide the following updates on the protective provisions:

- a. **National Grid Electricity Transmission plc (NGET):** the Applicant wrote to NGET on 26 October 2018 enclosing a copy of the protective provisions included at Part 6 of Schedule 10 of the draft Development Consent Order submitted at Deadline 2 (**3.1, Rev 1**) and requested comments on the same. NGET provided comments on 24 April 2019. The Applicant is in the process of reviewing the draft protective provisions with the aim of reaching agreement with NGET before the end of the Examination.
- b. **UK Power Networks (Operations) Limited (UKPN):** the Applicant wrote to UKPN on 26 October 2018 enclosing a copy of the protective provisions included at Part 2 of Schedule 10 of the draft Development Consent Order (**3.1; Rev 1**) and requested comments on the same. UKPN provided comments on 21 January 2019. The Applicant is in the process of reviewing the draft protective provisions with the aim of reaching agreement with UKPN before the end of the Examination.
- c. **ES Pipelines Limited (ESP):** the Applicant wrote to ESP on 26 October 2018 enclosing a copy of the protective provisions included at Part 2 of Schedule 10 of the draft Development Consent Order (**3.1; Rev 1**) and requested comments on the same. ESP provided comments on 21 January 2019 and the Applicant is in the process of reviewing the draft protective provisions with the aim of reaching agreement with ESP before the end of the Examination.
- d. **London Power Networks plc (LPN):** the Applicant wrote to LPN on 26 February 2019 enclosing a copy of the protective provisions included at Part 2 of Schedule 10 of the draft Development Consent Order (**3.1, Rev 1**) and requested comments on the same. The Applicant awaits a substantive response from LPN and will continue to liaise with LPN to reach agreement before the end of Examination.
- e. **South Eastern Power Networks plc (SPN):** the Applicant wrote to SPN on 7 March 2019 enclosing a copy of the protective provisions included at Part 2 of Schedule 10 of the draft Development Consent Order (**3.1; Rev 1**) and requested comments on the same. The Applicant awaits a substantive response from SPN and will continue to liaise with SPN to reach agreement before the end of Examination.
- f. **Thames Water Utilities Limited (Thames Water):** the Applicant wrote to Thames Water on 26 October 2018 enclosing a copy of the protective provisions included at Part 2 of Schedule 10 of the draft Development Consent Order (**3.1, Rev 1**) and requested comments on the same. Thames Water has set out that there are unlikely to be any comments, but that this is to be confirmed. The Applicant awaits

final confirmation from Thames Water and will continue to liaise with Thames Water to reach agreement before the end of Examination.

- g. **Network Rail:** the Applicant wrote to Network Rail on 31 October 2018 enclosing a copy of the protective provisions included at Part 5 of Schedule 10 of the draft Development Consent Order (**3.1; Rev 1**) and requested comments on the same. Network Rail provided comments on 7 May 2019. The Applicant is in the process of reviewing the draft protective provisions with the aim of reaching agreement with Network Rail before the end of the Examination.
- h. **Riverside Resource Recovery Limited (RRRL):** the protective provisions included at Part 1 of Schedule 10 of the draft Development Consent Order (**3.1, Rev 1**) are agreed with RRRL.
- i. **Environment Agency (EA):** an update on the EA protective provisions is provided by the Applicant in the response to the first written question Q7.0.4

## 7.8 ExA Written Question Reference Q7.0.8

### 7.8.1 Written Question Q7.0.8 states:

*"Paragraph 3.7.3 of the Explanatory Memorandum (EM) states that Schedule 1 has been drafted so as to be non-specific as to technology and configuration of plant. Please explain why this non-specific approach has been adopted given that technology and layout have been taken into account in the analysis carried out for the ES."*

#### **Response:**

- 7.8.2 The Environmental Statement has assessed the Proposed Development in the configuration as fixed by the Works Plans (**2.2; Rev 1**). These Works Plans restrict the location of where the various elements comprising the Proposed Development can be located. For example, Work Number 1A(iv) (up to two emission stacks for the ERF element of REP), can only be located in the area shaded yellow on Sheet 2 of 16 of the Works Plans. The Applicant is only authorised to carry out the Proposed Development within the Order Limits, which are defined by reference to the Works Plans (**Article 3** of the **draft Development Consent Order (3.1, Rev 1)**).
- 7.8.3 In relation to a non-specific approach to technology, it is not appropriate to specify the technology type in Schedule 1 of the draft Development Consent Order (**3.1, Rev 1**) as no contract has been signed with a technology provider. This is no different to any other generating station development consent order – whether for conventional, nuclear or renewable - where the type of technology is not specified in the description of the authorised development. Such an approach would be over prescriptive and hold a promoter to ransom to agree a contract with a particular technology provider. Instead, it is down to the Applicant to ensure that the Works Plans and the parameters assessed in the Environmental Statement are flexible enough to accommodate the likely technologies that could be deployed at, in this case, REP, whilst ensuring that the technology can operate within the environmental effects assessed by the Environmental Statement and the mitigation secured via the Requirements in **Schedule 2** to the **draft Development Consent Order (3.1, Rev 1)**.



## 7.9 ExA Written Question Reference Q7.0.9

### 7.9.1 Written Question Q7.0.09 states:

*"Schedule 1 does not specify the capacity of any of the elements of the proposed development either in terms of input of waste or energy output. Please consider the inclusion of specific capacity limits in accordance with the levels assessed in the ES."*

#### **Response:**

- 7.9.2 As explained in the Applicant's response to FWQ 1.0.1, the Applicant is content to amend **Schedule 1** of the **draft Development Consent Order (3.1, APP-014)** (dDCO) to include wording that refers to the Nationally Significant Infrastructure Project being a generating station that has a capacity of more than 50 megawatts. This amendment is reflected in the dDCO (**3.1, Rev 1**) submitted at Deadline 2.
- 7.9.3 It is not appropriate to refer to the maximum MW electrical output of the generating station (which collectively comprises the Energy Recovery Facility (ERF), Anaerobic Digestion facility, solar photovoltaic installation and battery storage, being the integrated Riverside Energy Park (REP)), as this could change over time as technology becomes more efficient. The Development Consent Order, if granted, should not prevent the Applicant from maintaining REP by replacing parts that ultimately result in REP's electrical output and/or thermal efficiency increasing.
- 7.9.4 In terms of input of waste for the ERF and Anaerobic Digestion facility, it is not appropriate for this to be constrained by the Development Consent Order, as the Order should only impose requirements where they are justified to manage the environmental effects of the authorised development. A tonnage restriction would not be an effective mitigation measure, which is why specific requirements controlling those areas which would influence the operating effects of the ERF and the Anaerobic Digestion facility are included in the dDCO. In acknowledgement of this, at Deadline 2 the Applicant has submitted a revised dDCO (**3.1, Rev 1**) which includes a requirement restricting the number of heavy commercial vehicles delivering waste to the ERF.
- 7.9.5 Input of waste for the ERF and the Anaerobic Digestion facility is more appropriately controlled by the Environmental Permit (EP) for REP that will be issued by the Environment Agency (EA). The EP for REP will include a constraint on the 'maximum quantity' of waste feedstocks which can be received for processing at REP on an annual basis. The EP will prohibit the Applicant from processing more waste than the maximum quantity stated. Within the EP application submitted to the EA, the Applicant has stated the maximum throughput of the two proposed waste processing facilities, as follows:
- ERF – 805,920 tonnes per annum; and
  - Anaerobic Digestion plant – 40,000 tonnes per annum.
- 7.9.6 During the EP determination process, the EA will review the capacities which are proposed within the EP application. The EA will only grant an EP for a facility which

the EA considers is representative of the constraints set out within the EP application.

- 7.9.7 In terms of waste types, the EA is the competent authority for waste management within England. The EA applies a European Union wide system for the categorisation of wastes, which is referred to as the EWC (European Waste Catalogue) code. The EWC code system provides for the identification of the source of the waste; the hazardous status/nature of the waste; and a description of the waste type. The EP will constrain the types of wastes which can be accepted for processing at the individual waste treatment facilities by limiting the waste types to a specific list of EWC codes. The EA will prohibit the waste treatment facilities from processing wastes other than those stated in the EP.
- 7.9.8 Within the EP application, the Applicant has proposed to accept a number of different types of non-hazardous waste which are proposed to be processed within the waste treatment facilities. For the anaerobic digestion plant, these are represented by EWC codes which are considered to be representative of non-hazardous 'organic wastes'; and for the ERF, these are represented by EWC codes which are considered to be representative of non-hazardous 'residual wastes', i.e. the wastes which will remain after waste has been separated for recycling.
- 7.9.9 During the EP determination process, the EA will review the EWC codes which are presented in the EP application. If the EA considers that these wastes are not suitable for combustion, or could otherwise be transferred for recovery/recycling, i.e. they are not residual waste, the EA will not permit these wastes to be received and processed at REP.
- 7.9.10 Prior to commencement of commissioning, the EA will require the Applicant to develop procedures to verify that any wastes which are received at REP are within the constraints which are set out within the EP. These are referred to as waste pre-acceptance and waste acceptance procedures. The Applicant will be required to implement these procedures through the lifetime of the EP, to ensure that wastes are not delivered to REP which the Applicant is not permitted to receive.
- 7.9.11 In the unlikely event that wastes are received at REP which are not allowed for within the EP, referred to as 'non-compliant wastes', the non-compliant wastes will be stored in a designated area within the Tipping Hall within the main REP building, prior to transfer off-site to a suitably licensed waste management facility.
- 7.9.12 It should be noted that the Overarching National Policy Statement for Energy (NPS EN-1) recognises that the Environmental Permitting regime will incorporate operational waste management requirements in any permit issued under that regime (paragraph 4.10.5). As paragraph 4.10.3 states, the Secretary of State should not duplicate relevant pollution control and other environmental regulatory regimes. Accordingly, given it is the EA that will monitor the operational waste side of REP, it should be the EP that imposes any restrictions on waste type and quantity. This is logical, given it is not the waste throughput that gives rise to the environmental effects of operating REP, instead specific requirements should be imposed on those areas that would give rise to potential adverse effects.

7.9.13 It should be noted that the **dDCO (3.1, Rev 1)** at Deadline 2 includes a transport restriction at **Requirement 14** on waste being delivered to the ERF.

## 7.10 ExA Written Question Reference Q7.0.10

7.10.1 Written Question Q7.0.10 states:

*"Please provide further justification for limiting Requirement 2 on Detailed Design Approval to the elements of the Works listed."*

### **Response:**

- 7.10.2 **Requirement 2** of **Schedule 2** of the **draft Development Consent Order (3.1, Rev 1)** relates only to the work numbers listed as they are the parts of the authorised development which include elements whose visual appearance has been assessed as being important in terms of mitigating the authorised development's visual impact.
- 7.10.3 Further information regarding required mitigation of visual impact and the Applicant's approaches to mitigating visual impacts are set out in Section 9.8 and **Section 9.11** of **Chapter 9, Townscape and Visual Impact Assessment**, of the **Environmental Statement (6.1; Rev 1)**, **Sections 6 and 7 of the Design and Access Statement (7.3; APP-104)** and **Paragraphs 3.2.1-3.6.4 of the Design Principles (7.4; APP-105)**, which are secured by **Requirement 2(2)** of the **draft Development Consent Order (3.1, Rev 1)**.

## 7.11 ExA Written Question Reference Q7.0.11

### 7.11.1 Written Questions Q7.0.11 states:

*"Section 9 of the Statement of Reasons identifies plot 12/02 as being open space. The Secretary of State must be satisfied that imposing the right to install the underground electrical connection under this open space will leave it "no less advantageous". If not, then Special Parliamentary Procedure would be triggered before the DCO can be made. The applicant is asked:*

1. to confirm whether any persons (other than those identified in the book of reference) are entitled to rights of common or other rights over plot 12/02
2. to clarify how the land is currently used by the public
3. with reference to each right as identified in Schedule 7 which will be imposed on plot 12/02 to confirm why the applicant considers that the land will be "no less advantageous" to
  - (a) the persons in whom it is vested;
  - (b) other persons, if any, entitled to rights of common or other rights; and
  - (c) the public" if the DCO is made

### **Response:**

7.11.2 Prior to and following submission, the Applicant has been working closely with UK Power Networks (UKPN) to reduce the Electrical Connection route options and to, where possible, narrow down the width of the route. This process has taken into account consultation responses, environmental effects, engineering, economic and efficiency requirements.

7.11.3 The Applicant, taking into account the technical advice of UKPN, is now in a position to reduce the Electrical Connection route options and, in certain places, the width of the remaining route.

7.11.4 As a consequence, Plot 12/02 has been removed from the Land Plans. The updated Land Plans (**2.1, Rev 1**) are submitted at Deadline 2.