



# Botley West Solar Farm

Preliminary Environmental Information Report

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**Volume 1**

**Chapter 18: Waste and Resources**

30 November 2023

## Approval for issue

Christopher Leconte

30 November 2023

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## Glossary

| Term                                     | Meaning  |
|--|--|
| Code of Construction Practice            | A document detailing the overarching principles of construction, contractor protocols, construction related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.   |
| Mineral Safeguarding Area                | An area designated by minerals planning authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.  |
| Site Waste and Resources Management Plan | A Plan setting out how wastes and consumption of key resources will be minimised and managed during the construction process. The Plan will set targets for diverting waste from landfill; during construction the Plan will be updated as waste is moved from the types and quantities of waste predicted to be generated |
| Operational Waste Management Plan        | A Plan setting out the types of waste that will be generated during the operation and maintenance phase and how these wastes will be managed in accordance with the waste hierarchy.   |

## Abbreviations

| Abbreviations | Meaning                                       |
|---------------|---|
| AMR           | Authority Monitoring report                   |
| C&I           | Commercial and Industrial Waste               |
| CDE           | Construction, Demolition and Excavation Waste |
| Defra         | Department for Environment and Rural Affairs  |
| DMRB          | Design Manual for Roads and Bridges           |
| ES            | Environmental Statement                       |
| NGET          | National Grid Electricity Transmission        |
| NPPF          | National Planning Policy Framework            |
| NPS           | National Policy Statement                     |
| OWMP          | Operational Waste Management Plan             |
| PEIR          | Preliminary Environmental Information Report  |
| PV            | Photovoltaic                                  |
| SWRMP         | Site Waste and Resources Management Plan      |
| WPA           | Waste Planning Authority                      |

## Units

| Unit            | Description       |
|-----------------|-------------------|
| %               | Percentage        |
| m               | Metres            |
| km <sup>2</sup> | Square kilometres |

## 18 Waste and Resources

### 18.1 Introduction

#### 18.1.1 Overview

- 18.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) has been prepared by RPS on behalf of Photovolt Development Partners GmbH. (PVDP) for the Applicant, SolarFive Ltd. (SolarFive). SolarFive is a licence holder under the Electricity Act 1989. SolarFive is also a company registered in England and Wales (company no. 12602740).
- 18.1.1.2 PVDP intends to submit an application on behalf of SolarFive for development consent to the Planning Inspectorate (PINS) under the Planning Act 2008. The proposal is to install and operate approximately 840MWe of solar generation in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts (the Project). The application will be accompanied by an Environmental Statement (ES) prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (the EIA Regulations), and other required documents including a statement on pre-application consultation.
- 18.1.1.3 This PEIR chapter presents the preliminary findings of the EIA process relating to waste and resources, before being further refined and reported within the ES.
- 18.1.1.4 It describes the baseline waste management infrastructure (including the waste management facilities) and availability of key resources required for construction of the Project. It also sets out the assessment methodology that will be used for the ES once information about the Project has been refined and outlines the likely impacts of the Project that will be reported in the ES, in accordance with the Scoping Report. The design of the Project is at a stage when the key waste streams and resource requirements cannot be confirmed to an acceptable degree of certainty. For this reason, this PEIR chapter does not include the full assessment of the potential effects of the Project with regards to waste and resources. It sets out an indicative assessment to provide a broad indication as to the potential for significant effects based upon available information about the Project at this time. The full assessment will be provided in the ES once the necessary design information is available. The purpose of the PEIR is to inform the statutory consultation process, enabling consultees to understand and comment on the likely significant effects of the Project.
- 18.1.1.5 This chapter is informed by the following technical chapters of the PEIR:
- Volume 1, Chapter 6: Project Description; and
  - Volume 1, Chapter 11: Ground Conditions.
- 18.1.1.6 The PEIR will inform pre-application consultation. Following this consultation, all comments on the PEIR will be reviewed, and where practicable, taken into account, in preparation of the ES that will accompany the application to PINS for development consent.

## 18.2 Legislative and policy context

### 18.2.1 Legislation

18.2.1.1 This chapter of the PEIR has considered the legislative framework as defined below.

#### European Legislation

##### European Waste Directive Framework (2008/98/EU)

18.2.1.2 Article 3(1) of the revised European Waste Framework Directive (2008/98/EU) defines waste as:

*‘Any substance or object which the holder discards or intends to discard or is required to discard’.*

18.2.1.3 ‘Discard’ includes the recovery and recycling of a substance as well as its disposal in order to ensure that recovery operations are carried out in a way which protects the environment and human health.

18.2.1.4 Article 3(1) was not amended as part of the Waste (Miscellaneous Amendments) (EU Exit) Regulations 2019 and this definition is still applicable in the UK.

18.2.1.5 When assessing whether a material has been discarded, the Environment Agency considers a number of factors including:

- Burden;
- Certainty of use;
- Fit for purpose;
- Environmental harm;
- A specific purpose; and
- Reuse.

18.2.1.6 These factors form part of the Environment Agency’s ‘Check if your material is waste’ online guidance (Environment Agency, 2022), which provides a practical guide about whether a material is a waste, is a by-product or meets ‘end of waste’ status. The Environment Agency also provides a ‘definition of waste service’ to advise if a material is a waste.

#### National Legislation

18.2.1.7 The UK legislative framework for the management of construction wastes comprises the following:

- Environment Act 2021;
- Waste (Circular Economy) (Amendment) Regulations 2020;
- Waste (England and Wales) Regulations 2011 (as amended);
- Environmental Permitting (England and Wales) Regulations 2016 (as amended);

- Waste Management (England and Wales) Regulations 2006;
- Hazardous Waste (England and Wales) Regulations 2005 (as amended);
- Environment Act 1995; and
- Environmental Protection Act 1990.

### **Environment Act 2021**

- 18.2.1.8 The Environment Act 2021 provides a legal framework for environmental governance and makes specific provision for the improvement of the environment. With regards to waste and resources, the Act provides the legislative framework needed to deliver on many of the commitments in ‘Our Waste, Our Resources: A Strategy for England’ (Defra, 2018) by introducing new powers and amending existing legislation such as the Environment Act 1995 and the Environmental Protection Act 1990. This includes extending producer responsibility to make producers pay for 100% of cost of disposal of products, starting with plastic packaging; a deposit Return Scheme for single use drinks containers; and obligations to be placed on producers in relation to the re-use, redistribution, recovery and recycling of products.

### **Waste (Circular Economy) (Amendment) Regulations 2020**

- 18.2.1.9 The Waste (Circular Economy) (Amendment) Regulations 2020 amends legislation that transposed waste-related EU Directives (including the Waste Framework Directive 2008/98/EU) and makes the legislative changes required to transpose the 2020 Circular Economy Package (CEP) measures. The CEP identifies steps for the reduction of waste and establishes a long-term plan for waste management and recycling.
- 18.2.1.10 One of the CEP measures relates to preparing waste for reuse and recycling. It states that legislative changes and industry guidance will be implemented to:
- promote the selective demolition to enable the removal and safe handling of hazardous substances;
  - facilitate the reuse and high-quality recycling by selective removal of materials; and
  - ensure the establishment of sorting systems for construction and demolition waste for wood, mineral fractions, metal, glass, plastic and plaster.
- 18.2.1.11 The CEP also requires that records must be kept of the material and product quantities resulting from preparing for reuse, recycling or other recovery of hazardous waste. These records must also be made available to relevant regulators (Environment Agency) through the electronic registry.



## **Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 and Waste Electrical and Electronic Equipment (Amendment) Regulations 2018**

- 18.2.1.12 The WEEE Regulations 2013 apply to all Electrical and Electronic Equipment ('EEE') placed on the market in the UK covered by the scope of the regulations. Obligations are imposed on producers, distributors and consumers of EEE.

### **Waste (England and Wales) Regulations 2011 (as amended)**

- 18.2.1.13 The framework of waste management legislation in the UK is currently shaped by the Waste (England and Wales) Regulations 2011 (as amended). These regulations require all businesses and organisations that produce waste to take all reasonable measures to prevent waste, to apply the waste hierarchy (refer to **section 2.5**) when transferring waste using the definitions in Article 3 of Directive 2008/98/EC and include a declaration on their waste transfer notes or consignment notes to that effect. Standard Industry Classification (SIC) Codes (Companies House, 2018) of the waste producer will also be provided in the waste transfer note. The SIC is a system for classifying industries by a five-digit code.
- 18.2.1.14 The Waste Regulations 2011 (as amended) also require that any organisation which collects waste paper, metal, plastic or glass must do so using separate collections to facilitate or improve recovery of these materials and where it is technically, environmentally and economically practicable.

### **Hazardous Waste (England and Wales) Regulations 2005 (as amended)**

- 18.2.1.15 The Hazardous Waste (England and Wales) Regulations 2005 (as amended) set out the requirements for controlling and tracking the movement of hazardous waste and bans the mixing of different types of waste. Under the Regulations 'mixing' includes mixing of different categories of hazardous waste, non-hazardous wastes or any other substance or material.

## **18.2.2 Planning policy context**

- 18.2.2.1 The Project would be located in the county of Oxfordshire, across an area of approximately 1,300 ha. The Project extends from an area of land in the north, situated between the A4260 and the Dorn River Valley near Tackley and Wootton, through a central section, situated broadly between Bladon and Cassington, and connecting to a section further south near to Farmoor Reservoir and north of Cumnor, where the Project would connect to the National Grid transmission network. The name 'Botley West' is derived from the location of the grid connection point.
- 18.2.2.2 The Project lies within the administrative areas of Cherwell District Council (CDC), West Oxfordshire District Council (WODC) and Vale of White Horse District Council (VWHDC) and Oxfordshire County Council (OCC). The majority of the Project lies within West Oxfordshire.

## National Policy Statements

- 18.2.2.3 There are currently six energy National Policy Statements (NPSs) that set out the decision-making processes for applications for development consent under the 2008 Act for energy Nationally Significant Infrastructure Projects (NSIPs). These are as follows;
- Overarching National Policy Statement for Energy (NPS EN-1) (2011);
  - National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (NPS EN-2) (2011);
  - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2011);
  - National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (NPS EN-4) (2011);
  - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2011); and
  - National Policy Statement for Nuclear Power Generation (NPS EN-6) (2011)
- 18.2.2.4 In December 2020, these NPSs were subject to review to ensure they continued to reflect the policies set out in the Energy White Paper and that the planning policy framework continued to support infrastructure required for the transition to net zero. The review determined that the existing EN-1 to EN-5 documents should be amended. Closure of the period for consultation on the draft NPSs was 23 June 2023. For any application accepted for examination before designation of the 2023 amendments, the 2011 suite of NPSs should have effect in accordance with the terms of those NPS. The 2023 amendments will therefore have effect only in relation to those applications for development consent accepted for examination, after the designation of those amendments. However, any emerging draft NPSs (or those designated but not yet having effect) are potentially capable of being important and relevant considerations in the decision-making process and therefore have also been reviewed in preparation of this chapter.
- 18.2.2.5 For the Project the contents of NPS EN-1 and its draft 2012-2023 equivalents are considered relevant documents.
- 18.2.2.6 **Table 18.1** sets out a summary of the policies within these NPSs, relevant to waste and resources.

**Table 18.1: Summary of designated and draft NPS document requirements relevant to waste and resources**

| Summary of Designated NPS requirements  | Summary of Draft NPS requirements   | How and where considered in the PEIR   |
|---|---|--|
| <p>The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan. The arrangements described and Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the development, and an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation. The applicant should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome.</p> <p>(paragraph 5.14.6 of NPS-EN-1)</p> | <p>The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a report that sets out the sustainable management of waste and use of resources throughout any relevant demolition, excavation and construction activities.</p> <p>(paragraph 5.15.8 of NPS EN-1)</p> <p>The arrangements described and a report setting out the sustainable management of waste and use of resources should include information on how re-use and recycling will be maximised in addition to the proposed waste recovery and disposal system for all waste generated by the development. They should also include an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.</p> <p>(paragraph 5.15.9 of NPS EN-1)</p> <p>The applicant is encouraged to refer to the 'Waste Prevention Programme for England' and 'Towards Zero Waste: Our Waste Strategy for Wales' and should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome.</p> <p>(paragraph 5.15.10 of NPS EN-1)</p> | <p>The strategy for managing waste during the construction, operation and decommissioning phases of the project are set out in <b>section 18.4.2</b> of this chapter. The management of waste will follow the waste hierarchy.</p> <p>The existing waste management infrastructure and its capacity are described in <b>section 18.5</b>. A Site Waste and Resources Management Plan (SWRMP) will be prepared for the ES. The SWRMP will set out the likely wastes that will be generated during the construction process and how these wastes will be managed. The SWRMP will also identify the key resources that will be used in construction and opportunities to use secondary and recycled content materials. An Operational Waste Management Plan (OWMP) will also be included in the ES. It will describe the wastes that will be generated during the operation and maintenance phase and how they will be managed.</p> |
|   | <p>The UK is committed to moving towards a more 'circular economy'. Where possible, applicants are encouraged to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. Construction best practices should be used to ensure that material is reused or recycled onsite where possible.</p> <p>(paragraph 5.15.12 of NPS EN-1)</p>   | <p>The SWRMP will consider the key resources required during construction and will include targets for the use of recycled or secondary materials.</p>   |

| Summary of Designated NPS requirements  | Summary of Draft NPS requirements  | How and where considered in the PEIR  |
|---|--|---|
|   | <p>Applicants are also encouraged to use construction best practices in relation to storing materials in an adequate and protected place on site to prevent waste, for example, from damage or vandalism. The use of Building Information Management tools (or similar) to record the materials used in construction can help to reduce waste in future decommissioning of facilities, by identifying materials that can be recycled or reused.</p> <p>(paragraph 5.15.13 of NPS EN-1)</p>   | <p>The SWRMP will include measures for minimising waste including appropriate storage of materials and ordering of materials.</p>   |
| <p>The Secretary of State should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. It should be satisfied that:</p> <ul style="list-style-type: none"> <li>• any such waste will be properly managed, both on-site and off-site;</li> <li>• the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area; and</li> <li>• adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.</li> </ul> <p>(paragraph 5.14.7 of NPS EN-1)</p> | <p>The Secretary of State should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development.</p> <p>The Secretary of State should be satisfied that:</p> <ul style="list-style-type: none"> <li>• any such waste will be properly managed, both on-site and off-site.</li> <li>• the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area.</li> <li>• adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.</li> </ul> | <p>The PEIR considers the strategy for managing wastes from the Project. This will be further defined in the ES as the design of the Project develops and the key waste types and quantities can be identified. The PEIR identifies the existing waste management infrastructure in the vicinity of the Project. This provides the context of the existing facilities available and the available capacity to manage waste.</p> |

| Summary of Designated NPS requirements  | Summary of Draft NPS requirements  | How and where considered in the PEIR   |
|---|--|--|
| <p>Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied. The Secretary of State may wish to include a condition on revision of waste management plans at reasonable intervals when giving consent.</p> <p>(paragraph 5.14.8 of NPS EN-1)</p> | <p>Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied.</p> <p>(paragraph 5.15.16 of NPS EN-1)</p> <p>Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied.</p> <p>(paragraph 5.15.7 of NPS EN-1)</p> | <p>Measures for managing waste during the construction and operation and maintenance phases will be set out in the SWRMP and OWMP in the ES.</p> |
|   | <p>The Secretary of State should have regard to any potential impacts on the achievement of resource efficiency and waste reduction targets set under the Environment Act 2021 or wider goals set out in the government's Environmental Improvement Plan.</p> <p>(paragraph 5.5.18 of NPS EN-1)</p>  | <p>Measures for managing waste during the construction and operation and maintenance phases will be set out in the SWRMP and OWMP in the ES.</p> |

## The National Planning Policy Framework

18.2.2.7 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019, 2021 and 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government's planning policies for England.

**Table 18.2: Summary of NPPF requirements relevant to this chapter**

| Key provisions   | How and where considered in the PEIR   |
|--|--|
| <b>National Planning Practice Framework</b>  |  |
| <p>One of the overarching objectives of sustainable development (as described in the NPPF) is to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.</p> <p>(paragraph 8 of the NPPF)</p> | <p>The applicant will apply the waste hierarchy principle and will seek to identify opportunities to minimise waste through the design process and best construction practices. The strategy for managing waste is set out in the PEIR and will be further defined in the ES as the design process progresses.</p> <p>A SWRMP will be submitted with the ES that will consider the key materials to be used in the construction process. Recycled content targets will be set to reflect</p> |



|   |   |
|---|---|
| <p>So far as practicable, new development should take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously.<br/>(paragraph 210 of the NPPF)</p> | <p>the contribution that substitute or secondary and recycled materials make.</p> |
|---|---|

18.2.2.8 The contents of the NPPF are not intended to inform policy relating to waste or decisions relating to waste development, however the NPPF should be read in conjunction with the Government’s waste planning policy which is summarised below.

**National Planning Policy for Waste (2014)**

18.2.2.9 The National Planning Policy for Waste (Department for Communities and Local Government (now Ministry for Housing, Communities and Local Government), 2014) provides guidance to local planning authorities when determining applications for non-waste related development. Local planning authorities are required to ensure that the *‘likely impact of proposed non-waste related development on existing waste management facilities and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities’*.

18.2.2.10 Local planning authorities are also recommended to consider the following factors during determination:

- new, non-waste development makes sufficient provision for waste management and promotes good design with the integration of waste management within the rest of the development (for example, providing adequate storage facilities); and
- the handling of waste arising from the construction and operation of the development maximises reuse and recovery opportunities and minimises off-site disposal.

**Waste Management Plan for England (2021)**

18.2.2.11 The Waste Management Plan for England (Defra, 2021) fulfils the requirements of the Waste (England and Wales) Regulations 2011 (as amended) for the waste management plan to be reviewed every six years. It provides an analysis of the current waste management situation in England and evaluates how it will support the implementation of the objectives and provisions of the Waste (England and Wales) Regulations 2011 (as amended). The Plan also provides an overview of the type, quantity and source of waste generated within England; existing waste collection schemes and major disposal and recovery installations; an assessment of the need for new collection schemes; and general waste management policies. The 2021 Plan supersedes the previous waste management plan for England and includes changes to waste management plan requirements which have been made by

the Waste (Circular Economy) (Amendment) Regulations 2020 where appropriate.

### A Green Future: Our 25 Year Plan to Improve the Environment

18.2.2.12 Published in 2018, the Plan sets out the government goals for improving the environment within a generation. It details how the government will work with communities and businesses to do this. The following policies are relevant:

- Make sure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling.
- Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by the end of 2042.
- Reducing food supply chain emissions and waste.
- Reducing litter and littering.
- Improving management of residual waste.

### Our Waste, Our Resources: A Strategy for England

18.2.2.13 The Government published 'Our Waste, Our Resources: A Strategy for England' (the Resources and Waste Strategy (RWS)) in December 2018 (Defra, 2018b). It builds on the commitments in the 25 Year Environment Plan and sets out the policies that will help achieve the vision of moving to a circular economy. The RWS is underpinned by natural capital thinking and is guided by two overarching objectives:

- to maximise the value of resource use; and
- to minimise waste and its impact on the environment.

18.2.2.14 The RWS sets out the Government's priorities for preserving material resources, minimising waste, promoting resource efficiency and moving towards a circular economy. The priorities provide a useful insight into how organisations will be required to reduce and manage their waste in the future and to follow a more considered approach to procurement.

### Local planning policy

18.2.2.15 The relevant local planning policies applicable to waste based on the extent of the study area for this assessment are summarised in **Table 18.3**.

**Table 18.3: Summary of local planning policy relevant to this chapter**

| Policy   | Key provisions   | How and where considered in the PEIR   |
|--|--|--|
| <b>Oxfordshire Minerals and Waste Local Plan Part 1 2017</b>               |  |  |
| Policy W1: Oxfordshire waste to be managed                                 | Provision will be made for waste management facilities to provide capacity that allows Oxfordshire to be net self-sufficient in the management of its principal waste streams – municipal solid waste (or local authority collected waste), commercial and industrial waste, and construction, demolition and excavation waste – over the period to 2031   | Information on the existing and future capacity of the waste management infrastructure in Oxfordshire is discussed in <b>section 18.5</b> of this chapter.   |
| Policy W2: Oxfordshire waste management targets                            | <p>Provision will be made for capacity to manage the principal waste streams in a way that provides for the maximum diversion of waste from landfill, in line with its targets by 2026</p> <ul style="list-style-type: none"> <li>• Commercial and Industrial (C&amp;I): <ul style="list-style-type: none"> <li>– composting and food waste (5%)</li> <li>– non-hazardous waste recycling (65%)</li> <li>– non-hazardous residual waste treatment (25%)</li> <li>– landfill (5%)</li> </ul> </li> <li>• Construction, Demolition and Excavation (CDE) inert proportion (assumed to be 80% of projected arisings): <ul style="list-style-type: none"> <li>– inert waste recycling (65% by 2026 and 70% by 2031)</li> <li>– permanent deposit of inert waste (other than landfill) 25%</li> <li>– landfill (10% by 2026 and 5% by 2031)</li> </ul> </li> <li>• CDE non-inert proportion (assumed to be 20% of projected arisings) <ul style="list-style-type: none"> <li>– composting (5%)</li> <li>– non-hazardous waste recycling (65%)</li> <li>– non-hazardous residual waste treatment (25%)</li> <li>– landfill (5%)</li> </ul> </li> </ul> <p>Proposals for the management of all types of waste should demonstrate that the waste cannot reasonably be managed through a process that is higher up the waste hierarchy than that proposed.</p> | The likely types and quantities of waste that will be generated during the construction, operation and maintenance and decommissioning phases will be described in the ES. Waste will be managed in accordance with the waste hierarchy principle. |
| Policy W3: Provision for waste management capacity and facilities required | <p>Provision will be made for the following additional waste management capacity to manage the non-hazardous element of the principal waste streams:</p> <p>Non-hazardous waste recycling:</p> <ul style="list-style-type: none"> <li>• by 2021: at least 145,400 tpa</li> <li>• by 2026: at least 203,000 tpa</li> <li>• by 2031: at least 326,800 tpa</li> </ul>   | The baseline environment outlined in <b>section 18.5</b> , notes that additional recycling waste capacity is required in Oxfordshire for non-hazardous waste and that provisions will be made in the Minerals and Waste Local Plan.                |



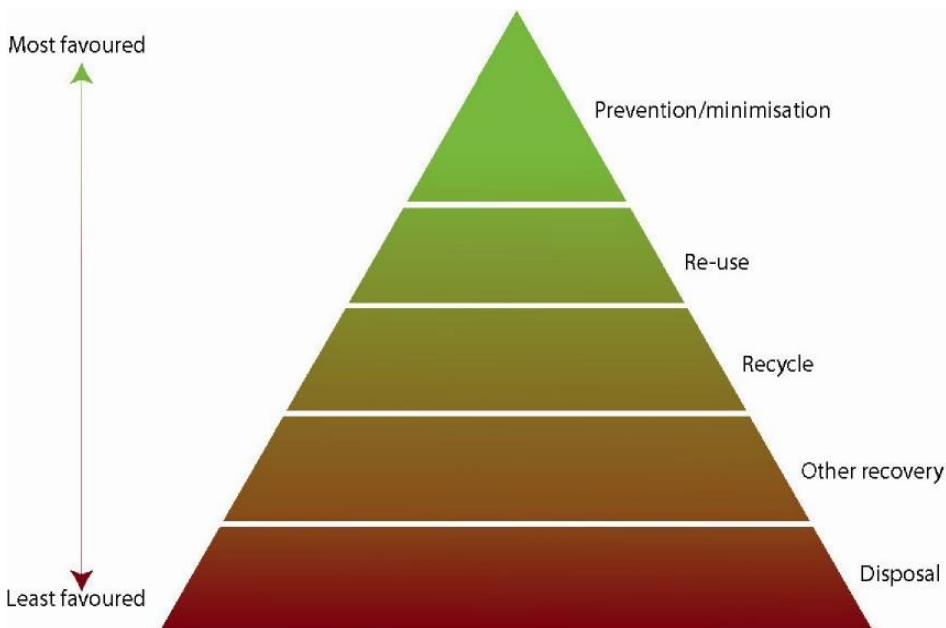
| Policy  | Key provisions   | How and where considered in the PEIR  |
|---|--|---|
| Policy W7:<br>Management and disposal of hazardous waste    | Permission will be granted for facilities for the management and disposal of hazardous waste where they are designed to manage waste produced in Oxfordshire. Facilities that are likely to serve a wider area should demonstrate that they will meet a need for waste management that is not adequately provided for elsewhere.                     | The baseline <b>section 18.5</b> notes that permission may be granted for future hazardous waste management facilities in Oxfordshire for waste generated in the county.  |
| <b>West Oxfordshire Local Plan 2031</b>                     |  |   |
| Policy OS3:<br>Prudent use of natural resources             | All development proposals will be required to show consideration of the efficient and prudent use and management of natural resources, including: <ul style="list-style-type: none"> <li>• Using recycled and energy efficient materials</li> <li>• Minimising waste and making adequate provision for the re-use and recycling of waste.</li> </ul> | This policy is principally focused on residential developments as the targets in the Local Plan relate to household waste. However, the principles of waste minimisation and the efficient use of resources will be set out in the SWRMP in the ES. |
| <b>Vale of White Horse District Council Local Plan 2031</b> |  |   |
| Core Policy 43:<br>Natural Resources                        | The Council encourages developers to make provision for the effective use of natural resources where applicable, including: <ul style="list-style-type: none"> <li>• Minimising waste and making adequate provision for the recycling of waste on site</li> <li>• Using recycled and energy efficient materials.</li> </ul>                          | The principles of waste minimisation and the efficient use of resources will be set out in the SWRMP in the ES.   |

| Policy   | Key provisions   | How and where considered in the PEIR  |
|--|--|---|
| <p>Development Policy 28: Waste Collection and Recycling</p> | <p>All development proposals will be expected to be consistent with the Council's Waste Planning Guidance. For development proposals, the Council will consider favourably the use of sustainable waste management initiatives, where there are likely to provide environmental and financial benefits.</p> <p>Development proposals for non-residential use must ensure:</p> <ul style="list-style-type: none"> <li>• sufficient space is provided for the storage of communal recycling and refuse containers, and</li> <li>• provision is made that is adequate for the proposed use class.</li> </ul> <p>The location and design of the recycling and refuse provision should be integral to the proposed development. In assessing recycling and refuse provision, the following points should be considered:</p> <ul style="list-style-type: none"> <li>• the level and type of provision, having regard to the above requirements and relevant space standards;</li> <li>• the location of the provision, having regard to the need to provide and maintain safe and convenient;</li> <li>• access for occupants, while also providing satisfactory access for collection vehicles;</li> <li>• the impact of the provision on visual amenity, having regard to the need to minimise the prominence of the facilities and screen any external provision;</li> <li>• the impact of the provision on health and amenity of neighbouring development and the proposed development; and</li> <li>• the security of the provision against scavenging pests, vandalism and unauthorised use.</li> </ul> <p>Recycling and refuse storage should be separate from cycle storage, car parking and key circulation areas.</p> <p>Development will not be permitted if recycling and refuse provision that meets the above requirements cannot feasibly or practicably be provided.</p> | <p>During construction, compounds will include dedicated waste management areas. The set up of these waste management areas will include storage to facilitate recycling. During operation, the appropriate provision for recycling will be included in the National Grid Electricity Transmission (NGET) substation.</p> |
| <p><b>Cherwell Local Plan 2031</b></p>                       |  |   |
| <p>Policy ESD 3: Sustainable Construction</p>                | <p>All development proposals will be encouraged to reflect high quality design and high environmental standards, demonstrating sustainable construction methods including but not limited to:</p> <ul style="list-style-type: none"> <li>• Maximising resource efficiency Incorporating the use of recycled and energy efficient materials</li> <li>• Incorporating the use of locally sourced building materials</li> <li>• Reducing waste and pollution and making adequate provision for the recycling of waste</li> </ul>  | <p>This policy is principally focused on residential developments, however, the principles of waste minimisation and the efficient use of resources will be set out in the SWRMP in the ES.</p>   |

### 18.2.3 Waste hierarchy

- 18.2.3.1 The waste hierarchy ranks waste management options according to what is best for the environment. It gives top place to waste prevention. When waste has been generated, priority is given to preparing it for re-use, then recycling, then recovery, and last of all disposal (for example, landfill), as shown in Figure 18.1. The waste hierarchy is a key element of sustainable waste management and following the hierarchy is a legal requirement of the Waste (England and Wales) Regulations 2011 (as amended).
- 18.2.3.2 Defra has published guidance on how the waste hierarchy should be applied to a range of common wastes (Guidance on applying the Waste Hierarchy, Defra, 2011). It summarises the findings of current scientific research on the environmental impacts of various waste management options for a range of materials and products. The guidance states that for most materials the waste hierarchy ranking applies. However, the evidence suggests that for some materials, the preferred waste management option (i.e., with the lowest environmental impact) does not follow the waste hierarchy order.
- 18.2.3.3 All waste generated by the Project would be managed in accordance with the waste hierarchy unless it can be demonstrated that an alternative option lower down the hierarchy is the best overall environmental outcome (for example, waste wood is often used for biomass heat recovery rather than being recycled).

**Figure 18.1: Waste hierarchy**



### 18.3 Consultation and engagement

- 18.3.1.1 On 15 June 2023, the Applicants submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases. It also described those topics or sub-topics which are proposed to be

scoped out of the EIA process and provided justification as to why the Project would not have the potential to give rise to significant environmental effects in these areas.

18.3.1.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 24 July 2023. Key issues raised during the scoping process specific to waste are listed in **Table 18.4**, together with details of how these issues have been addressed within the PEIR.

**Table 18.4: Summary of scoping responses**

| Comment  | How and where considered in the PEIR  |
|--|---|
| <b>Planning Inspectorate</b>   |   |
| <p>Scoping Report paragraph 9.3.1 acknowledges that the project is likely to generate waste during construction and decommissioning and that waste generation during operation will be minimal; Scoping Report paragraph 6.2.1 states that failed infrastructure will require replacement during operation. Whilst an outline code of construction practice is proposed to set out how waste will be managed during construction, the management of waste during operation and decommissioning is unknown.</p> <p>The Inspectorate does not agree to scope out impacts from waste. The ES should quantify waste anticipated to be generated during construction, operation and decommissioning and explain how waste will be managed at each phase. This should include consideration of any potential cumulative waste generation and associated significant effects.</p> | <p>A waste and resources chapter has been prepared for the PEIR and includes an indicative assessment of effects (Volume 1, Chapter 18) based on information about the Project at the time. The ES will identify the wastes likely to be generated during all phases of the Project and explain how wastes will be managed. The full assessment will be undertaken in the ES based on the refined design information.</p> |
| <b>Infrastructure Planning Commission</b>  |   |

| Comment   | How and where considered in the PEIR   |
|---|--|
| <p>Excavated materials that are recovered via a treatment operation can be re-used on site under the CL:AIRE Definition of Waste: Development Industry Code of Practice. This voluntary Code of Practice provides a framework for determining whether excavated material arising from site during remediation and/or land development works are waste.</p> <p>Developers should ensure that all contaminated materials are adequately characterised both chemically and physically (in line with British Standards) and that the permitting status of any proposed on site operations are clear. If in doubt, the Environment Agency should be contacted at an early stage to avoid delay.</p> <p>We recommend that developers should refer to our:</p> <ul style="list-style-type: none"> <li>• Position statement on the Definition of Waste: Development Industry Code of Practice: and</li> <li>• Website <span style="float: right;">at</span><br/><a href="https://www.gov.uk/government/organisations/environment-agency">https://www.gov.uk/government/organisations/environment-agency</a> for further guidance</li> </ul> <p>Contaminated soil that is, or must be disposed of, is waste. Therefore, its handling, transport, treatment and disposal is subject to waste management legislation.</p> <p>Any waste soil arising will need to be properly classified in accordance with Waste Classification Technical Guidance – WM3, and sent to an appropriately permitted facility. If any waste materials are to be imported for use in construction, an environmental permit may be required.</p> | <p>Where applicable, the CL:AIRE Definition of Waste Code of Practice will be included in the approach for managing excavated material from the Project. Further information on managing excavated material will be provided in the ES as the design information is refined.</p>   |
| <b>Oxfordshire County Council</b>   |  |
| <p>Management of the waste relating to the replacement of any of the solar panels during the lifetime of the development and at the final decommissioning stage should be scoped in.</p>  | <p>A waste and resources chapter has been prepared for the PEIR. The ES chapter will consider the likely wastes that will be generated during the lifetime of the Project (including the operation and maintenance phases). The ES will assess the potential reduction in landfill capacity for inert, non-hazardous and hazardous wastes as a result of waste generated by the Project.</p> |
| <b>Vale of White Horse District Council</b>   |  |
| <p>The disposal of materials and plant following the decommissioning of the development should be scoped into the EIA.</p>  | <p>The ES will assess the potential reduction in landfill capacity for inert, non-hazardous and hazardous wastes as a result of waste generated during the decommissioning of the Project.</p>   |
| <b>Cumnor Parish Council</b>  |  |
| <p><i>'Council is both astonished and concerned that the applicant proposes to scope waste 'out'. The applicant's meagre five bullet point justification for this completely ignore the rate of replacement of inverters etc, required for a 42 year site operational life, let alone the decommissioning of panels, inverters, cabling, buildings etc'.</i></p>  | <p>A waste and resources chapter has been prepared and included in the PEIR. The next steps section of the chapter (<b>paragraph 18.11.1.1</b>) confirms that the ES will identify the wastes likely to be generated during all phases of the Project and explains how wastes will be managed.</p>   |

- 18.3.1.3 No further consultation with waste stakeholders has been undertaken in the preparation of the PEIR. Consultation will be undertaken with Oxfordshire County Council's Minerals and Waste department during the preparation of the assessment for the ES. This consultation will be informed by the refinements to the Project design (following statutory consultation) including details regarding the predicted types and volumes of waste to be generated and the estimated quantities of resources to be consumed. The waste authority is the main stakeholder to be consulted.

## 18.4 Baseline methodology

### 18.4.1 Relevant guidance

- 18.4.1.1 Relevant guidance to inform the baseline assessment is set out within the DMRB Sustainability and Environment Appraisal; LA110 Materials and Waste 2019 (Highways England et al, 2019). Whilst this originally related to road projects, it is accepted that cable route projects can also follow the guidance due to their linear nature. IEMA's Guide to Materials and Waste in Environmental Impact Assessment (IEMA, 2020) has also been considered in the characterisation of the study area and identification of sensitive receptors.

- 18.4.1.2 The following guidance documents relevant to waste management have been considered:

- Waste Duty of Care: Code of Practice (Defra and Environment Agency, 2018);
- Definition of Waste: Development Industry Code of Practice version 2 (CL:AIRE, 2011);
- Designing Out Waste: A Design Team Guide for Civil Engineering (WRAP, 2010);
- Building Research Establishment Environmental Assessment Methodology BREEAM New Construction Manual (BRE Global Ltd, 2018);
- London Plan Circular Economy Statement Guidance (Greater London Authority, 2022);
- Embedding circular economy principles into infrastructure operator procurement activities (Major Infrastructure – Resource Optimisation Group (MI-ROG), 2016).

### 18.4.2 Scope of the assessment

- 18.4.2.1 The scope of this PEIR has been developed in consultation with relevant statutory and non-statutory consultees as detailed in **Table 18.4**. The scope of the assessment will consider the types and volumes of wastes that will be generated during the construction, operation and maintenance and decommissioning phases of the Project; and the impact on the existing waste management infrastructure. The assessment will also consider the consumption of materials during the construction of the Project.

18.4.2.2 Taking into account the scoping and consultation process, **Table 18.5** summarises the issues considered as part of this assessment.

**Table 18.5: Issues considered within this assessment**

| Activity   | Potential effects scoped into the assessment |
|--|--|
| <b>Construction phase</b>  |  |
| Construction activities leading to the generation and disposal of waste  | Reduction in landfill capacity               |
| Activities leading to the consumption of key resources (key construction materials including concrete, steel, asphalt and aggregates only) | Depletion of resources                       |
| <b>Operation and maintenance phase</b>   |  |
| Operation and maintenance activities leading to the generation and disposal of waste   | Reduction in landfill capacity               |
| <b>Decommissioning phase</b>   |  |
| Decommissioning activities leading to the generation and disposal of waste   | Reduction in landfill capacity               |

18.4.2.3 A summary of the effects scoped out is presented in **Table 18.6**.

**Table 18.6: Issues scoped out of the assessment.**

| Issue   | Justification   |
|---|---|
| <b>Construction phase</b>   |   |
| Waste arising from the extraction, processing and manufacture of construction components and products | This issue is proposed to be scoped out on the basis that such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions.<br><br>Whilst these matters are proposed to be scoped out, embedded and good practice mitigation measures including waste minimisation and sustainable procurement practices will be applied to the Project. Details of these measures will be provided in the SWRMP in the ES. |
| <b>Operation and maintenance phase</b>  |   |
| Resource use during operation   | Activities requiring the use of key resources (e.g. concrete, aggregates) are considered unlikely to be undertaken during the operation and maintenance phase.  |

### 18.4.3 Matters considered in other topic chapters

18.4.3.1 The matters considered in other topic chapters of the PEIR include:

- Impacts on mineral safeguarding areas are considered in Volume 1, Chapter 11: Ground Conditions
- Environmental impacts associated with the management of waste and resources are considered in Volume 1, Chapter 13: Noise and Vibration and Chapter 14: Climate Change.



## 18.4.4 Study area

18.4.4.1 The waste and resources study area to be used for the assessment has been established in accordance with the IEMA Guidance ‘Materials and Waste in Environmental Impact Assessment’ (IEMA, 2020). It focuses on where potential impacts are most likely to occur on waste and resources receptors.

18.4.4.2 The study area takes into account the range of potential impacts arising from activities associated with the Project. The waste and resources study area comprises two elements as defined below:

- Project study area comprising the Project site boundary as described in Volume 1, Chapter 6: Project Description and temporary land requirements during construction (e.g. temporary offices, compounds and storage areas) in relation to construction waste generation, operational waste generation and use of material resources.
- Expansive study area extends to:
  - Oxfordshire (regional) in relation to inert, non-hazardous construction, operational and decommissioning waste management.
  - South East (regional) in relation to hazardous construction, operational and decommissioning waste management.
  - UK (national) in relation to availability of key construction materials.

## 18.4.5 Methodology for baseline studies

### Desk studies

18.4.5.1 Information on the existing capacity and future capacity requirements of the waste management infrastructure and the availability of material resources was collected through a desktop review of existing studies and datasets. These are summarised in **Table 18.7**.

**Table 18.7: Summary of desk study sources used**

| Title  | Source  | Year | Author                     |
|--|---|------|----------------------------|
| Oxfordshire Minerals and Waste Core Strategy | Oxfordshire County Council<br><a href="#">Adopted Minerals Waste Core Strategy Sept 2017.pdf (oxfordshire.gov.uk)</a> | 2017 | Oxfordshire County Council |
| Mineral and Waste Annual Monitoring Report   | Oxfordshire County Council<br><a href="#">Authority Monitoring Report 2020 (oxfordshire.gov.uk)</a>                   | 2020 | Oxfordshire County Council |
| Waste Summary Tables for England – Version 3 | <a href="#">2021 Waste Summary Tables for England – Version 3 (data.gov.uk)</a>                                       | 2021 | Environment Agency         |

18.4.5.2 The baseline consists of:



- Landfill void capacity in the Expansive study area (for non-hazardous, inert and hazardous waste);
- Capacity of other waste management infrastructure for non-hazardous waste in the Expansive study area;
- Forecasts for landfill capacity; and
- National and regional consumption for key construction materials.

18.4.5.3 The most recent published data from Oxfordshire County Council, Environment Agency and other industry reports (as listed in **Table 18.7**) has been used to establish the quantitative baseline for Construction, Demolition and Excavation (CDE) and Commercial and Industrial (C&I) waste.

#### **18.4.6 Identification of designated sites**

18.4.6.1 There are no designated sites relevant to waste located in the Project Study Area and Expansive Study Area.

#### **18.4.7 Site-specific surveys**

18.4.7.1 No site-specific surveys have been required to determine the baseline environment in relation to waste and resources.

### **18.5 Baseline environment**

18.5.1.1 The Project would be located in the county of Oxfordshire, across an area of approximately 1,300 ha. The Project location extends from an area of land in the north, situated between the A4260 and the Dorn River Valley near Tackley and Wootton, through a central section, situated broadly between Bladon and Cassington, and connecting to a section further south near to Farmoor Reservoir and north of Cumnor, where the Project would connect to the National Grid transmission network.

18.5.1.2 The Oxfordshire Minerals and Waste Local Plan: Part 1 – Core Strategy (Oxfordshire County Council, 2017) (Core Strategy) is the current strategy in place, as at the date of this chapter. The Core Strategy provides the framework for monitoring policies that control waste management in Oxfordshire for the plan period up to 2031. The Core Strategy is supported by Oxfordshire Minerals and Waste Authority Monitoring Reports (AMR), the most recent of which is 2020.

18.5.1.3 A new Minerals and Waste Plan for Oxfordshire is currently in preparation and once adopted, it will replace the Core Strategy (2017). Initial consultation on the Issues and Options for the Plan concluded in September 2023 and the new Minerals and Waste Plan is expected to be adopted in March 2026.

## 18.5.2 Waste

### Existing waste arisings and management of waste

#### CDE waste

18.5.2.1 The AMR 2020 (Oxfordshire County Council, 2023) estimated that approximately 1,059,347 tonnes of CDE waste were generated in Oxfordshire in 2020.

18.5.2.2 The AMR (Oxfordshire County Council, 2023) detailed that landfill diversion targets for all the waste streams were being met. Of the 1.059 million tonnes of CDE waste estimated to originate in Oxfordshire in 2020, over half (57%) was recovered and approximately 39% was recycled, with the remaining 4% sent for disposal.

#### C&I waste

18.5.2.3 The AMR (Oxfordshire County Council, 2023) estimated that approximately 0.492 million tonnes of C&I waste were generated in Oxfordshire in 2020.

18.5.2.4 With regards to C&I waste, approximately 96% was diverted from landfill in 2020. This was achieved through recycling (approximately 63%), composting (approximately 19%), other treatment (14%) and landfilling (4%).

#### Hazardous waste

18.5.2.5 Waste statistics (Environment Agency, 2021) identify that 77,312 tonnes of hazardous waste were generated in Oxfordshire in 2021; this is an increase from 52,000 tonnes reported in 2012 (Oxfordshire County Council, 2017). Over half of Oxfordshire's hazardous waste is generated from construction and demolition activities and includes asbestos. Oxfordshire is a net exporter of hazardous waste: where hazardous waste is managed within Oxfordshire, the waste is primarily transferred for recovery.

### Forecast waste generation

18.5.2.6 Forecasts of waste generation in Oxfordshire will vary over time as circumstances affecting the amount of waste produced and new information becomes available. The forecasts reported in the Core Strategy (Oxfordshire County Council, 2017) for C&I waste is summarised below:

- 0.564 million tonnes (2021)
- 0.573 million tonnes (2026)
- 0.583 million tonnes (2031)

18.5.2.7 These forecasts take into account Oxfordshire and Defra economic growth national predictions.

18.5.2.8 Future CDE waste arisings will be largely determined by the rate of new building work. No forecasts were included in the Core Strategy (Oxfordshire County Council, 2017) but are updated as necessary in the Oxfordshire Minerals and Waste AMRs.

## Existing and Permitted Waste Management Capacity

- 18.5.2.9 The strategy for identifying and delivering the future waste capacity for Oxfordshire up to 2031 is set out in the Oxfordshire Adopted Waste Core Strategy (Oxfordshire County Council, 2017). This is based on a Waste Needs Assessment (Oxfordshire County Council, 2015) and comprises estimates of the quantities of waste that will need to be managed in Oxfordshire, the waste management capacity currently available, and the additional capacity that may be required up to 2031. These estimates are monitored and updated in the Council's Minerals and Waste AMR.

### Non-hazardous waste Landfill

- 18.5.2.10 Oxfordshire is served by a network of waste management facilities including non-hazardous landfill sites at Slape Hill Quarry and Sutton Courtenay in the centre north and south of the county, respectively together with a wide distribution of recycling/transfer facilities. The data from the AMR 2020 (Oxfordshire County Council, 2023) (see Table 18.8), confirms that the total remaining non-hazardous landfill capacity was 3.373 million cubic metres and remaining inert landfill capacity was 7.609 million cubic metres, which, according to the AMR (Oxfordshire County Council, 2023) is sufficient to last up to 2031 based on Oxfordshire's 2020 waste arisings.

**Table 18.8: Non-Hazardous Landfill**

| Site             | Operator        | Facility Category      | District            | End Date         | Capacity (TPA) |
|------------------|-----------------|------------------------|---------------------|------------------|----------------|
| Finmere Quarry   | Opes Industries | Non-hazardous landfill | Cherwell            | Temporary – 2028 | 419,016        |
| Sutton Courtenay | FCC             | Non-hazardous landfill | Vale of White Horse | Temporary – 2030 | 2,954,359      |

**Table 18.9: Inert Landfill**

| Site   | Operator  | Facility Category | District            | End Date | Capacity (TPA) |
|--|-----------|-------------------|---------------------|----------|----------------|
| New Barn Farm                                    | Grundon   | Inert landfill    | South Oxfordshire   | 2039     | 1,400,000      |
| Ewelme No.2 Landfill                             | Grundon   | Inert landfill    | South Oxfordshire   | 2032     | 120,240        |
| Shellingford Quarry Landfill                     | Earthline | Inert landfill    | Vale of White Horse | 2044     | 800,000        |
| Shellingford Quarry Landfill (western extension) | Earthline | Inert landfill    | Vale of White Horse | 2043     | 1,600,000      |
| Upwood Quarry                                    | Hills     | Inert Landfill    | Vale of White Horse | 2029     | 327,449        |
| Bowling Green Farm                               | Hills     | Inert Landfill    | Vale of White Horse | 2038     | 891,838        |
| Gill Mill  | Smiths    | Inert Landfill    | West Oxfordshire    | 2044     | 729,724        |

| Site                  | Operator              | Facility Category | District          | End Date | Capacity (TPA) |
|-----------------------|-----------------------|-------------------|-------------------|----------|----------------|
| Caversham (extension) | Lafarge               | Inert landfill    | South Oxfordshire | 2029     | 762,066        |
| Old Quarry Worsham    | Brize Norton Gun Club | Inert landfill    | West Oxfordshire  | 2026     | 10,470         |

**Table 18.10: Hazardous/Radioactive facilities**

| Site                           | Operator         | Facility Category     | District            | End Date  | Capacity (TPA) |
|--------------------------------|------------------|-----------------------|---------------------|-----------|----------------|
| Ewelme No. 1                   | Grundon          | Hazardous/Radioactive | South Oxfordshire   | Permanent | 11,000         |
| Harwell Western Storage        | Magnox           | Hazardous/Radioactive | Vale of White Horse | Permanent | 500,000        |
| Harwell B462                   | Magnox           | Hazardous/Radioactive | Vale of White Horse | Permanent | 3,000          |
| Drayton Depot Transfer Station | OCC              | Hazardous/Radioactive | Vale of White Horse | Permanent | 20,000         |
| Oxford Road Depot              | Vale Housing     | Hazardous             | Vale of White Horse | Permanent | 100            |
| Lower Yard (Unit 8)            | Amity Insulation | Hazardous/Radioactive | West Oxfordshire    | Permanent | 100            |

### Inert Landfill

- 18.5.2.11 Estimates of inert landfill capacity (existing and permitted) remaining in Oxfordshire as reported in the AMR 2020 (Oxfordshire County Council, 2023) is 7,608,903 tonnes, this is detailed in **Table 18.9**. This takes into account the planning consent in 2020 for inert landfilling of an additional 2,400,000 tonnes for restoration purposes at Shellingford Quarry.
- 18.5.2.12 In 2020, approximately 602,742 tonnes of inert waste generated in Oxfordshire was deposited at inert landfill (Oxfordshire County Council, 2023) Based on these production rates *‘there is currently sufficient inert landfill capacity to manage Oxfordshire’s arisings to the end of the plan period and beyond’* (Oxfordshire County Council, 2023).

### Hazardous/Radioactive

- 18.5.2.13 Estimates of hazardous/radioactive waste management sites (permitted and remaining) in Oxfordshire as reported in the AMR 2020 (Oxfordshire County Council, 2023) is approximately 0.590 million tonnes, this is detailed in **Table 18.10**.

## 18.5.3 Available Resources

### National Construction Resources

- 18.5.3.1 **Table 18.11** summarises the national consumption in 2018 for steel, aggregates, asphalt and concrete (the most recent year for which data is available), which are the key construction materials expected to be used during the construction of the Project.

**Table 18.11: National consumption of key construction resources (2018)**

| Material                   | National consumption (million tonnes, year) | Baseline data year | Data description   |
|----------------------------|---|--------------------|--|
| Steel                      | 17  | 2018               | UK total consumption (Make UK, 2019)                             |
| Aggregates (including)     | 251   | 2018               | Minerals and mineral products sales in Great Britain (MPA, 2021) |
| Crushed rock               | 117.30                                      |                    |  |
| Sand and gravel – land won | 48.9  |                    |  |
| Sand and gravel – marine   | 13.7  |                    |  |
| Recycled and secondary     | 71  |                    |  |
| Asphalt                    | 25.4  |                    |  |
| Concrete (including)       | 86.2  |                    |  |
| Ready-mixed concrete       | 54.2  |                    |  |
| Concrete products          | 32  |                    |  |

## Mineral Working Sites in Oxfordshire

18.5.3.2 Oxfordshire contains various mineral resources. Sand and gravel are typically found in river valley deposits along the River Thames and its tributaries. These resources are primarily used to make concrete. Soft sand deposits are mainly found in the south west of the county and they are used in the production of mortar and asphalt. In the north and west of the county are limestone and ironstone which are primarily used as crushed rock aggregate as well as building and wall stone. The active mineral working sites (as reported in the 2020 AMR) are set out in **Table 18.12**.

**Table 18.12: Active Mineral working sites in Oxfordshire (end of 2020)**

| Mineral Site Name                     | Site Operator                       | Status |
|---------------------------------------|-------------------------------------|--------|
| Burford Quarry                        | Smith & Sons (Bletchington) Ltd     | Active |
| Dewars Farm Quarry                    | Smith & Sons (Bletchington) Ltd     | Active |
| Duns Tew Quarry                       | Smith & Sons (Bletchington) Ltd     | Active |
| Gill Mill Quarry                      | Smith & Sons (Bletchington) Ltd     | Active |
| Whitehill Quarry                      | Smith & Sons (Bletchington) Ltd     | Active |
| Rollright Quarry (Phase II)           | Smith & Sons (Bletchington) Ltd     | Active |
| Cassington Quarry                     | Hanson UK                           | Active |
| Sutton Courtenay Quarry (Bridge Farm) | Hanson UK                           | Active |
| Chinham Farm Quarry (Bowling Green)   | Hills Quarry Products Ltd           | Active |
| Upwood Quarry                         | Hills Quarry Products Ltd           | Active |
| Hatford Quarry                        | Earthline Ltd. (Hatford Quarry Ltd) | Active |
| Shellingford Quarry                   | Earthline Ltd. (Multi-Agg Ltd)      | Active |
| Shipton-on-Cherwell Quarry            | Earthline Ltd. (Shipton Ltd)        | Active |
| Wroxton Quarry                        | Earthline                           | Active |
| Sutton Wick Quarry                    | H Tuckwell & Sons                   | Active |
| Great Tew Quarry                      | Great Tew Farm Partnership          | Active |
| Finmere Quarry                        | AT Contracting & Plant Hire Ltd     | Active |
| Faringdon Quarry                      | Grundon Sand and Gravel Ltd         | Active |
| Caversham Quarry                      | Lafarge Tarmac                      | Active |
| New Barn Farm, Cholsey                | Grundon Sand and Gravel Ltd         | Active |

18.5.3.3 Annual production of aggregates (sand, gravel and crushed rock) in Oxfordshire almost halved between 2004 and 2013 to just over one million tonnes, however in 2015, production rose again to just under two million and comprised 52% sand and gravel and 48% crushed rock.

18.5.3.4 The AMR (Oxfordshire County Council, 2023) confirmed that Oxfordshire County Council met its target (and the NPPF requirement) to maintain a



landbank for at least seven years for sharp sand and gravel and for soft sand. At the end of 2020, permitted reserves of sharp sand and gravel were 11.439 million tonnes and the landbank was recorded at 11.27 years. For soft sand, permitted reserves were 3.915 million tonnes at the end of 2020 with a landbank of 16.11 years.

18.5.3.5 At the end of 2020, permitted reserves of crushed rock were 7.151 million tonnes and the landbank was reported to be 9.19 years (Oxfordshire County Council, 2023). This was below Oxfordshire County Council’s target (and NPPF requirement) of maintaining a landbank of 10 years for crushed rock. A planning application was granted at Shellingford Quarry in 2020 for the extraction of 1.8 million tonnes of limestone (crushed rock) alongside soft sand.

**Secondary and Recycled Aggregate Capacity**

18.5.3.6 In 2020, Oxfordshire County Council met its target to maintain a (minimum) production capacity of 0.926 million tonnes per year of recycled and secondary aggregate. The total operational capacity at the end of 2020 was 1,458,699 tonnes (Oxfordshire County Council, 2023). The CDE recycling facilities located in Oxfordshire and the capacity of each facility are set out below in **Table 18.13**.

18.5.3.7 In 2020, permission was granted to extend the life of an operational CDE waste recycling facility with temporary planning permission. The facility is located at Shellingford Quarry: the planning consent will extend the life of the facility from 2020 to 2044 and will provide a capacity of 100,000 tonnes per annum.

18.5.3.8 The 2020 Local Aggregate Assessment (Oxfordshire County Council, 2021) has recorded sales in recycled and secondary aggregate of 0.439 million tonnes. This is largely due to the wide network of CDE recycling facilities available in Oxfordshire (see **Table 18.13**). This accounts for approximately 17% of the total sales of aggregates produced in Oxfordshire (2.565 million tonnes).

**Table 18.13: CDE recycling facilities in Oxfordshire**

| Site                  | Operator                           | Facility Category | District            | End Date  | Capacity (TPA) |
|-----------------------|------------------------------------|-------------------|---------------------|-----------|----------------|
| Ardley (BAA) Facility | ERF Raymond Minerals and Recycling | CDE Recycling     | Cherwell            | 2049      | 90,000         |
| Barford Farm          | North Oxfordshire Topsoil Ltd      | CDE Recycling     | Cherwell            | Permanent | 5,000          |
| Cemex batching        | Fergal Contracting                 | CDE Recycling     | West Oxfordshire    | Permanent | 20,000         |
| Drayton depot         | OCC                                | CDE Recycling     | Vale of White Horse | Permanent | 75,000         |
| Ewelme No. 2          | Grundon                            | CDE Recycling     | South Oxfordshire   | Permanent | 12,000         |
| Ferris Hill Farm      | Matthews                           | CDE Recycling     | Cherwell            | Permanent | 24,999         |



| Site                          | Operator                    | Facility Category    | District            | End Date  | Capacity (TPA) |
|-------------------------------|-----------------------------|----------------------|---------------------|-----------|----------------|
| Gill Mill Quarry              | Smiths of Bletchington      | CDE Recycling        | West Oxfordshire    | 2040      | 175,000        |
| Grove Industrial Park         | Aasvodel                    | CDE Recycling        | Vale of White Horse | Permanent | 40,000         |
| Hundridge Farm                | Onsyany Skips               | CDE Recycling        | South Oxfordshire   | Permanent | 5,000          |
| Lakeside Park                 | Mick's Skips                | CDE Recycling        | West Oxfordshire    | Permanent | 2,000          |
| New Wintles Farm              | David Einig Consultancy     | CDE Recycling        | West Oxfordshire    | Permanent | 170,000        |
| Newlands Farm                 | Smiths of Bloxham           | CDE Recycling        | Cherwell            | Permanent | 32,000         |
| Plyhatch Quarry               | Grabloader                  | CDE Recycling        | South Oxfordshire   | Permanent | 75,000         |
| Rumbolds Pit                  | Richard Hazel               | CDE Recycling        | South Oxfordshire   | Permanent | 20,000         |
| Sandfields Farm               | KJ Millard                  | CDE Recycling        | West Oxfordshire    | Permanent | 9,600          |
| Shellingford Quarry           | Earthline                   | CDE Recycling        | Vale of White Horse | 2044      | 100,000        |
| Shipton Hill                  | Hickman Brothers            | CDE Recycling        | West Oxfordshire    | Permanent | 12,600         |
| Stonepitt Barn                | S. Belcher                  | CDE Recycling        | Vale of White Horse | Permanent | 75,000         |
| Swannybrook Fram              | NAP Grab Hire               | CDE Recycling (soil) | Vale of White Horse | Permanent | 5,000          |
| Worton Farm (Cresswell Field) | David Einig Contracting Ltd | CDE Recycling        | Cherwell            | Permanent | 48,000         |
| Wroxton                       | Peter Bennie Ltd            | CDE Recycling        | Cherwell            | 2042      | 10,000         |

## 18.5.4 Future baseline conditions

18.5.4.1 In the absence of the Project, waste will continue to be generated from the construction of new developments and the operation of existing economic activities. In its role as a Mineral and Waste Planning Authority (WPA), Oxfordshire County Council is required to ensure:

- An adequate supply of minerals that meets local development needs as well as national and regional supply policies.
- Enough land is available to accommodate facilities for the treatment of all waste arising in the WPA area, or through export to suitable facilities in other areas.

18.5.4.2 In preparing their waste management strategies, the WPAs already take into account waste generation at the regional and sub-regional scale, and this information is used to determine the need for waste facilities.

## 18.5.5 Key receptors

18.5.5.1 Table 18.14 identifies the receptors to be taken forward into the assessment and the sensitivity of each receptor.

**Table 18.14: Key receptors taken forward to assessment**

| Receptor                                  | Description  | Sensitivity/value  |
|---|--|--|
| Inert and non-hazardous landfill capacity | Baseline/future of regional inert and non-hazardous landfill void capacity | <p><b>Negligible</b> - expected to remain unchanged, or is expected to increase through a committed change in capacity.</p> <p><b>Low</b> - expected to reduce minimally by &lt;1% as a result of wastes forecast.</p> <p><b>Medium</b> - expected to reduce noticeably by 1-5% as a result of wastes forecast.</p> <p><b>High</b> - expected to reduce considerably: by 6-10% as a result of wastes forecast.</p> <p><b>Very high</b> - expected to</p> <ul style="list-style-type: none"> <li>• reduce very considerably (by &gt;10%);</li> <li>• end during construction or operation;</li> <li>• is already known to be unavailable; or</li> <li>• would require new capacity or infrastructure to be put in place to meet forecast demand.</li> </ul> |

| Receptor                           | Description  | Sensitivity/value  |
|------------------------------------|--|--|
| Hazardous landfill capacity        | Baseline/future baseline of regional hazardous landfill capacity | <p><b>Negligible</b> - expected to remain unchanged, or is expected to increase through a committed change in capacity.</p> <p><b>Low</b> - expected to reduce minimally by &lt;0.1% as a result of wastes forecast.</p> <p><b>Medium</b> - expected to reduce noticeably by 0.1 - 0.5% as a result of wastes forecast.</p> <p><b>High</b> - expected to reduce considerably: by 0.5 – 1.0% as a result of wastes forecast.</p> <p><b>Very high</b> - expected to</p> <ul style="list-style-type: none"> <li>• reduce very considerably (by &gt;1.0%);</li> <li>• end during construction or operation;</li> <li>• is already known to be unavailable; or</li> <li>• would require new capacity or infrastructure to be put in place to meet forecast demand.</li> </ul> |
| Resources required for the Project | Availability of resources  | <p><b>Negligible</b> – forecast to be free from known issues regarding supply and stock</p> <p><b>Low</b> – forecast to be generally free from known issues regarding supply and stock</p> <p><b>Medium</b> – forecast to suffer from some potential issues regarding supply and stock</p> <p><b>High</b> – forecast to suffer from known issues regarding supply and stock</p> <p><b>Very high</b> – are known to be insufficient in terms of production, supply or stock</p>   |

## 18.6 Key parameters for assessment

### 18.6.1 Maximum design scenario

18.6.1.1 The maximum design scenarios identified in **Table 18.15** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project description of the PEIR and will be reviewed for the assessment to be provided in the ES. Once assessed, effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different infrastructure layout), to that assessed in the ES be taken forward in the final design scheme.

**Table 18.15: Maximum design scenario considered for the assessment of potential impacts**

| Potential impact                                     | Phase <sup>a</sup> |   |   | Maximum Design Scenario   | Justification  |
|--|--------------------|---|---|---|--|
|  | C                  | O | D |   |  |
| Reduction in landfill capacity – inert waste         | ✓                  | ✓ | ✓ | <p><b>Construction phase</b></p> <ul style="list-style-type: none"> <li>• Developable area for solar array: 266 ha (Northern area), 572 ha (Central area), 51 ha (Southern area)</li> <li>• Maximum number of solar photovoltaic (PV) modules – up to 2,300,000</li> <li>• Maximum solar PV module dimensions – width 1.4 m, length 2.4 m, depth 0.40 m</li> <li>• Minimum distance north/south separation distance (m) between tables – 2 m</li> <li>• Indicative foundation type - Driven-piles or screw piles</li> <li>• Maximum number of piles: 2,500,000</li> <li>• Depth of piles below ground level (m) – up to 2.5 m</li> <li>• Maximum number of Power Converter Stations and dimension – 156 (1 per ha) and dimensions – width 14 m, depth 2.9 m, height 3.5 m</li> <li>• Maximum number of HV Transformer (Secondary Substations) and dimensions – 8 no., length 18 m x width 10 m x height 6 m.</li> <li>• Maximum transformer foundation dimensions (below ground level) length 22 m x width 21 m x height 1 m.</li> <li>• Maximum dimensions of NGET Substation – footprint 180 m x 150 m and 15 m in height</li> </ul> <p><b>Operation and maintenance phase</b></p> <ul style="list-style-type: none"> <li>• Principally to landscape and ecology management, equipment/infrastructure maintenance and servicing including cleaning and replacement of any components that fail.</li> </ul> <p><b>Decommissioning phase</b></p> <ul style="list-style-type: none"> <li>• all solar PV array infrastructure including solar PV modules, mounting structures, cabling, inverters and transformers will be removed</li> </ul> | <p><b>Construction, Operation and maintenance and Decommissioning phase</b></p> <p>The maximum design envelope is represented by the maximum developable array, number of solar PV modules, depth of piles, dimensions and number of substations as this will generate the greatest volume of earth, the greatest volume of wastes and consume the highest quantities of resources.</p> <p>The maximum design envelope considers that all waste generated by the Project during construction, operation and decommissioning phases is sent for landfill.</p> |
| Reduction in landfill capacity – non-hazardous waste | ✓                  | ✓ | ✓ |   |  |
| Reduction in landfill capacity – hazardous waste     | ✓                  | ✓ | ✓ |   |  |
| Depletion of resources                               | ✓                  | ✗ | ✗ |   |  |

<sup>a</sup> C=construction, O=operation and maintenance, D=decommissioning

## 18.7 Measures adopted as part of the Project

- 18.7.1.1 For the purposes of the EIA process, the term ‘Measures adopted as part of the Project’ is used to include the following types of mitigation measures (adapted from IEMA, 2016). These measures are set out in the Mitigation Register.
- Primary (inherent) mitigation - measures included as part of the project design. IEMA describes these as ‘*modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken*’. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the DCO and/or marine licences. For example, a reduction in footprint or height.
  - Secondary (foreseeable) mitigation - IEMA describes these as ‘*actions that will require further activity in order to achieve the anticipated outcome*’. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through environmental management plans.
  - Tertiary (inexorable) mitigation - IEMA describes these as ‘*actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects*’. It may be helpful to secure such measures through a Code of Construction Practice or similar.
- 18.7.1.2 For the purposes of this PEIR, mitigation measures set out are those considered to be appropriate for the Project at this time. They may evolve and/or be refined in response to the statutory consultation process and/or other considerations.
- 18.7.1.3 Where relevant, measures have been identified that may result in enhancement of environmental conditions. The mitigation measures relevant to this chapter are summarised in **Table 18.16**.
- 18.7.1.4 Primary and tertiary measures that are intended to form part of the final design (and/or are established legislative requirements/good practice) have been taken into account in the indicative assessment in section 18.9 (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures) and will be taken into account for the full assessment to be provided in the ES. This ensures that the measures that the Applicants are intending to commit to, are taken into account in the assessment of effects.
- 18.7.1.5 Where an assessment identifies likely significant adverse effects, further mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA as actions that will require further activity in order to achieve the anticipated outcome and may be imposed as part of the planning consent, or

through inclusion in the Environmental Statement (referred to as secondary mitigation measures in IEMA, 2016). For further or secondary measures both pre-mitigation and residual effects will be presented in the ES.

**Table 18.16: Mitigation measures intended to be adopted as part of the Project**

| Mitigation number          | Measure adopted   | How the measure will be secured  |
|----------------------------|---|--|
| <b>Primary Mitigation</b>  |   |  |
| 18.1                       | Following statutory consultation, the Project design will be refined with the overarching principle of achieving efficiencies in waste and resources where possible. Measures to design out waste and implement the waste hierarchy will include the sizing of construction compounds to enable segregation and storage of waste.   | This measure would be secured through the DCO  |
| 18.2                       | The design of the Project will ensure adequate provision for internal and external waste storage to allow waste segregation during operation and maintenance.   | This measure would be secured through the DCO  |
| <b>Tertiary Mitigation</b> |   |  |
| 18.3                       | A Site Waste and Resources Management Plan will be prepared that sets out the estimated types and quantities of waste that would be generated during all phases of the Project, together with measures for how the waste will be managed. The SWRMP will be based on the waste hierarchy and proximity principles for managing waste generated by the Project including targets to divert waste from landfill. The SWRMP will also identify the key resources that will be used in the construction of the Project and commitments for using secondary/recycled content materials where feasible. | These mitigation measures will be included in SWRMP and OWMP, which would form a requirement of the DCO application for the Project. |

## 18.8 Impact assessment methodology

### 18.8.1 Overview

18.8.1.1 As design information relating to the generation of waste and the use of resources was not available at the time of writing, an indicative assessment is provided in section 18.9. The full assessment will be provided in the ES, once the design information has been refined and this section sets out the proposed assessment methodology that will be used for the ES.

18.8.1.2 The assessment will focus on the effects of the Project on the depletion of resources (specifically key resources during construction) and the depletion of landfill capacity during construction and operation and decommissioning. The operation of the Project is not envisaged to involve the use of many resources: it is not possible to allocate a sensitivity to these key resources due to the limited publicly available information on the UK demand for such key resources.

18.8.1.3 The approach to determining the significance of effects is a two-stage process that involves defining the magnitude of the impact and the sensitivity of the receptor. This section describes the criteria that will be applied to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on and have been adapted from those used in the Design Manual for Roads and Bridges (DMRB) methodology (Highways England, et al, 2020) and IEMA guidance (IEMA, 2020).

### 18.8.2 Sensitivity criteria

18.8.2.1 The sensitivity of landfill capacity relates to the void capacity in the absence of the Project. Landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste. The IEMA criteria (IEMA, 2020) are described in **Table 18.17** and will be used to determine the sensitivity of landfill void capacity. Inert and non-hazardous landfills have been combined in **Table 18.17** as the sensitivity criteria is the same.

**Table 18.17: Sensitivity criteria of inert and non-hazardous landfill void capacity**

| Sensitivity | Definition for inert and non-hazardous landfill void capacity  |
|-------------|--|
| Very High   | <p>Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity:</p> <ul style="list-style-type: none"> <li>• is expected to reduce very considerably (by &gt;10%);</li> <li>• is expected to end during construction or operation or decommissioning.</li> <li>• is already known to be unavailable; or</li> <li>• would require new capacity or infrastructure to be put in place to meet forecast demand.</li> </ul> |



| Sensitivity | Definition for inert and non-hazardous landfill void capacity  |
|-------------|--|
| High        | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce considerably: by &gt;5-10% as a result of wastes forecast.</li> </ul>                          |
| Medium      | <p>Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce noticeably by 1-5% as a result of wastes forecast.</li> </ul>                                 |
| Low         | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce minimally by &lt;1% as a result of wastes forecast</li> </ul>                                  |
| Negligible  | <p>Across construction and/or operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional inert and non-hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to remain unchanged, or is expected to increase through a committed change in capacity.</li> </ul> |

**Table 18.18: Sensitivity criteria of hazardous landfill void capacity**

| Sensitivity | Definition for hazardous landfill void capacity   |
|-------------|---|
| Very High   | <p>Across construction, operation and/or decommissioning, the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity:</p> <ul style="list-style-type: none"> <li>• is expected to reduce very considerably (by &gt;1%);</li> <li>• is expected to end during construction, operation or decommissioning.</li> <li>• is already known to be unavailable; or</li> <li>• would require new capacity or infrastructure to be put in place to meet forecast demand.</li> </ul> |
| High        | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce considerably: by &gt;0.5 - 1% as a result of wastes forecast.</li> </ul>  |
| Medium      | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce noticeably by 0.1 – 0.5% as a result of wastes forecast.</li> </ul>   |
| Low         | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to reduce minimally by &lt;0.1% as a result of wastes forecast</li> </ul>   |
| Negligible  | <p>Across construction, operation and/or decommissioning the baseline/future baseline (i.e. without the Project) of regional hazardous landfill void capacity is:</p> <ul style="list-style-type: none"> <li>• expected to remain unchanged, or is expected to increase through a committed change in capacity.</li> </ul>  |

18.8.2.2 The sensitivity of resources relates to the availability and type of resources to be consumed by the Project. The IEMA guidance (IEMA, 2020) criteria will be used to determine the sensitivity of materials (see Table 18.19).

**Table 18.19: Sensitivity of depletion of resources**

| Sensitivity  | Definition for depletion of resources  |
|--|--|
| Very High  | On balance, the key materials required for the construction of the Project are: <ul style="list-style-type: none"> <li>known to be insufficient in terms of production, supply and/or stock; and/or</li> <li>comprise no sustainable features and benefits compared to industry-standard materials.</li> </ul>   |
| High   | On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): <ul style="list-style-type: none"> <li>to suffer from known issues regarding supply and stock; and/or</li> <li>comprise little or no sustainable features and benefits compared to industry-standard materials.</li> </ul>                                   |
| Medium   | On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): <ul style="list-style-type: none"> <li>to suffer from some potential issues regarding supply and stock; and/or</li> <li>are available comprising some sustainable features and benefits compared to industry-standard materials.</li> </ul>                  |
| Low  | On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): <ul style="list-style-type: none"> <li>to be generally free from known issues regarding supply and stock; and/or</li> <li>are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials</li> </ul> |
| Negligible   | On balance, the key materials required for the construction of the Project are forecast (through trend analysis and other information): <ul style="list-style-type: none"> <li>to be free from known issues regarding supply and stock; and/or</li> <li>are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*</li> </ul>     |
| *Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts. |  |

### 18.8.3 Magnitude of impact

18.8.3.1 The IEMA guidance (IEMA, 2020) criteria to be used to assess the magnitude of impact for waste and resources are outlined in **Table 18.20, Table 18.21 and Table 18.22** below.

**Table 18.20: Impact magnitude criteria for inert and non-hazardous waste**

| Magnitude of impact |         | Definition for inert and non-hazardous waste   |
|---------------------|---------|--|
| High                | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by >10%.   |
| Medium              | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by >5-10%. |
| Low                 | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by 1-5%.   |

| Magnitude of impact  |         | Definition for inert and non-hazardous waste  |
|--|---------|---|
| Negligible   | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by <1%. |
| No change  |         | Zero waste generation and disposal from the Project   |
| *Oxfordshire<br>#forecast as the worst-case scenario, during defined construction, operation and/or decommissioning. |         |   |

**Table 18.21: Impact magnitude criteria for hazardous waste**

| Magnitude of impact  |         | Definition for hazardous waste  |
|--|---------|---|
| High   | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by >1%.         |
| Medium   | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by >0.5 – 1%.   |
| Low  | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by <0.1 – 0.5%. |
| Negligible   | Adverse | Waste generated by the Project will reduce Expansive Study Area* landfill void capacity baseline# by <0.1%.       |
| No change  |         | Zero waste generation and disposal from the Project   |
| *Oxfordshire, Wiltshire, Gloucestershire<br>#forecast as the worst-case scenario, during defined construction, operation and/or decommissioning. |         |   |

**Table 18.22: Impact magnitude criteria for resources**

| Magnitude of impact  |         | Definition for resources   |
|--|---------|--|
| High   | Adverse | The assessment is made by determining whether, through the development, the consumption of one or more materials is >10% by volume of the national* baseline availability.                           |
| Medium   | Adverse | The assessment is made by determining whether, through the development, the consumption of one or more materials is between >5-10% by volume of the national* baseline availability                  |
| Low  | Adverse | The assessment is made by determining whether, through the development, the consumption of one or more materials is between >1-5% by volume of the national* baseline availability                   |
| Negligible   | Adverse | The assessment is made by determining whether, through the development, the consumption of no individual material type is equal to or less than 1% by volume of the national* baseline availability. |
| No change  |         | The assessment is made by determining whether, through the development, the consumption of no materials is required.   |
| *a national baseline is used in the absence of regional construction material consumption data |         |  |

## 18.8.4 Significance of effect

18.8.4.1 The significance of the effect upon waste and resources will be determined by taking into account the sensitivity and the magnitude of the impact. The method to be employed for this assessment is presented in **Table 18.23**. Where a range of significance levels is presented, the final assessment for each effect will be based upon expert judgement.

18.8.4.2 In all cases, the evaluation of sensitivity, impact magnitude and significance of effect will be informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

18.8.4.3 For the purpose of the assessment, any effects with a significance level of minor or less will not be considered significant in terms of the EIA Regulations.

**Table 18.23: Assessment matrix**

| Sensitivity of Receptor | Magnitude of Impact |                     |                     |                   |
|-------------------------|---------------------|---------------------|---------------------|-------------------|
|                         |                     |                     |                     |                   |
| <b>Negligible</b>       | Negligible          | Negligible or Minor | Negligible or Minor | Minor             |
| <b>Low</b>              | Negligible or Minor | Negligible or Minor | Minor               | Minor or Moderate |
| <b>Medium</b>           | Negligible or Minor | Minor               | Moderate            | Moderate or Major |
| <b>High</b>             | Minor               | Minor or Moderate   | Moderate or Major   | Major             |
| <b>Very High</b>        | Minor               | Moderate or Major   | Major               | Major             |

18.8.4.4 Where the magnitude of impact is ‘no change’, no effect would arise.

18.8.4.5 The definitions for significance of effect levels are described as follows:

- **Major:** These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. Effects upon human receptors may also be attributed this level of significance.
- **Moderate:** These beneficial or adverse effects have the potential to be important and may influence the key decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor.

- Minor: These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the Project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
- No change: No loss or alteration of characteristics, features or elements; no observable impact in either direction.

## **18.8.5 Assumptions and limitations**

18.8.5.1 Information on the current and permitted landfill capacity and resource availability is taken from the 2020 AMR (Oxfordshire County Council, 2023). There is no publicly available information on any changes to this permitted capacity during the operation of the project. A future baseline for landfill capacity will be developed in discussion with Oxfordshire County Council where required.

18.8.5.2 The PEIR chapter is based on the current Project design and as such the detailed information relating to the likely types and quantities of waste and the consumption of key resources is not yet available. This means that an assessment of the impacts on landfill capacity and depletion of resources cannot be undertaken at this stage.

18.8.5.3 An indicative assessment has been undertaken based on the commitments made by the Project within the PEIR and the existing landfill capacity and resource availability within the expansive study area. These assumptions are considered appropriate for the purpose of the indicative assessment. A full assessment will be undertaken in the ES.

## **18.9 Indicative assessment of effects**

18.9.1.1 As described in section 18.1.1.4, design information relating to the generation of waste and the use of resources was not available at the time of writing, therefore an indicative assessment is set out below to provide a broad indication as to the potential for significant effects. This is based upon the baseline conditions, assessments for other similar developments and professional judgement.

18.9.1.2 The construction, operation and decommissioning of the Project has the potential to lead to significant effects with regards to the reduction of landfill capacity and depletion of resources. However, the Project has committed to minimising waste through design and the efficient use of resources and to implement a waste and resources management plan that would follow the waste hierarchy principle in the management of wastes. These measures together with the wide network of existing landfill sites and waste management facilities within Oxfordshire indicate that the potential effects are unlikely to be significant.

18.9.1.3 The full assessment will be provided in the ES, once the design information has been refined.

## 18.10 Cumulative effect assessment

- 18.10.1.1 The cumulative effects assessment has not been undertaken at the PEIR stage as the types and quantities of waste from the Project and the resources required have not been defined. As the design of the Project is refined following the statutory consultation, potential cumulative effects with other projects will be assessed following the methodology set out in Volume 1, Chapter 4: Approach to EIA assessment of the PEIR.

## 18.11 Inter-related effects

- 18.11.1.1 Inter-related effects methodology is provided in Chapter 19: Cumulative Effects and Inter-relationships of the PEIR and will be assessed further at the ES stage.

## 18.12 Summary of impacts and monitoring

- 18.12.1.1 Information on waste and resources within the Project and Expansive Study Area was collected through desktop reviews of waste management infrastructure and resource availability.
- 18.12.1.2 The potential impacts with regards to waste and resources are described in **Table 18.5** and the receptors are identified in **Table 18.14**. Measures that will be incorporated into the Project are described in **Table 18.16**.
- 18.12.1.3 An indicative assessment has been undertaken based on the Project commitments and the existing landfill capacity and resource availability within the expansive study area. It has concluded that the potential effects are unlikely to be significant.

## 18.13 Next steps

- 18.13.1.1 The ES will identify the likely types and quantities of waste that would be generated during the construction, operation and maintenance and decommissioning phases of the Project. The ES will assess the impact of potential uplift in waste generated in the Expansive study area (as a result of the Project) on the depletion in landfill capacity. Where required, future landfill void capacity and waste production data has been forecast in accordance with the IEMA Guidance using statistical trend analysis. The Microsoft Excel 'Forecast' function will be used on landfill void capacity data from the EA 2021 Waste Summary Tables for England. The function predicts future values by using linear regression.
- 18.13.1.2 The ES will also identify the likely key resources required for the construction of the Project. This will be based on design information used in the EIA process. The ES will assess the impact of the Project requirement for these resources on the depletion of resources available.



## 18.14 References

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