



NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Appendix 19.3 Waste Assessment (onshore)

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Contents

- 1 Waste Assessment (onshore)..... 6
 - 1.1 Introduction..... 6
 - 1.2 Approach to Waste Assessment..... 6
 - 1.3 Waste Legislation and Policy..... 7
 - 1.3.1 Context 7
 - 1.3.2 EU and National Legislation..... 7
 - 1.3.3 National Planning Policy 7
- 2 Description of Wastes 9
 - 2.1 Project Waste Types..... 9
 - 2.2 Construction Waste Management Measures..... 10
 - 2.3 General Waste Management Measures 10
 - 2.4 Construction Phase: Waste Types..... 11
 - 2.5 Operational Phase: Waste Types 17
 - 2.5.1 Onshore Export Cable Route..... 17
 - 2.5.2 Onshore Substation 17
 - 2.5.3 Operational Waste Management Measures..... 18
 - 2.6 Decommissioning Phase 18
- 3 Waste Treatment and Disposal Options..... 18
 - 3.1 Regional Waste Management Facilities..... 18
 - 3.2 Availability and Capacity of Regional Facilities 19
- 4 Conclusion 21
 - 4.1 Construction Phase 21
 - 4.2 Operational Phase 22
 - 4.3 Decommissioning Phase 22
- 5 References..... 23

Tables

Table 1.1 Summary of relevant NPS requirements in EN-1 relating to waste management..... 8

Table 2.1 Landfall: Waste types from construction phase 12

Table 2.2 Onshore export cable route: Waste types from construction phase..... 14

Table 2.3 Onshore substation: Waste types from construction phase 16

Table 2.4 Onshore substation: Predicted waste arisings 17

Table 3.1 Number of waste management facilities in the East of England (2022).... 18

Table 3.2 Transfer, treatment, and metal recycling site inputs in the East of England: 2022 (000s tonnes)..... 19

Table 3.3 Remaining landfill capacity in the East of England: 2022 (000s cubic metres) 20

Table 3.4 Incineration capacity in the East of England: 2022 (000s tonnes) 20

Glossary of Acronyms

CoCP	Code of Construction Practice
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
HDD	Horizontal Directional Drilling
IEMA	Institute of Environmental Management and Assessment
NFOW	North Falls Offshore Wind Farm Ltd
NGET	National Grid Electricity Transmission
NPS	National Planning Statement
PPE	Personal Protective Equipment
SWMP	Site Waste Management Plan
TJB	Transition Joint Bay
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment

1 Waste Assessment (onshore)

1.1 Introduction

1. Royal HaskoningDHV has been commissioned by North Falls Offshore Wind Farm Ltd (NFOW) (the Applicant), to carry out a Waste Assessment Report to support the Environmental Impact Assessment (EIA) for the North Falls offshore wind farm (hereafter 'North Falls' or 'the Project'). This report forms part of the Environmental Statement (ES) for the onshore elements of the Project.
2. This report assesses the types and indicative quantities of wastes and materials that are likely to be produced as part of the onshore development of the Project during the construction, operation, and decommissioning phases.
3. The report considers the proposed options for recycling, recovery or disposal of waste, and the capability and capacity of the existing local or regional waste management facilities to manage the quantities of waste estimated to be generated.
4. The Project will consist of a number of offshore and onshore elements including offshore wind turbines and subsea array cables, offshore / onshore export cables and an onshore substation to accommodate the connection to the transmission grid. Further details of the Project are provided within ES Chapter 5 Project Description (Document Reference: 3.1.7). This report is focused on the wastes that will be produced from the onshore project area only.

1.2 Approach to Waste Assessment

5. The approach to the waste assessment was to undertake the following tasks:
 - Outline the main waste management legislative requirements and policy guidance relating to renewable energy projects;
 - Identify the primary sources of inert, non-hazardous and hazardous wastes that will be generated from the onshore construction, operation, and decommissioning of the Project;
 - Provide an order of magnitude estimate of the primary wastes that will be generated from the main elements of the Project; and
 - Assess the implications of project wastes on local/regional waste capacity.
6. This approach is in line with the methodology outlined in the Institute of Environmental Management and Assessment (IEMA) guide to Materials and Waste in EIA (IEMA, 2020), although no impact assessment has been undertaken.
7. Data on the local and regional waste management capacity have been identified from sources published by the Environment Agency.

1.3 Waste Legislation and Policy

1.3.1 Context

8. UK waste legislation is underpinned by several international (e.g. European Union (EU)) agreements. In 2017, the UK government triggered article 50 of the Treaty of the European Union with the UK formally withdrawing from the EU on 31st January 2020. Most EU waste management law was implemented into UK legislation by way of statutory instruments. This means that the relevant legislation has not been automatically or immediately affected by the UK's exit from the EU as the legislation will remain in place in the UK.

1.3.2 EU and National Legislation

9. The European Revised Waste Framework Directive (2008/98/EC) was amended in May 2018 and sets the framework for UK Waste Policy. The law was updated in October 2020 to include changes to the Waste Framework Directive via the Waste (Circular Economy) (Amendment) Regulations 2020. This transposes the Waste Framework Directive into UK Legislation.
10. The Waste (England and Wales) (Amendment) Regulations 2014 place a duty on waste producers and all handlers of waste to manage waste in accordance with a hierarchy of options where this achieves the best overall environmental outcome (Defra, 2018a).
11. The following waste strategy and plans detail the Governments approach to managing wastes in England:
 - Our Waste, Our Resources: A Strategy for England (Defra, 2018b); and
 - Waste Prevention Programme for England: Maximising Resources, Minimising Waste (Defra, 2023).

1.3.3 National Planning Policy

12. The policy framework for examining and determining applications for Nationally Significant Infrastructure Projects is provided by National Policy Statements (NPSs) issued by the Department for Energy Security and Net Zero (DESNZ).
13. Those relevant to the Project are:
 - Overarching NPS for Energy (EN-1) (DESNZ, 2023a);
 - NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b); and
 - NPS for Electricity Networks Infrastructure (EN-5) (DESNZ, 2023c).
14. The specific assessment requirements for waste are detailed in EN-1 and are summarised in Table 1.1 below. The supporting documents EN-3 and EN-5 do not have detailed requirements for the management of wastes from the Project.

Table 1.1 Summary of relevant NPS requirements in EN-1 relating to waste management

NPS Requirement	EN-1 Para
<p>Sustainable waste management is implemented through the waste hierarchy, which sets out the priorities that must be applied when managing waste. These are (in order):</p> <ul style="list-style-type: none"> • prevention • preparing for reuse • recycling • other recovery, including energy recovery • disposal 	5.15.2
<p>Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.</p>	5.15.3
<p>Applicant assessment</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>	5.15.8
<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>	5.15.9
<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>	5.15.10
<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>	5.15.12
<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>	5.15.13
<p>Secretary of State decision making</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>	5.15.14
<p>The Secretary of State should be satisfied that:</p> <ul style="list-style-type: none"> • any such waste will be properly managed, both on-site and off-site. • 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. • 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. 	5.15.15
<p>Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied.</p>	5.15.16
<p>The Secretary of State may wish to include a condition on revision of waste management plans at reasonable intervals when giving consent.</p>	5.15.17

2 Description of Wastes

2.1 Project Waste Types

15. The onshore elements of the Project consist of the Project's landfall, the onshore cable route, the proposed onshore substation location and proposed Bentley Road improvement works. The works are collectively located within the onshore project area.
16. The onshore project area is predominantly located within agricultural land and includes a number of infrastructure and watercourse crossings.
17. The landfall is located between Clacton-on-Sea and Frinton-on-Sea, Essex. The onshore cable route connects the landfall to the onshore substation and is located entirely within the Tendring peninsula. The onshore substation is located near the village of Little Bromley in the north-west of Tendring district. The Project will also include electrical infrastructure to connect into the national grid at a new substation that will be constructed separately by National Grid Electricity Transmission (NGET) to the north-west of the onshore project area.
18. Wastes generated from Project activities will be classified as either inert, non-hazardous or hazardous in line with regulatory requirements. Wastes will be generated from construction, operational and decommissioning phases of the Project.
19. The following waste types are expected to be generated from the Project:
 - Inert wastes:
 - Soils and subsoil – removed from sites.
 - Hardcore – that cannot be reused.
 - Non-hazardous wastes:
 - Drilling wastes – fluid and solids from horizontal directional drilling (HDD) activities.
 - Food waste – from welfare facilities.
 - General wastes – mixed packaging and general waste from welfare facilities and site offices.
 - Green waste – from vegetation removal and clearing if transferred from site.
 - Concrete and rubble.
 - Scrap metal.
 - Recyclables – plastic bottles, drinks cans that are segregated at site welfare facilities.
 - Sewage waste – from toilet facilities at temporary construction sites and substation.
 - Wood – pallets, packing wastes, cable reels.
 - Hazardous wastes:

- Batteries, lead-acid.
 - Chemicals, off spec and unwanted.
 - Contaminated land – if any is identified and removed.
 - Empty drums, with residues – chemicals/oils/lubricants
 - Medical/clinical waste – from first aid posts and from COVID-19 PPE measures.
 - Oil filters - from plant maintenance.
 - Oily rags - from plant maintenance.
 - Used oil - from equipment and plant.
 - Waste electrical and electronic equipment (WEEE).
20. There will be a range of quantities of wastes generated from the project development activities, some will be relatively small quantities such as clinical wastes from first aid posts and others, such as soils from excavation may be many hundreds or thousands of tonnes.
21. Larger quantities of wastes will be generated during the construction phase, these are outlined in the following sections.

2.2 Construction Waste Management Measures

22. Measures that will be implemented by the Project to eliminate or reduce the anticipated quantity of waste sent to landfill will be developed using the waste hierarchy. These measures will increase reuse; recycling or recovery opportunities, thereby reducing the effect of significant environmental impacts.
23. A Site Waste Management Plan (SWMP) will be prepared before construction starts to record any decisions given to materials resource efficiency when designing and planning the works. The SWMP will provide information on each waste type that is expected to be produced from the onshore elements of the Project with the appropriate European Waste Catalogue (EWC) code and description for each waste type. It will provide an estimate of the quantity of each type of waste and the proposed waste management option for each waste produced (i.e. re-use, recycling, recovery, or disposal; on or off-site).

2.3 General Waste Management Measures

24. There are certain principles of waste management that can be applied to most wastes that would be produced during the construction phase. These are:
- Strict adherence to waste regulatory requirements for the storage and handling on-site.
 - No waste from the Project shall be deposited outside the Project's Development Consent Order (DCO) boundary, unless it is at a facility that holds a valid environmental permit or suitable authorised exemption.
 - Ensure that those who remove waste from site have the appropriate authorisation (i.e. are registered waste carriers).

- Allocate space on site for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there.
 - Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination.
 - Provide separate containers for dry recyclables, such as paper and cardboard, plastic, glass, wood, and metal at welfare facilities within temporary works areas. This would facilitate recycling.
 - Monitor the actual quantities of wastes produced during construction and update the SWMP to allow comparison with waste arisings estimated prior to construction. Record the proposed waste management option for each waste produced.
 - All wastes that are removed off site would be described on a waste transfer note or hazardous waste consignment note (as appropriate) that tracks the movement of the waste to the specified disposal or recovery facility.
 - The appointed site contractors will designate staff that are responsible for waste management and ensure that all contractor staff are aware of the appropriate reuse, recovery, or disposal routes for each waste.
25. These measures would promote sustainable waste management practices by maximising waste prevention, re-use, recycling, and recovery opportunities for material destined for offsite waste management. These measures will be incorporated into the Project Code of Construction Practice (CoCP), secured by DCO Requirements.

2.4 Construction Phase: Waste Types

26. Waste material will be generated at all stages of the construction process, including site clearance, excavations, grading, foundation digging and waste material from project construction and commissioning. The main construction activities will be focused on the landfall, onshore cable, and substation preparation and construction.
27. These construction activities are temporary and are expected to be completed within the following worst case timeframe for the different work fronts:
- Landfall and onshore cable route – 27 months; and
 - Onshore substation preparation, construction and commissioning (including Bentley Road improvement works) – 33 months.

2.4.1.1 Landfall

28. Wastes will be generated at the landfall from the following construction activities:
- Drilling;
 - Landfall compound;
 - Transition joint bay construction;
 - Site offices; and

- Worker welfare facilities.
29. Drilling activities associated with HDD works at the landfall will generate some solid cuttings and drilling fluid residues. The drilling fluid will be recycled to be used at different locations via the mud plant and solid residues and sludge will be removed as waste when required.
 30. The quantity of drilling solids will be related to the final number and length of HDD required for the landfall cable connections. Estimates of the quantity of these wastes will be incorporated in the SWMP that will be developed as part of the CoCP.
 31. The construction of the Transition Joint Bays (TJB) will require excavation of subsoil which will be stockpiled and used in restoration around the landfall area. If excess material cannot be reinstated around the works it will be removed from the site and disposed of as part of the SWMP.
 32. Site offices and welfare facilities will generate routine general wastes and will segregate specific materials that can be recycled by waste contractor where segregated. Quantities of wastes produced will linked to the number of construction staff using offices and welfare facilities, further breakdowns and temporal estimates will be included in the SWMP. This will also include estimates of the sewage and wastewater that will require management from toilets and wash stations based on worker numbers.
 33. A summary of the expected waste types to be produced from the landfall construction phase is provided in Table 2.1. As further information on the project design becomes available, order of magnitude estimates can be included for the larger quantities of waste that will be generated in the SWMP.

Table 2.1 Landfall: Waste types from construction phase

Class	Waste Type	Management Approach
Inert wastes	Soils	Stockpiled and reused within the landfall site during restoration works.
	Subsoil	TJBs will be constructed requiring excavation of subsoils. Quantities of excavated materials will be estimated to confirm if excess inert material will require removal from the landfall site.
	Hardcore	Haul roads within the landfall area that are removed after use may produce quantities of hardcore/sub-base materials. Where these are not re-used within the Project they may need to be disposed of as wastes offsite.
Non-hazardous wastes	Drilling fluids	Fluids from HDD activities (bentonite based fluids) are expected to be recycled by drilling contractors. Any excess or waste drilling fluids will be disposed of offsite as detailed in the SWMP.
	Drilling solids	Drilling wastes from HDD activities will be collected and disposed of in line with the SWMP.
	Food waste	Where food waste is collected separately at site welfare facilities it will be collected by waste contractors for treatment.
	General wastes	Mixed waste collected in bins and skips will be collected by waste contractors and treated and disposed of in line with the SMWP.
	Green waste	Green wastes will be processed within the landfall area and either composted in-situ or shredded.
	Concrete and rubble	All waste concrete or brick wastes will be used within the landfall as sub-base or utilised along the cable corridor. Any excess will be removed offsite by waste contractors.

Class	Waste Type	Management Approach
	Scrap metal	Segregated scrap metal will be recycled by waste contractors.
	Recyclables	Other segregated materials such as plastics will be recycled offsite via waste contractors.
	Sewage waste	Collected sewage from toilet facilities will be removed from site and treated at a permitted waste treatment facility.
	Wood	All wood will be reused where practicable.
Hazardous wastes	Batteries, lead-acid	Lead-acid batteries will be stored and collected by waste contractor for recycling.
	Chemicals (liquid)	All waste chemicals will be stored in line with the SWMP procedures and removed by waste contractors for treatment or disposal.
	Medical / clinical waste	Small quantities of medical waste from first aid posts will be collected and removed by specialist waste contractors.
	Contaminated soils	Contaminated soils will be stored and remediated onsite or removed offsite as detailed in the SWMP.
	Empty drums, with residues	All drums with residues will be stored and removed from site for treatment.
	Oil filters	Oil filters removed as part of plant maintenance will be stored and removed from site.
	Oily rags	All oil contaminated rags materials will be contained and removed from site.
	Used oil	Used oil be collected and stored in line with the requirements of the SWMP and removed for re-processing by waste contractors.
	WEEE	Any waste electronic equipment will be recycled by waste contractors.

2.4.1.2 Onshore Cable Route

34. The onshore cable route will connect from the landfall to the onshore substation and is expected to be around 24 km in length. Wastes will be generated from the following construction activities:
- Cable route trenching;
 - Jointing bay construction;
 - Trenchless crossing (e.g. HDD) activities (where required);
 - Haul road construction and removal;
 - Construction accesses, including the Bentley Road improvement works; and
 - Temporary construction compounds.
35. Excavated soils and subsoils will be stockpiled along the route and re-instated after the cable installation. No soil wastes are expected from the cable route installation.
36. There are anticipated to be up to 96 jointing bays along the Project's onshore cable route. It is anticipated that all excavated soil material will be reinstated and used within the onshore cable route as part of site reinstatement.

37. A number of trenchless crossings (e.g. using HDD) will be required under river crossings, railways, roads and other features. All drilling wastes produced would be disposed of at an approved permitted waste site with the exact number and details of the estimated quantities of wastes will be developed in the SWMP.
38. There will be haul roads installed along the onshore cable route for use in the cable installation process and for transport of plant and materials between the construction compounds and work fronts. When the cable installation is completed, the haul road would be taken up and the topsoil reinstated.
39. There will be a number of temporary construction compounds along the onshore cable route. The main construction compounds will utilise existing hard standing where available, and any soil stripping required would be re-instated so no waste will be generated.
40. The temporary construction compounds will have offices and welfare facilities for workers so will generate routine general wastes and recyclables as well as sewage and wastewater from the toilet facilities. Quantities of these wastes will be produced while the compounds are being used, further estimates of the amounts will be included in the SWMP once peak numbers of workers are known.
41. Small quantities of other hazardous wastes such as batteries, used oil filters, used oils and medical wastes from the site first aid station will be produced and details of storage locations at the specific sites will be detailed in the SWMP. Further details of the types of wastes that will be generated along the onshore cable route during the construction phase are set out in Table 2.2.

Table 2.2 Onshore cable route: Waste types from construction phase

Class	Waste Type	Management Approach
Inert wastes	Soils	Stockpiled and reused within the onshore cable route during restoration works. No wastes expected to be produced.
	Subsoil	The cable laying and jointing bays will require excavation of subsoils. Quantities of excavated materials will be estimated to confirm if excess inert material will require removal from the onshore cable route.
	Hardcore	Haul roads along the onshore cable route that are removed after use may produce quantities of hardcore/sub-base materials. Where these are not re-used along other parts of the onshore cable route they may need to be disposed of as wastes offsite.
Non-hazardous wastes	Drilling fluids	The exact number of HDD locations will be finalised, so the exact lengths are known.
	Drilling solids	Fluids from HDD activities are expected to be recycled by drilling contractors. Any excess or waste drilling fluids will be disposed of offsite as detailed in the SWMP. Solid drilling wastes from HDD activities will be collected and disposed of in line with the SWMP.
	Food waste	Where food waste is collected separately at site welfare facilities it will be collected by waste contractors for treatment.
	General waste	Mixed waste collected in bins and skips will be collected by waste contractors and treated and disposed of in line with the SMWP.
	Green waste	All green wastes will be processed within the onshore cable route and will remain within the corridor.
	Concrete and rubble	All waste concrete or brick wastes will be used within the onshore cable route as sub-base. Any excess will be removed offsite by waste contractors.

Class	Waste Type	Management Approach
	Scrap metal	All segregated scrap metal will be recycled by waste contractors.
	Recyclables	Other segregated materials such as plastics will be recycled offsite via waste contractors.
	Sewage waste	All collected sewage from toilet facilities will be removed from site and treated at a permitted waste treatment facility.
	Wood	All wood, such as pallets, will be reused where practicable.
Hazardous wastes	Batteries, lead-acid	All lead-acid batteries will be stored and collected by waste contractor for recycling.
	Chemicals (liquid)	All waste chemicals will be stored in line with the SWMP procedures and removed by waste contractors for treatment or disposal.
	Medical / clinical waste	Small quantities of medical waste from first aid posts will be collected and removed by specialist waste contractors.
	Contaminated soils	All contaminated soils will be stored and remediated onsite or removed offsite as detailed in the SWMP.
	Empty drums, with residues	All drums with residues will be stored and removed from site for treatment.
	Oil filters	Oil filters removed as part of plant maintenance will be stored and removed from site.
	Oily rags	All oil contaminated rags materials will be contained and removed from site.
	Used oil	Used oil be collected and stored in line with the requirements of the SWMP and removed for re-processing by waste contractors.
	WEEE	Any waste electronic equipment will be recycled by waste contractors.

2.4.1.3 Onshore Substation

42. The onshore substation will connect the onshore cables to the transmission grid. During the construction phase wastes will be generated from the following Project activities:
- Site preparation;
 - Substation construction;
 - Drainage, access and landscaping; and
 - Temporary construction compounds.
43. One onshore substation will be constructed to accommodate the connection of the Project to the transmission grid.
44. To install the onshore substation foundations the onshore substation site will be levelled and if required subsoil removed. Topsoil and subsoil generated from site preparation works at the onshore substation will be retained on site where practicable to be used in the site restoration and landscaping.
45. The site-based workers associated with the Project at the onshore substation site during the construction, installation and commissioning will produce a range of non-hazardous wastes. These including general waste and toilet waste at the welfare facilities within the site temporary works areas or mobilisation areas. Further details and estimates will be developed in the SWMP.

46. Further details of the types of wastes that will be generated at the onshore substation during the construction phase are set out in Table 2.3.

Table 2.3 Onshore substation: Waste types from construction phase

Class	Waste Type	Management Approach
Inert wastes	Soils	Stockpiled and reused within the onshore substation during restoration works. No wastes expected to be produced.
	Subsoil	Quantities of excavated materials will be estimated to confirm if excess inert material will require removal from the site preparation and flood retention basins.
	Hardcore	Haul roads that are removed after use may produce quantities of hardcore/sub-base materials.
Non-hazardous wastes	Drilling fluids	Not applicable in the substation construction areas.
	Drilling solids	
	Food waste	Where food waste is collected separately at site welfare facilities it will be collected by waste contractors for treatment.
	General wastes	Mixed waste collected in bins and skips will be collected by waste contractors and treated and disposed of in line with the SMWP.
	Green waste	All green wastes will be processed within the onshore substation works area.
	Concrete and rubble	All waste concrete or brick wastes will be used within the onshore substation. Any excess will be removed offsite by waste contractors.
	Scrap metal	All segregated scrap metal will be recycled by waste contractors.
	Recyclables	Other segregated materials such as plastics will be recycled offsite via waste contractors.
	Sewage waste	All collected sewage from toilet facilities will be removed from site and treated at a permitted waste treatment facility.
	Wood	All wood, such as pallets, will be reused where practicable.
Hazardous wastes	Batteries, lead-acid	All lead-acid batteries will be stored and collected by waste contractor for recycling.
	Chemicals (liquid)	Waste chemicals will be stored in line with the SWMP procedures and removed by waste contractors for treatment or disposal.
	Medical / clinical waste	Small quantities of medical waste from first aid posts will be collected and removed by specialist waste contractors.
	Contaminated soils	All contaminated soils will be stored and remediated onsite or removed offsite as detailed in the SWMP.
	Empty drums, with residues	All drums with residues will be stored and removed from site for treatment.
	Oil filters	Oil filters removed as part of plant maintenance will be stored and removed from site.
	Oily rags	All oil contaminated rags materials will be contained and removed from site.
	Used oil	Used oil be collected and stored in line with the requirements of the SWMP and removed for re-processing by waste contractors.
	WEEE	Any waste electronic equipment will be recycled by waste contractors.

47. Initial estimates have been made of the quantities of the wastes generated from the onshore substation construction, these are set out in Table 2.4. Further estimates will be produced and included in the SWMP.

Table 2.4 Onshore substation: Predicted waste arisings

Class	Waste Type		Predicted Vol. (m3)
Inert wastes	Soils	Substation Topsoil	18,980
		Construction Compound Topsoil	11,605
	Subsoil		1,415
	Hardcore		1,000
Non-hazardous wastes	Food waste		15
	General wastes		20
	Green waste		20
	Concrete and rubble		1000
	Scrap metal		100
	Recyclables (Paper)		3
	Wood		3,000
Hazardous wastes	Oily rags		2
	Used oil		5

Source: Adapted from Mott MacDonald, 2023

2.5 Operational Phase: Waste Types

2.5.1 Onshore Cable Route

48. Occasional routine maintenance works will be required during the operational phase. In the event of a cable failure, it may be necessary to excavate around the cables and replace / repair the faulty cable along specific sections. Limited waste arisings are anticipated in accordance with this activity relating to excavated material and faulty cable.

2.5.2 Onshore Substation

49. The servicing of equipment at the onshore substations is likely to give rise to small quantities of liquid hazardous waste (used oil, solvents, paints etc.), solid hazardous waste (oil-contaminated wipes, absorbents) and non-hazardous waste (packaging, cables, metal waste, plastic waste).
50. The onshore substations will be unmanned, however due to the requirement for general maintenance, personnel / maintenance engineers would visit the site on a regular basis. Small amounts of general waste may be generated.
51. In the unlikely event of transformer failure, the Project will need to reinstall the haul road to access the onshore substation. Should this be required, the waste associated with this activity would be less than that predicted during construction.

2.5.3 Operational Waste Management Measures

52. Personnel generating waste from the servicing and maintenance of the onshore cable route and onshore substations would be under a legal obligation to comply with the waste duty of care to ensure that they handle waste safely and in compliance with the appropriate regulations (Defra, 2018a).

2.6 Decommissioning Phase

53. No decision has been made regarding the final decommissioning policy for the Project, as it is recognised that industry best practice, rules and legislation change over time.
54. The decommissioning methodology cannot be finalised until immediately prior to decommissioning but would be in line with relevant policy at that time.

3 Waste Treatment and Disposal Options

3.1 Regional Waste Management Facilities

55. The waste management facilities for the East of England region where the onshore elements of the Project will be developed have been identified as these will potentially receive project generated wastes. Data published by the Environment Agency for the waste sites throughout the East of England and specifically in the Essex and the neighbouring counties have been presented in Table 3.1 and Table 3.2.

Table 3.1 Number of waste management facilities in the East of England (2022)

Site type		Former Planning Region East of England
Landfill	Number of sites with an environmental permit at end 2021	103
	Number of sites that accepted waste in 2021	49
Land Disposal	Number of sites with an environmental permit at end 2021	57
	Number of sites that accepted waste in 2021	24
Incineration	Number of sites with an environmental permit at end 2021	21
	Number of sites that accepted waste in 2021	10
Transfer	Number of sites with an environmental permit at end 2021	334
	Number of sites that accepted waste in 2021	268
Treatment	Number of sites with an environmental permit at end 2021	324
	Number of sites that accepted waste in 2021	297
Metal Recovery	Number of sites with an environmental permit at end 2021	263
	Number of sites that accepted waste in 2021	152
Use of Waste	Number of sites with an environmental permit at end 2021	2
	Number of sites that accepted waste in 2021	1
Total	Number of sites with an environmental permit in 2021	1,104
	Number of sites that accepted waste in 2021	801

Source: Environment Agency (2023)

56. The data presented for 2022 confirm the widespread availability of a range of types of waste management facilities within the region, based upon the most current published data set (Environment Agency, 2023). This provides an indication of whether the estimated waste types from the Project can be managed within the region in accordance with the proximity principle (i.e. managing wastes as close to the source of production as possible).
57. Specific waste management sites have not been identified at this stage as they would be identified as part of the development of the SWMP for the construction works.

Table 3.2 Transfer, treatment, and metal recycling site inputs in the East of England: 2022 (000s tonnes)

Site Type	Sub-Region						East of England
	Bedford-shire	Cambridge-shire	Essex	Hertford-shire	Norfolk	Suffolk	
Hazardous waste	43	202	413	65	149	154	1,025
Household, industrial commercial	254	313	1,167	273	501	263	2,771
Clinical	-	1	1	177	3	1	183
Civic amenity site	40	94	146	126	63	55	524
Non Biodegradable	-	218	89	16	-	-	322
Transfer Total	337	827	1,815	658	716	473	4,826
Material recovery	69	324	629	493	159	181	1,855
Physical	136	681	1,463	466	900	1,008	4,654
Physico-chemical	-	359	113	-	308	276	1,056
Chemical	7		2	1,449	2	0	1,460
Composting	56	303	88	84	95	63	689
Biological	124	661	351	299	166	89	1,689
Treatment Total	391	2,327	2,646	2,791	1,629	1,618	11,402
Vehicle depollution	1	144	78	13	4	47	285
Metal recycling site	142	176	1,340	119	213	70	2,061
Metal Recycling Sector Total	143	319	1,419	131	217	117	2,346

Source: Environment Agency (2023)

3.2 Availability and Capacity of Regional Facilities

58. The landfill capacity in the East of England is presented in Table 3.3 which confirms that large capacities of both non-hazardous and inert waste are available to the Project. Even if quantities of soils were required to be disposed

of from the onshore construction activities, suitable capacity exists within the region into the future to receive these.

Table 3.3 Remaining landfill capacity in the East of England: 2022 (000s cubic metres)

Landfill Type	Sub-Region						East of England
	Bedford-shire	Cambridge-shire	Essex	Hertford-shire	Norfolk	Suffolk	
Hazardous Merchant	-	-	-	-	-	-	-
Hazardous Restricted	-	-	-	-	-	-	-
Non Hazardous with SNRHW cell*	-	299	-	-	-	2,873	3,172
Non Hazardous	-	14,404	4,808	-	3,558	-	22,770
Non Hazardous Restricted	-	-	-	-	-	-	-
Inert	4,335	5,454	5,916	8,145	1,586	6,409	31,844
Total	4,335	20,157	10,724	8,145	5,144	9,282	57,786

*Some non-hazardous sites can accept some Stable Non Reactive Hazardous Wastes (SNRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

Source: Environment Agency (2023)

59. The data in Table 3.4 indicates there is sufficient incineration capacity in the region, where non-hazardous or hazardous wastes are required to be treated at these facilities. The expected quantities that will be produced are considered to be low and will be developed further in the SWMP.

Table 3.4 Incineration capacity in the East of England: 2022 (000s tonnes)

Incineration Type	Sub-Region						East of England
	Bedford-shire	Cambridge-shire	Essex	Hertford-shire	Norfolk	Suffolk	
Animal By-Product	127				461	119	708
Animal Carcasses	-	-	-	-	-	-	-
Clinical	-	3				8	11
Co-Incineration of Hazardous Waste	-	-	-	-	-	-	-
Co-Incineration of Non Hazardous Waste	-	-	-	-	-	-	-
Hazardous	-	-	-	-	-	-	-
Municipal and/or Industrial & Commercial	477	91		-		283	851
Sewage Sludge	-	-	-	-	-	-	-

Incineration Type	Sub-Region						East of England
	Bedford -shire	Cambridge -shire	Essex	Hertford-shire	Norfolk	Suffolk	
Biomass/Waste Wood	-	-	233	-	-	-	233
Total	604	93	233	-	461	411	1,803

Source: Environment Agency (2023)

60. The information shows that there are numerous waste management facilities providing a wide variety of waste management options within the local area. Table 3.2 indicates the number of regional waste treatment and recycling sites that can be utilised by the Project. The closest permitted sites will be identified by the Waste Contractors responsible for managing the wastes and will be detailed in the SWMP and key waste requirements will be detailed in the CoCP.
61. The current overall capacity data means that these facilities are likely to be capable of managing all of the of the wastes requiring off-site management that are predicted to be generated by the Project during construction and operation.
62. The local and regional waste management capability sets the baseline condition of waste management infrastructure. A detailed SWMP covering all construction works will be produced post-consent identifying all wastes that will be generated from the Project.
63. The SWMP will identify specific Waste Contractors that will be responsible for the collection and transfer of all waste streams and will detail specific local waste management facilities that will be used to treat or dispose of the Project generated wastes.

4 Conclusion

4.1 Construction Phase

64. Most of this material is likely to be inert or non-hazardous as the onshore project area is largely greenfield. Any excavated material that is not suitable for use on site or is surplus to requirements for use for construction purposes would be sent off-site in accordance with the waste hierarchy.
65. Options for reuse or recovery, for example to a soil conditioning facility; or beneficial use as restoration material at a local landfill, would be prioritised to ensure that the amount of waste excavated material being disposed to landfill is reduced to an absolute minimum.
66. Waste collection containers will be provided at construction compounds to collect different waste streams and allow the separate collection of dry recyclables. Segregation of the different waste streams would ensure that the maximum amount of waste is diverted for reuse, recycling, and recovery.
67. There are sufficient facilities within the region to recycle, treat or dispose of all generated wastes.

4.2 Operational Phase

68. Limited operational wastes are expected to be generated from routine maintenance and servicing works at the onshore cable route and onshore substation.
69. Although the onshore cable route and onshore substation will be unmanned, personnel / maintenance engineers will be required to visit the site. Small amounts of solid domestic waste will be generated. Wastes produced during operation phase would be managed in accordance with the general principles of the waste duty of care and suitable waste management plans and procedures will be developed.
70. In the unlikely event that the onshore substation haul road needs to be reinstated, then waste will be generated during this activity, although these will be below those generated for construction.

4.3 Decommissioning Phase

71. No decision has been made regarding the final decommissioning policy for the Project, as it is recognised that industry best practice, rules and legislation change over time.

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