RWE

RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Dogger Bank South Offshore Wind Farms

Appendix 19.2 Onshore Waste Assessment

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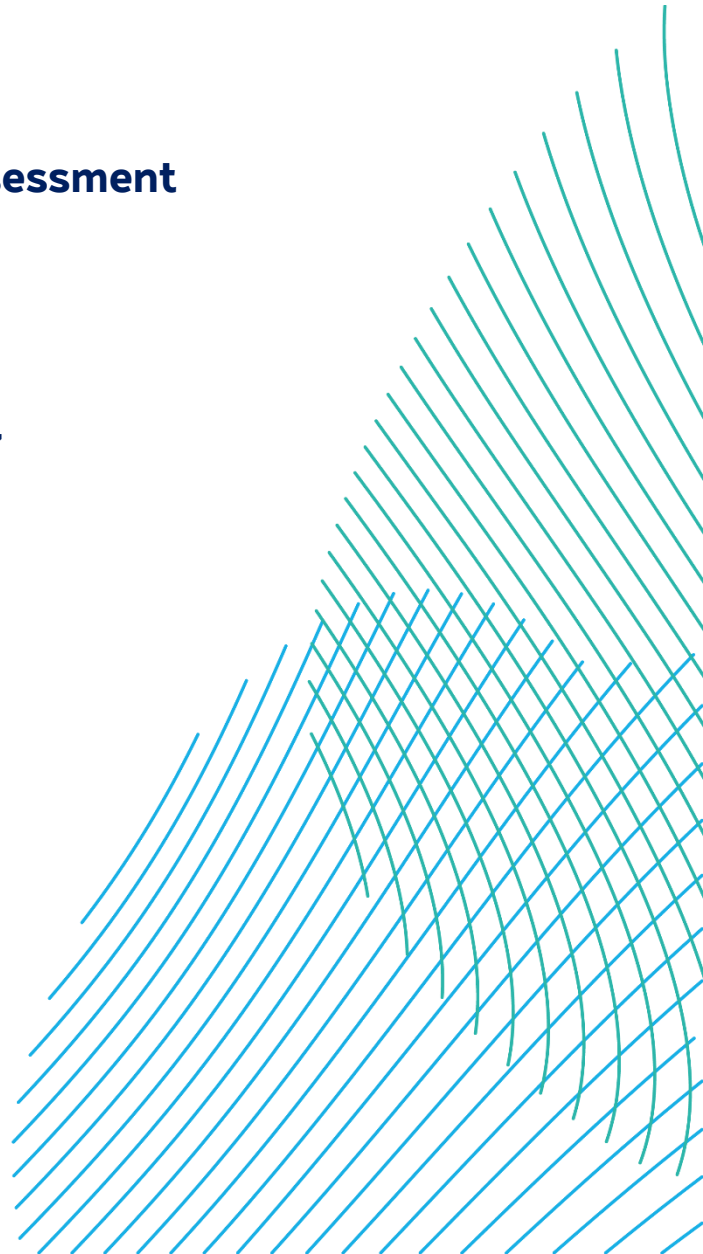

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Acronyms

Term	Definition
CoCP	Code of Construction Practice
DBS	Dogger Bank South
DECC	Department for Energy and Climate Change
EIA	Environmental Impact Assessment
EU	European Union
HDD	Horizontal Directional Drilling
IEMA	Institute of Environmental Management and Assessment
NPS	National Planning Statement
PEIR	Preliminary Environmental Information Report
PPE	Personal Protective Equipment
SWMP	Site Waste Management Plan
TJB	Transition Joint Bay
UK	United Kingdom
WEEE	Waste Electrical and Electronic Equipment

19.2 Waste Assessment

19.2.1. Introduction

1. Royal HaskoningDHV has been commissioned by RWE Renewables UK Dogger Bank South (West) and RWE Renewables Dogger Bank South (East) (hereafter referred to as the Applicant) to carry out a Waste Assessment Report to support the Environmental Impact Assessment (EIA). This report forms part of the Preliminary Environmental Information Report (PEIR) for the onshore elements of the Dogger Bank South (DBS) East and DBS West offshore wind farms (the Projects).
2. This report assesses the types and quantities of wastes and materials that are likely to be produced as part of the onshore development of the Projects during the construction, operation, and decommissioning phases. 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.
3. The Projects will consist of a number of offshore and onshore elements including offshore wind turbines and subsea array cables, offshore / onshore export cables and onshore substations to accommodate the connection to the transmission grid. A full description of DBS East and DBS West is provided within **Chapter 5 Project Description**.

19.2.2. Approach to Waste Assessment

4. The approach to the waste assessment is 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 Projects;
   - Provide an order of magnitude estimate of the primary wastes that will be generated from the main elements of the Projects; and
   - Assess the implications of project wastes on local/regional waste capacity.
5. 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.

6. Data on the local and regional waste management capacity have been identified from sources published by the Environment Agency.

19.2.3. Waste Legislation and Policy

19.2.3.1. Context

7. 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.

8. 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.

19.2.3.2. 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
- Prevention is Better than Cure - The Role of Waste Prevention in Moving to a More Resource Efficient Economy (Defra, 2013).

19.2.4. 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 and Climate Change (DECC) and are in the process of being consulted upon and updated.

13. Those relevant to the Projects are:

- Overarching NPS for Energy (EN-1) (DECC, 2011a);
- NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b); and
- NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011c).

14. Following the consultation in 2021 on the draft energy NPS, a new consultation opened on the 30 March 2023 on revised drafts of the energy NPSs, including EN1, EN3 and EN5. Due to the timing of this consultation, and finalisation of this PEIR we have been unable to review and take these revised draft NPS into account within these documents. However, these will be reviewed and incorporated into the final ES where relevant.

15. The specific assessment requirements for waste are detailed in EN-1 and are summarised in **Table 19-1** below. The supporting documents EN-3 and EN-5 do not have detailed requirements for waste management.

Table 19-1 Summary of NPS requirements relating to waste

NPS Requirement	EN-1 Paragraph
Sustainable waste management is implemented through the "waste hierarchy", which sets out the priorities that must be applied when managing waste.	5.14.2
Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.	5.14.3
Applicants assessment 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 is encouraged to refer to the Waste Prevention Programme for England 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.	5.14.6

NPS Requirement	EN-1 Paragraph
IPC decision making 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. The Secretary of State should be satisfied that: • 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; and • 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.	5.14.9

19.2.5. Description of Wastes

19.2.5.1. Project Waste Types

16. The onshore elements of the Projects consist of the current Onshore Development Area, which includes the possible landfall locations, the onshore export cable corridor and the onshore substation zones. The onshore export cable corridor is predominantly within agricultural land and includes a number of roads, railway, and watercourse crossings.

17. The possible landfall locations are in the vicinity of Skipsea, to the south of Bridlington. The onshore export cable corridor connects the possible landfall locations to the onshore substation zones. The Projects will connect to the grid via two substations that will be constructed in one or both of the onshore substation zones identified within the Onshore Development 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 Projects.

19. The following waste types are expected to be generated from the Projects.

- Inert wastes:
  - Soils and subsoil – removed from sites.
  - Hardcore – that cannot be reused.
- Non-hazardous wastes:
  - Drilling wastes – fluid and solids from 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/Covid-19 personal protective equipment (PPE) 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.

19.2.5.2. Construction Waste Management Measures

22. Measures that will be implemented by the Projects 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 Projects 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).

19.2.5.2.1. 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 Projects shall be deposited outside the 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 Projects Code of Construction Practice (CoCP).

19.2.5.3. Construction Phase: Waste Types

26. Waste material will be generated at all stages of the construction process, including site clearing, excavations, grading, foundation digging and waste material from project development. The main construction activities will be focused on the landfall, onshore export 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 – 42 months;
- Onshore export cables – 57 months; and
- Substation preparation, construction and commissioning – 6 years.

28. Estimates of order of magnitude waste quantities will be reviewed as part of the EIA process and where available will be included within the ES.

19.2.5.3.1. Landfall

29. Wastes will be generated at the landfall from the following construction activities:
    - Drilling;
    - HDD compound;
    - Transition Joint Bay construction;
    - Site offices; and
    - Worker welfare facilities.

30. 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.

31. 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.

32. The construction of the up to six 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.

33. 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.

34. A summary of the expected waste types to be produced from the landfall construction phase is provided in **Table 19-2**. As further information on the project design becomes available as part of the EIA process, order of magnitude estimates can be included for the larger quantities of waste that will be generated.

Table 19-2 Landfall: Waste types from construction phase

Classification	Waste Type	Comment
Inert wastes	Soils	Stockpiled and reused within the landfall site during restoration works.
	Subsoil	Six TJB's 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 Projects 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	All 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.
	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 will be reused where practicable.

Classification	Waste Type	Comment
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.

19.2.5.3.2. Onshore Export Cable Route

35. The onshore export cable route will connect from the landfall to the substations and is expected to be around 39km in length. Wastes will be generated from the following construction activities:

- Cable route trenching;
- Jointing bay construction;
- HDD activities (where required);
- Haul road construction and removal; and
- Construction compounds:
  - Main construction compounds (two locations).
  - Satellite construction compounds (likely every 4km along the corridor).

36. The onshore export cable route is expected to be 39 km in length. 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.

37. There are anticipated to be up to 52 jointing bays along the Projects onshore export cable route. It is anticipated that all excavated soil material will be reinstated and used within the cable corridor as part of restoration.

38. A number of trenchless crossings 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.

39. There will be haul roads installed along the onshore export cable route for use in the cable installation process and for transport of plant and materials between the works compounds and work fronts. When the cable installation is completed, the haul road would be taken up and the topsoil reinstated.

40. There will be a number of temporary construction site compounds along the onshore export cable corridor. The worst case scenario would result in the onshore export cable route having four main construction compounds and 170 secondary compounds. 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.

41. The 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 and CoCP once peak numbers of workers are known.

42. 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 export cable corridor during the construction phase are set out in **Table 19-3**.

Table 19-3 Cable route: Waste types from construction phase

Classification	Waste Type	Comment
Inert wastes	Soils	Stockpiled and reused within the cable corridor 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 cable corridor.
	Hardcore	Haul roads along the cable corridor that are removed after use may produce quantities of hardcore/sub-base materials. Where these are not re-used along other parts of the corridor 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. 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.
	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.

Classification	Waste Type	Comment
	Green waste	All green wastes will be processed within the cable corridor and will remain within the corridor.
	Concrete and rubble	All waste concrete or brick wastes will be used within the corridor as sub-base. 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)	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.

19.2.5.3.3. Onshore Substations

43. The onshore substations will connect the onshore export cables to the transmission grid. During the construction phase wastes will be generated from the following Projects activities:

- Site preparation;
- Substation construction;
- Rainwater retention basins; and
- Construction compounds.

44. Two onshore substations will be constructed to accommodate the connection of the Projects to the transmission grid.

45. To install the substation foundations the substation sites will be levelled and if required subsoil removed. Topsoil and subsoil generated from site preparation works at the onshore substations will be retained on site where possible to be used in the site restoration and landscaping.

46. Quantities of soil material will be excavated from the substation flood attenuation scheme. These materials will be managed similarly to the soils from the site preparation and will be stockpiled and used in landscaping and restoration of the site. Any excess subsoil will be removed from the site and managed as a waste.

47. The site-based workers associated with the Projects at the substation sites 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.

48. Further details of the types of wastes that will be generated at the substation site during the construction phase are set out in **Table 19-4**.

Table 19-4 Onshore substation: Waste types from construction phase

Classification	Waste Type	Comment
Inert wastes	Soils	Stockpiled and reused within the substation site 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 substation construction area.
	Concrete and rubble	All waste concrete or brick wastes will be used within the substation site. 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)	All waste chemicals will be stored in line with the SWMP procedures and removed by waste contractors for treatment or disposal.

Classification	Waste Type	Comment
	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.

19.2.5.4. Operational Phase: Waste Types

19.2.5.4.1. Onshore Export Cable Route

49. 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.

19.2.5.4.2. Onshore Substation

50. 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).

51. 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.

19.2.5.4.3. Operational Waste Management Measures

52. Personnel generating waste from the servicing and maintenance of the onshore export 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).

19.2.5.5. Decommissioning Phase

53. No decision has been made regarding the final decommissioning policy for the Projects, 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.

19.2.6. Waste Treatment and Disposal Options

19.2.6.1. Regional Waste Management Facilities

55. The waste management facilities for the Yorkshire and the Humber region where the onshore Projects will be developed have been identified as these are will potentially receive project generated wastes. Data published by the Environment Agency for the waste sites throughout Yorkshire and the Humber and specifically in the East Riding of Yorkshire and the neighbouring counties have been presented in **Table 19-5** to **Table 19-8**.

56. The data in the **Table 19-5** to **Table 19-8** for 2021 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, 2022). This provides an indication of whether the estimated waste types from the Projects 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.

19.2.6.2. Availability and Capacity of Regional Facilities

58. The landfill capacity in Yorkshire and the Humber is presented in **Table 19-6** which confirms that large capacities of both non-hazardous and inert waste are available to the Projects. Even if larger 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.

59. The data in **Table 19-7** 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.

60. The information shows that there are numerous waste management facilities providing a wide variety of waste management options within the local area. **Table 19-8** indicates the number of regional waste treatment and recycling sites that can be utilised by the Projects. 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 Projects during construction and operation.

62. The local and regional waste management capability sets the baseline condition of waste management infrastructure. A detailed SWMP cover all construction works will be produced post-consent identifying all wastes that will be generated from the Projects.

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 Projects generated wastes.

Table 19-5 Number of waste management facilities in Yorkshire and the Humber (2021)

Site type		Former Planning Region	ENGLAND
		Yorkshire & the Humber	
Landfill	Number of sites with an environmental permit at end 2021	71	528
	Number of sites that accepted waste in 2021	41	313
Land Disposal	Number of sites with an environmental permit at end 2021	43	382
	Number of sites that accepted waste in 2021	19	185
Incineration	Number of sites with an environmental permit at end 2021	33	205
	Number of sites that accepted waste in 2021	16	104
Transfer	Number of sites with an environmental permit at end 2021	353	2,687
	Number of sites that accepted waste in 2021	278	2,140
Treatment	Number of sites with an environmental permit at end 2021	372	2,992
	Number of sites that accepted waste in 2021	302	2,210
Metal Recovery	Number of sites with an environmental permit at end 2021	341	2,021
	Number of sites that accepted waste in 2021	159	1,043
Use of Waste	Number of sites with an environmental permit at end 2021	-	15
	Number of sites that accepted waste in 2021	-	8
Total	**Number of sites with an environmental permit at end 2021**	**1,213**	8,830
	Number of sites that accepted waste in 2021	**815**	**6,003**

Source: Environment Agency (2022)

Table 19-6 Remaining landfill capacity in Yorkshire and the Humber: 2021 (000s cubic metres)

Landfill Type	Sub-Region				YORKSHIRE AND THE HUMBER
	Former Humber-side	North Yorkshire	South Yorkshire	West Yorkshire	
Hazardous Merchant	700	-	-	-	**700**
Hazardous Restricted	-	-	-	1,465	**1,465**
Non Hazardous with SNRHW cell*	1,243	-	-	-	**1,243**
Non Hazardous	20,610	17,475	6,524	587	**45,196**
Non Hazardous Restricted	-	-	-	-	**-**
Inert	15,372	978	5,650	3,282	**25,282**
Total	**37,925**	**18,453**	**12,175**	**5,334**	**73,887**

*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 (2022)

Table 19-7 Incineration capacity in Yorkshire and the Humber: 2021 (000s tonnes)

Incineration Type	Sub-Region				YORKSHIRE AND THE HUMBER
	Former Humberside	North Yorkshire	South Yorkshire	West Yorkshire	
Animal By-Product	270	-	-	-	**270**
Animal Carcasses	-	-	-	-	-
Clinical	-	-	-	17	**17**
Co-Incineration of Hazardous Waste	-	-	-	-	**-**
Co-Incineration of Non Hazardous Waste	-	-	-	-	**-**
Hazardous	-	-	-	-	-
Municipal and/or Industrial & Commercial	691	-	300	1,680	**2,671**
Sewage Sludge	-	-	-	-	**-**
Biomass/Wood Waste	86	-	605	-	**691**
Total	**1,047**	**-**	**905**	**1,697**	**3,649**

Source: Environment Agency (2022)

Table 19-8 Transfer, treatment, and metal recycling site inputs in Yorkshire and the Humber: 2021 (000s tonnes)

Site Type	Sub-Region				YORKSHIRE AND THE HUMBER
	Former Humber-side	North Yorkshire	South Yorkshire	West Yorkshire	
Hazardous waste	258	43	378	127	**806**
HIC	1,317	468	935	1,079	**3,799**
Clinical	-	-	49	8	**57**
Civic amenity site	144	68	62	229	**503**
Non Biodegradable	-	15	164	50	**229**
Transfer Total	**1,719**	**594**	**1,588**	**1,493**	**5,394**
Material recovery	1,895	60	376	785	**3,116**
Physical	2,453	595	1,749	1,905	**6,702**
Physico-chemical	265	-	16	106	**387**
Chemical	-	-	60	178	**238**
Composting	138	77	94	151	**460**
Biological	631	280	291	2,599	**3,801**
Treatment Total	**5,382**	**1,012**	**2,586**	**5,724**	**14,704**
Vehicle depollution	33	52	41	70	**196**
Metal recycling site	565	27	617	412	**1,621**
Metal Recycling Sector Total	**598**	**80**	**659**	**482**	**1,817**

19.2.7. Conclusion

19.2.7.1. Construction Phase

64. Most of this material is likely to be inert or non-hazardous because the Onshore Development 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. 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.

19.2.7.2. Operational Phase

68. Limited operational wastes are expected to be generated from routine maintenance and servicing works at the onshore export cable route and onshore substations.

69. Although the onshore export cable route and onshore substations 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.

19.2.7.3. Decommissioning Phase

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

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