



Connah's Quay Low Carbon Power

Environmental Statement Volume IV Appendix 23-A: Materials and Waste Baseline Data Report

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1. Baseline Conditions

1.1 Availability of Key Construction Materials

1.1.1 The key construction materials associated with the Proposed Development are considered to be aggregates, asphalt, concrete and steel.

Existing Baseline

1.1.2 **Table 1** provides a summary of the sales in 2022 for aggregates, asphalt, and concrete within the United Kingdom (UK)/Great Britain (GB) (Ref 1) as well as the UK demand for steel in 2023 (Ref 2) (the most recent years for which data is available). Data related to sales of these key construction materials in Wales and North West England in 2022 is presented in **Table 2**.

1.1.3 It is assumed that most key construction materials (aggregates, asphalt, concrete) would be sourced locally, taking into account the proximity principle and value for money. Other materials may be sourced from the rest of the UK or imported into the UK (e.g. steel). Steel requirement at the UK level is considered since there is no Wales level data.

Table 1: UK/GB requirement and sales for key construction materials

| Material | Requirement/sales (million tonnes, year) | Baseline data year | Data description |
|----------------------------|--|--------------------|---|
| Steel | 15 | 2023 | UK total consumption, UK Steel, Key Statistics Guide (May 2024 Edition) (Ref 2). |
| Aggregates of which: | 279.8 | 2022 | Minerals and mineral products sales in Great Britain, Mineral Products Association (MPA), Profile of the UK Mineral Products Industry (2023 Edition) (Ref 1). |
| Crushed rock | 148.2 | | |
| Sand and gravel – land won | 47.7 | | |
| Sand and gravel – marine | 14.3 | | |
| Recycled and secondary | 69.6 | | |
| Asphalt | 28.3 | | |
| Ready-mix concrete | 52.7 | | |
| Concrete products | 24.8 | | |

Table 2: Construction material sales for Wales, North West England and combined Wales and North West England 2022 (Ref 1)

| Construction material | Wales sales (million tonnes, year) | North West England sales (million tonnes, year) | Combined Wales and North West England sales (million tonnes, year) |
|-----------------------|------------------------------------|---|--|
| Crushed rock | 12.7 | 7.2 | 19.9 |
| Sand and gravel | 1.9 | 1.8 | 3.7 |
| Ready-mixed concrete | 1.2 | 3.4 | 4.6 |
| Asphalt | 1.1 | 2.1 | 3.2 |

Future Baseline

1.1.4 There is no publicly available information on any potential long-term changes to this national and regional demand of these materials by the time of construction of the Proposed Development. Construction material demand, such as ready-mix concrete, is closely aligned to both the quantity of construction taking place and the general economy; therefore, it is deemed inappropriate to forecast future demand as this is unlikely to be linear. It is, therefore, not practicable to set a future baseline for resources, so future consumption is assumed to be the same as the current baseline, as outlined in **Table 1** and **Table 2**.

Recycled Content

1.1.5 Potential recycled content for the main construction materials to be used during the construction of the Proposed Development is outlined in **Table 3**. These 'good practice' rates are derived from the Waste and Resources Action Programme (WRAP) Designing Out Waste Tool for Civil Engineering (Ref 3).

Table 3: Potential recycled content (Ref 3)

| Material type | Potential recycled content (% by weight) |
|----------------------|--|
| Concrete | 16 |
| Asphalt | 25 |
| Aggregates | 50 |
| Steel reinforcements | 100 |
| Structural steel | 60 |

1.2 Mineral Safeguarding Areas, Allocated/Safeguarded Mineral and Waste Sites

- 1.2.1 The Order limits are located within Flintshire County Council's (FCC) administrative area.
- 1.2.2 As outlined on the FCC Proposal Map (Ref 4), there is a Mineral Safeguarding Area (MSA) (Policy EN23 Minerals Safeguarding) within the Order limits (Proposed CO₂ Connection Corridor). Potential severance and/or sterilisation of the resource has been assessed as part of **Chapter 14: Geology and Ground Conditions (EN010166/APP/6.4.14)**.
- 1.2.3 As outlined on the FCC Proposal Map, the Order limits included a small area within an allocated/safeguarded mineral site at 'Mostyn Docks'. No works are proposed in the docks, which would compromise the essential infrastructure that supports the supply of minerals.
- 1.2.4 The Order limits do occupy land within allocated/safeguarded waste sites. As outlined on the FCC Proposal Map, there is a Location for Waste Management Facilities (Policy EN21 Locations for Waste Management Facilities) which is within the Order limits (Construction and Indicative Enhancement Area (C&IEA) and Mostyn Docks). These are sites which are considered to be suitable in principle for waste management uses. However, as stated in the FCC Local Development Plan (LDP) (Ref 5), '*there is no identified need for further recovery or disposal infrastructure within the County*' and '*no strategic allocations for waste management are identified within the LDP*'. The areas are not considered to be allocated/safeguarded waste sites.

1.3 Landfill Capacity

Existing Baseline

- 1.3.1 Baseline information is based on the estimated landfill void capacity in Wales for 2018 (latest available data) as outlined in Natural Resources Wales' Estimated Landfill Void in Wales data (Ref 6), as summarised in **Table 4**.

Table 4: Landfill capacity for inert and non-hazardous waste in Wales (Ref 6)

| EPR Number Type | Type | Name | Area | Estimated remaining void space m ³ |
|--------------------|-------|---|-------|---|
| BP3330LS | Inert | Griffiths Griffith Wyn, Edward Lloyd and Gwenfrai Rees (Ty Mawr Farm) | North | 397,791 |
| FP3590LV | | Clive Hurt (Plant Hire) Ltd | North | 337,500 |
| RP3337SE | | Nant Newydd Quarry | North | 262,500 |

| EPR Number Type | Type | Name | Area | Estimated remaining void space m³ |
|--------------------------------|---------------|--|-------------|---|
| WP3432SC | | Treborth Leisure Ltd. | North | 16,885 |
| KP3795FU | | Tarmac Ltd (Hendy Quarry) | South east | 792,126 |
| MP3036SS | | Cemex UK Materials Limited | South east | 33,750 |
| Total inert capacity: | | | | 1,840,552 |
| BU0800IZ | Non-hazardous | FCC Environment (Llandullas) | North | 167,922 |
| PP3139GB | | Cory Environmental Central Ltd - Hafod Quarry | North | 2,218,538 |
| GP3030BE | | Corus UK Ltd | North | 47,694 |
| BT1908IX | | JLA Disposal Ltd (Palleg Landfill) | South east | 11,132 |
| DP3732SQ | | Cynon Valley Waste Disposal Company Ltd | South east | 2,162,048 |
| RP3733PC | | Biffa Waste Services Ltd (Trecatti) | South east | 441,915 |
| DP3733BK | | Newport City Council | South east | 572,306 |
| BP3339BH | | RWE Npower plc (Aberthaw Quarry) | South east | 520,584 |
| BU8819IV | | FCC Environment (Pwllfawatkin) | South west | 74,492 |
| VP3935AT | | Cory Environmental (Gloucestershire) Ltd UK - Tir John | South west | 174,587 |
| MP3330WP | | Resources Management UK Ltd (Withyhedge) | South west | 1,773,391 |
| BV7311IE | | Tata Steel UK Limited (Port Talbot) | South west | 122,843 |
| Total non-hazardous capacity: | | | | 8,287,452 |

- 1.3.2 For non-hazardous waste, total landfill capacity in Wales (all types excluding non-hazardous restricted) at the end of 2018 was approximately 8.3 million m³.
- 1.3.3 For inert waste, total landfill capacity in Wales at the end of 2018 was approximately 1.8 million m³.
- 1.3.4 For hazardous waste, landfill capacity in Wales in 2018 was approximately 14,000 m³.
- 1.3.5 For hazardous waste, total merchant landfill capacity in England at the end of 2023 was approximately 9.9 million m³, as outlined in the Environment Agency's 2023 Waste summary Tables for England – Version 1 (Ref 7). Hazardous restricted sites are not included since that capacity may not be available to the Proposed Development. Restricted landfills only accept waste from a limited number of sources and producers, commonly the site operator (e.g. a manufacturing site).

Future Baseline

- 1.3.6 There is no publicly available information regarding any potential changes to landfill capacity that are likely to have occurred by the time of the Proposed Development's construction and operation.
- 1.3.7 Considering the decline of landfill capacity, forecasting into the future would lead to the inevitable conclusion that there would be no void space remaining. However, this is not a credible scenario as if there is still a need for landfill, then the Waste Planning Authority will need to consent new landfill capacity to replace that which has been used up. Therefore, landfill capacity is assumed to remain the same as the current baseline.

1.4 Waste Management Facilities

Existing Baseline

- 1.4.1 Capacity data for other types of waste infrastructure is publicly available (e.g. Permitted Waste Sites – Data Map (Ref 8)). However, the permitted capacity is not necessarily representative of the actual operational capacity of the infrastructure. Therefore, inputs data have been collated from the Natural Resources Wales' 2023 Waste Permit Returns Data Interrogator – Waste Received (Excel) – (Ref 9) and presented in **Table 5** for Wales. Inputs are not totaled since the double counting of waste moving between the site types listed in the Waste Permit Returns Data Interrogator cannot be discounted.

Table 5: Summary of waste inputs by facility for Wales (2023) (Ref 6)

| Facility Type | Tonnes received |
|---------------|-----------------|
| Incineration | 1,046,420 |
| Landfill | 1,204,176 |
| Mobile Plant | 272,585 |
| MRS | 794,392 |
| On/In land | 227,906 |
| Reprocessing | 132,817 |
| Storage | 2,298 |
| Transfer | 2,721,956 |
| Treatment | 5,824,938 |

1.5 National Hazardous Waste Management Facilities

Existing Baseline

1.5.1 Some of the operational hazardous wastes, likely to be generated by the Proposed Development, would not be suitable for landfill disposal (e.g. liquid waste). However, due to the specialised nature of hazardous waste management, hazardous waste facilities generally receive wastes from a wider area than typical waste management facilities accepting inert and non-hazardous waste (see **Table 6**). Given this, **Chapter 23: Materials and Waste (EN010166/APP/6.2.23)** considers the national capacity (Wales and England) for managing hazardous wastes.

1.5.2 Liquid hazardous waste from the Proposed Development operation may be managed by high-temperature incineration or by physico-chemical treatment. Alternatively, in the longer term, some form of waste treatment may be developed near to the Proposed Development to manage waste associated with carbon capture and other carbon capture facilities in the area. However, in the absence of such facilities, this assessment conservatively does not consider the potential for such waste treatment facilities to be developed.

1.5.3 There are two high-temperature hazardous waste incinerators in Wales (excluding facilities which only manage clinical waste), including a cement kiln, which are permitted to accept hazardous waste. These facilities as reported in the Natural Resources Wales' Waste Permit Returns Data Interrogator 2023 (Ref 9) and are identified in **Table 6**.

1.5.4 There are several high-temperature hazardous waste incinerators in England (excluding facilities which only manage clinical waste and received less than 500 tonnes), as well as cement kilns which are permitted to accept hazardous waste. These facilities are reported in the Environment Agency's Waste Data Interrogator for 2023 (Ref 7) and are identified in **Table 6**.

Table 6: Hazardous waste incineration facilities accepting hazardous waste in Wales and England (Ref 9 and Ref 10)

| Facility Name | Location | 2023 Waste Received (Tonnes of Hazardous Waste) |
|--|-------------------|---|
| Wales | | |
| Margam Green Energy Plant | Neath Port Talbot | 21,941 |
| Padeswood Cement Works | Flintshire | 23,495 |
| England | | |
| Avonmouth Treatment Centre | Bristol City | 4,718 |
| Cauldon Cement Plant | Staffordshire | 14,418 |
| East Kent Waste Recovery Facility | Kent | 2,040 |
| Ellesmere Port Incinerator | Cheshire | 61,515 |
| Fawley High Temperature Incinerator | Hampshire | 25,924 |
| Fine Environmental Services – Seal Sands | Tees Valley | 11,197 |
| Ketton Works | Rutland | 19,858 |
| Kirk Sandall Thermal Treatment Plant | South Yorkshire | 4,001 |
| Ribblesdale Cement Works | Ribble Valley | 24,888 |
| Rugby Cement Plant | Rugby | 17,471 |
| Tradebe Heysham Limited | Lancashire | 9,825 |
| Tunstead Cement and Lime Works | Derbyshire | 18,624 |
| Twinwoods Co-incinerator | Bedford | 9,029 |
| Whitwell Quarry Lime Works | Derbyshire | 28,576 |
| Total (Wales and England) | | 297,520 |

1.5.5 **Table 7** outlines the quantity of liquid hazardous waste treated by permitted facilities in Wales and England; these figures have been extracted from Natural Resources Wales' 2023 Waste Permit Returns Data Interrogator (Ref 9) and the EA's 2023 Waste Data Interrogator (Ref 10). The figures reported in **Table 7** exclude waste categorised under the EWC Code Chapter 13 'Oil Wastes and Wastes of Liquid Fuels'.

Table 7: Hazardous liquid waste treatment facilities in Wales and England (Ref 7 and Ref 9)

| Facility Permit Type | 2023 Waste Received (Tonnes) |
|---|------------------------------|
| Wales | |
| A17: Physico-chemical treatment installation (all hazardous waste, Wales) | 73,483 |
| England | |
| T05: Physico-chemical treatment installation | 266,098 |
| T06: Chemical treatment installation | 128,499 |
| T10: Haz waste treatment installation | 193,015 |
| T11: Haz waste transfer/treatment installation | 43,498 |
| Total (Wales and England) | 704,594 |

1.6 Future Baseline for Waste Management Facilities

1.6.1 There is no publicly available information regarding any potential changes to waste management facility capacity that are likely to have occurred by the time of the Proposed Development's construction and operation.

1.7 Historic and Permitted Landfills

1.7.1 Historic landfills are potentially relevant to this assessment since excavations in historic landfills can give rise to waste that would subsequently require management. Natural Resources Wales' Permitted Waste Sites Data Map (Ref 11) identifies three historic landfill sites located within the Order limits, as detailed in **Table 8**.

1.7.2 There are no permitted landfills within the Order limits.

Table 8: Historic Landfills (Ref 11)

| Site Name | Site Address | License Holder | Site Reference | License Issued | License Surrendered | Waste type |
|----------------------------------|---------------------------|--------------------------------------|----------------------|----------------------------------|---------------------|----------------------------------|
| Connah's Quay Power Station | Connah's Quay, Flintshire | Central Electricity Generating Board | A/L/10/11, B/RD/7/10 | 1977 | 1991 | Inert, industrial and commercial |
| Connah's Quay Power Station 3 | Ash Lagoon, Clwyd | Central Electricity Generating Board | No information | No information, first input 1962 | No information | Inert and industrial |
| Connah's Quay Power Station No.1 | Ash Lagoon, Clwyd | Central Electricity Generating Board | No information | No information, first input 1954 | No information | Inert and industrial |

1.7.3 Further information regarding historic landfill sites within the Proposed Development Site is presented in **Chapter 14: Geology and Ground Conditions (EN010166/APP/6.2.14)**.

1.8 Waste Targets

1.8.1 The national target for recovery of construction and demolition (C&D) waste is 70% by weight, as set out in the European Waste Framework Directive and Towards Zero Waste One Wales: One Planet – The Overarching Waste Strategy Document for Wales (Ref 12). The target specifically excludes naturally occurring materials with EWC Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling, and other recovery (e.g. energy recovery).

1.8.2 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the Institute of Sustainability and Environmental Professionals (ISEP) (formerly the Institute of Environmental Management Assessment (IEMA) Guidance (Materials and Waste) (Ref 13). In 2020, the UK generated 59.4 million tonnes of non-hazardous C&D waste, of which 55 million tonnes were recovered. This represents a recovery rate of 92.6% (Ref 14).

1.8.3 Standard, good and best-practice recovery rates by material are provided by WRAP (Ref 15). Recovery rates for key construction materials and other construction wastes relevant to the Proposed Development are provided in **Table 9**.

Table 9: Standard, good and best practice recovery rates by material (Ref 3)

| Materials | Standard practice recovery (%) | Good practice recovery (%) | Best practice recovery (%) |
|----------------------|--------------------------------|---|----------------------------|
| Metals | 95 | 100 | 100 |
| Packaging | 60 | 85 | 95 |
| Concrete | 75 | 95 | 100 |
| Inert | 75 | 95 | 100 |
| Plastics | 60 | 80 | 95 |
| Miscellaneous | 12 | 50 | 75 |
| Electrical equipment | Limited information | 70 | 95 |
| Cement | Limited information | 75 | 95 |
| Liquids and oils | 100 | 100 | 100 |
| Hazardous | 50 | Limited information, cannot be 100% since some hazardous waste (e.g. asbestos) is advised to be landfilled. | |

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