Norwich Western Link

Environmental Statement

Chapter 3: Description of Scheme

Appendix 3.1: Outline Construction Environmental Management Plan (OCEMP)

Sub Appendix 3.1B: Design Site Waste Management Plan

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1 Background and context

1.1 Introduction and scheme overview

1.1.1 The Applicant has prepared a Design Site Waste Management Plan (SWMP) for the Norwich Western Link (the Proposed Scheme). The Proposed Scheme comprises an approximately 6 kilometre long dual-carriageway road connecting the A1067 Fakenham Road and the A47, with a dualled section of the A1067 to the existing A1270 roundabout.

1.1.2 The preferred route entails:

- Dualling the A1067 Fakenham Road westwards from its existing junction with the A1270 to a new roundabout located approximately 400 metres to the north-west;
- Construction of the new roundabout; and
- Constructing a dual carriageway link from the new roundabout to a new junction with the A47 near Honingham.

1.1.3 In conjunction with the above works, National Highways proposes to realign and dual the A47 from the existing roundabout at Easton, to join the existing dual carriageway section at North Tuddenham. It is expected that National Highways will build the Honingham junction, and the Norwich Western Link will connect to the north-eastern side of that junction.

1.1.4 The dual carriageway scheme will cross the River Wensum and its floodplain by means of a viaduct; it will also cross a number of minor roads by means of overpass or underpass bridges. The Proposed Scheme will include ancillary works such as provision for non-motorised users, necessary realignment of the local road network and the provision of environmental mitigation measures.

1.2 Scope of works

1.2.1 The Applicant requires a SWMP to be drawn up to ensure the economic and environmental impacts of managing waste are identified, measured and mitigated at both the design and construction phase of the project.

1.2.2 This SWMP applies to the management of materials and waste generated during construction works delivered as part of the Proposed Scheme.

1.2.3 This document provides:

- A framework that sets out the principles of designing out waste, resource efficiency and circular economy activity for the Proposed Scheme; and
- Modelled waste forecasting data for the Proposed Scheme (**Table 9-1**).

1.2.4 It has thus been designed as a core document for the Proposed Scheme, that should be advanced and updated iteratively as the development progresses.

1.3 Purpose

1.3.1 This SWMP aims to improve scheme efficiency and profitability by driving forward the following principles of a circular economy:

- Eliminating waste from every stage of a resource's lifecycle; and
- Stimulating industrial and other business activity that improves material knowledge, transfer and high value application reuse.

1.3.2 To ensure a proportionate approach, this document focuses on promoting reuse, recycling and recovery of waste from the Proposed Scheme (hence minimising disposal) during both the design and construction phases. It also sets out waste Duty of Care responsibilities (Section 8.3) and aims to reduce fly-tipping by (for example) ensuring a full audit trail of waste removed from the site is kept.

1.3.3 In the following sections, this SWMP outlines its origins and aims; current national and local waste policy, and responsibilities for implementation. Where

design detail permits, it lists the types of waste which are expected to be produced from the Proposed Scheme and the anticipated volume and (waste hierarchy) management route of those wastes. With input from the Principal Contractor, the SWMP will be updated iteratively with actions to be taken to ensure that all wastes are managed in accordance with the requirements set out.

1.3.4 The SWMP is designed to complement and support any Principal Contractor activities undertaken to comply with the CL:AIRE Definition of Waste Code of Practice (**Ref 1**).

1.4 Objectives and Targets

1.4.1 The objectives of this Plan are to:

- Minimise waste production and disposal across the Proposed Scheme lifecycle;
- Capture and record the benefits of best practice waste minimisation;
- Improve material resource efficiency across the Proposed Scheme lifecycle; and
- Encourage activity in the East of England that incentivises the move towards a circular economy.

1.4.2 The target of this Plan is to divert 100% of inert and non-hazardous waste generated during construction from landfill.

1.4.3 These objectives and targets respond to national requirements and ambition, as set out in UK the strategy, policy and legislation (Section 5.2) that is applicable to the Proposed Scheme. The objectives and targets also respond to the emerging Norfolk Minerals and Waste Local Plan (Publication version 2022) (**Ref 2**) which sets out expected waste management practices to send no more than 10% of waste to landfill by 2035.

2 Roles and responsibilities

2.1 Applicant and Principal Contractor

2.1.1 The Applicant has initiated the production of this SWMP, which has been prepared by the Proposed Scheme project designers and consultants. Preparation of this SWMP will help ensure that best practice waste management is adopted by all delivery partners for the Proposed Scheme.

2.1.2 Environmental Manager

2.1.3 An Environmental Manager will be appointed / nominated by the Principal Contractor and will be responsible for instructing workers, for implementing and documenting the results of the SWMP, and for monitoring the effectiveness and accuracy of waste documentation produced during the course of site activities.

2.1.4 Copies of the SWMP shall be distributed to the Applicant's Project Manager, Principal Contractor, Environmental Manager and each relevant contractor in the value chain. This will be undertaken prior to access to site, and each and every time the SWMP is updated.

2.1.5 At the discretion of the Principal Contractor, a waste management lead, whose primary responsibility will be to implement, update and report on the SWMP will be designated, if not the Environmental Manager.

3 Site waste management plan

3.1.1 Context

3.1.2 Originally a part of the legal framework in England (Site Waste Management Plan Regulations 2008) (**Ref 3**), SWMPs were once a statutory requirement to proactively manage and reduce the volume of waste to landfill from construction and other work sites. Through these regulations, the use of SWMPs was mandatory in England for projects of a value of £300,000 or above.

3.1.3 Whilst the 2008 Regulations were repealed in 2013, SWMPs are still considered a best practice approach to reducing site waste. Therefore, SWMPs should be deployed on developments from the design stage to describe, forecast and (during on site works) validate the type and amount of waste from a construction, excavation or demolition project, and how it will be managed in accordance with the highest tiers of the Waste Hierarchy (Section 4.4) and Proximity Principle (Section 4.5).

3.1.4 A SWMP should include:

- Details of who will be responsible for waste management during design and construction, as appropriate;
- The types and amounts (volume or weight) of waste to be generated, and how this is measured;
- How the waste generated will be managed to encourage circular economy activity (i.e. eliminate, reduce, reuse, recycle, upcycle, dispose plus links to sectoral activity that will or could facilitate this); and
- Details of the waste contractors / brokers employed to ensure waste is managed legally and responsibly in accordance with the requirements of this document.

3.2 Updating a SWMP

3.2.1 This SWMP should be updated and refined over time, as the Proposed Scheme progresses through detailed design, procurement and construction, and as waste information becomes more available and detailed. Updating the Plan should occur – as a minimum – when a change in construction or management technique is required, or when new or different volumes and types of waste are identified.

3.2.2 It is anticipated that, eventually, waste forecasts in this document will be transposed into a Site Waste Management Plan spreadsheet or tool, as per the Applicant's preference.

3.3 Communication and training

3.3.1 This Plan will be issued to:

- The Client (the Applicant);
- Principal Contractor and the nominated Environmental Manager (and its waste management supply chain, where appropriate).

3.3.2 In each case, those listed above will be responsible for providing adequate waste awareness and training throughout their organisations and value chain. Site inductions and toolbox talks for contractors and site workers will be a key part of this communication process.

3.3.3 The contents of this Plan (and progress against it or updates to it) will be included as an agenda item during both design and construction meetings.

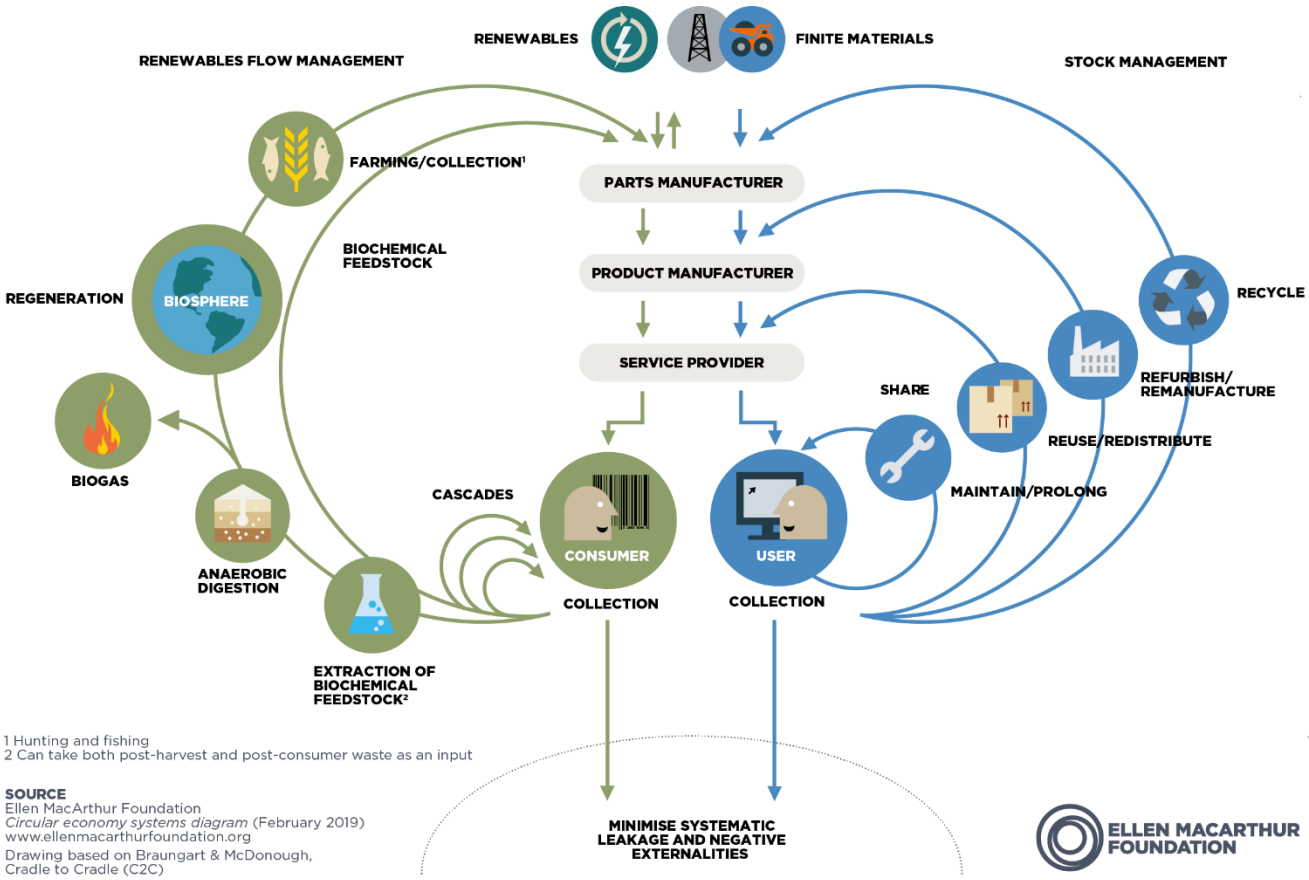
4 Site waste management plans and sustainable development

4.1.1 This section provides brief details on the role of SWMPs in the wider context of sustainable development, specifically the circular economy. Actions taken throughout design and construction of the Proposed Scheme will aim to respond this context wherever economically, socially and environmentally viable.

4.2 Circular economy

4.2.1 The Circular Economy is an alternative to a traditional linear economy (make, use, dispose) in which resources are kept in use for as long as possible: maximum value is extracted during use, and products and materials are recovered and regenerated at the end of each service life.

Figure 4-1 - The Butterfly diagram: visualising the Circular Economy (Ref 4)



4.2.2 A circular economy is important as it creates new opportunities for growth, including:

- Increasing activity around waste reduction and resource productivity;
- Delivering a more competitive and stable UK economy;
- Positioning the UK to better address emerging resource security/scarcity issues; and
- Helping reduce the environmental impacts of our production consumption in both the UK and abroad (**Ref 5**).

4.3 Waste as a resource

4.3.1 Underpinning the drive for a circular economy is the knowledge that the volume of waste produced by human activity continues to grow, and that construction sector waste produces 61% of UK generated waste (**Ref 6**). Part

of the solution is to create a shift in mindset: from managing waste, to one of increasing resource productivity.

4.4 Waste Hierarchy

4.4.1 The Waste Framework Directive sets out the Waste Hierarchy (**Figure 4-2**) against which action to reduce the production and disposal of waste shall be taken through this Plan.

Figure 4-2 - Waste Hierarchy

4.4.2 The main principles of the Waste Hierarchy **(Ref 7**) are:

- **Prevention** - using less material in design and manufacture; keeping products for longer; re use; using less hazardous materials;
- **Preparing for reuse** - checking, cleaning, repairing, refurbishing, whole items or spare parts;
- **Recycling** - turning waste into a new substance or product; includes composting if it meets quality protocols;
- (Other types of) **Recovery** - anaerobic digestion; incineration with energy recovery; gasification and pyrolysis which produce energy (fuels, heat and power); recovering materials from waste; some backfilling; and
- **Disposal** - landfill and incineration without energy recovery.

4.5 Proximity Principle

4.5.1 The Proximity Principle highlights the need to manage, treat and/or dispose of wastes in reasonable proximity to their point of generation. The principle works to minimise the environmental impact and cost of waste transport. It supports the prevention of exporting abroad or across international borders large volumes of waste, for example.

4.5.2 The Proximity Principle is set out in Article 16 of the Waste Framework Directive. Local planning authorities are required, under Regulation 18 of the 2011 Waste (England and Wales) Regulations (transposition of the Directive) to have regard to these requirements when exercising their planning functions relating to waste management.

4.5.3 There is no expectation that each local planning authority in the UK should deal solely with its own waste to meet the requirements of the Proximity Principle. Nor does it require using the absolute closest facility to the exclusion of all other considerations. For example, there are clearly some wastes which are produced in small quantities for which it would be uneconomic to have a facility in each local authority. Accordingly, local authorities work together to assist with the development of a network of management facilities to enable waste to be handled effectively (**Ref 8**).

4.5.4 Once appointed, and to minimise the indirect environmental impacts of waste management through haulage, the Principal Contractor will demonstrate – subject to safety, cost, and legal requirements – that the Proximity Principle has been adopted. Financial and other benefits from applying the Proximity Principle should be captured and communicated to the client alongside other findings of the SWMP.

5 Background information

5.1 Strategy, policy and legislation

5.1.1 This section of the Plan lists the strategy, policy and legislation pertaining to waste management in the UK. These documents have a direct impact on and / or influence over the management of waste on the Proposed Scheme and, therefore, on this SWMP.

5.1.2 The Principal Contractor will adhere to the content and requirements of these documents. Evidence to demonstrate compliance will be made available upon request, and in accordance with agreed auditing processes.

5.2 National & local waste strategies and policy

5.2.1 The following policy documents set out the vision, goals and ambition for waste in England. The original documents can be referred to for further detail and information. National waste strategy and policy applicable to the Proposed Scheme is summarised in **Table 5-1**.

Table 5-1 National waste strategies and policies

Policy title	Summary
Our Waste, Our Resources: A Strategy for England (**Ref 9**)	This Strategy sets out how the Government will preserve stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. The strategy also outlines the Governments aims to minimise the damage caused to the natural environment by reducing and managing waste safely and carefully, and by tackling waste crime. It combines actions to take now with firm commitments for the coming years and gives a clear longer-term policy direction in line with the 25 Year Environment Plan.

Policy title	Summary
Waste Management Plan for England, 2021 (**Ref 10**)	The Waste Management Plan for England 2021 supersedes the Waste Management Plan for England 2013. The Waste Management Plan for England is an analysis of the current waste management situation in England. The plan does not introduce new policies or change how waste is managed in England. Its aim is to bring current waste management policies together under one national plan.
25 Year Environment Plan (**Ref 11**)	The 25 Year Environment Plan sets out government actions to improve, regain and retain the natural world. The Plan sets out high level goals, which includes "*using resources from nature more sustainably and efficiently*" and "*minimising waste*" (Our 25-year goals, page 10). Chapter 4: Increasing resource efficient and reducing pollution and waste seeks to ensure that resources are used more efficiently and kept in use for longer to minimise waste and reduce its environmental impacts by promoting reuse, remanufacturing and recycling; and Work towards eliminating all avoidable waste by 2050 and all avoidable plastic waste by the end of 2042.

Policy title	Summary
National Planning Policy for Waste, 2014 (**Ref 12**)	The National Planning Policy for Waste outlines the ambition to promote a sustainable approach to resource use and management. It sets out waste planning policies and should be read alongside: the recently revised National Planning Policy Framework; the National Waste Management Plan for England and any relevant successor policies, guidance or documents. The National Planning Policy for Waste also states that when determining planning applications for non-waste development, local planning authorities should, to the extent appropriate to their responsibilities, ensure that: • The likely impact of proposed, non-waste related development on existing waste management facilities is acceptable and does not prejudice the implementation of the Waste Hierarchy and/or the efficient operation of such facilities; • New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development and, in less developed areas, with the local landscape; and The handling of waste arising from construction works and the operation of a development maximises reuse/recovery opportunities and minimises off-site disposal.

Policy title	Summary
National Policy Statement for Hazardous Waste 2013 (**Ref 13**)	This policy statement outlines the main objectives on Government Policy for hazardous waste, including: • To protect human health and the environment; • Implementation of the Waste Hierarchy; • Self-sufficiency and proximity; and • Climate change. The policy outlines the key principles for the management of hazardous waste, as follows: • Principle 1: Hazardous waste should be managed as to provide the best possible environmental outcome. • Principle 2: Requires a reduction in reliance upon landfill, with landfill only being used where there is no alternative recovery or disposal option available. • Principle 3: This principle requires that hazardous waste is not mixed with different categories of hazardous waste or with other waste substances or materials (although co-disposal of some wastes in landfill is allowed). • Principle 4: Stipulates that organic hazardous wastes that cannot be reused, recycled or recovered should be subject to destruction using best available techniques, with energy recovery for all appropriate treatments. No hazardous organic waste should be landfilled unless the requirements of the Landfill Directive are met. • Principle 5: The practice of relying on higher Landfill Directive waste acceptance criteria to enable some hazardous waste to continue to be landfilled must end.

5.2.2 Local waste strategy and policy applicable to the Proposed Scheme is summarised in **Table 5-2**.

Table 5-2 – Local waste strategy and policy

Policy title	Summary
Norfolk Core Strategy and Minerals and Waste Development Management Policies Development Plan Document (DPD) 2010-2026 (adopted in 2011) (**Ref 14**)	The Norfolk Core Strategy and Minerals and Waste Development Management Policies DPD runs for a 17 year period from 1 January 2010 to 31 December 2026; it sets out the spatial vision for future mineral extraction and associated development and waste management facilities in Norfolk.
Norfolk Waste Site Specific Allocations DPD (adopted in 2013) (**Ref 15**)	The Waste Site Specific Allocations DPD covers the period until the end of 2026 and allocates specific sites considered suitable (in principle) and available for development as waste management facilities.
Norfolk Minerals Site Specific Allocation DPD (adopted in 2013) (**Ref 16**)	The Minerals Site Specific Allocations DPD sets out specific, allocated sites where mineral extraction sites are considered acceptable (in principle) until the end of 2026. The DPD was subsequently amended by the adoption of the Single Issue Silica Sand Review in December 2017.
Norfolk Minerals and Waste Local Plan 2022 (**Ref 17**) (Publication version)	The Norfolk Minerals and Waste Local Plan 2022 is an emerging document being prepared to consolidate and replace the three adopted (previously listed) DPDs. The Plan includes a vision and strategic objectives for waste management and minerals development for the Plan period to 2038 and includes policies relevant to both minerals and waste management development.

5.3 Legislation

5.3.1 The legislative framework applicable to material resources and waste management, which sets out the conditions to be met for the control of storage, collection, treatment and disposal in England, is summarised in Table 5-3.

Table 5-3 - Waste directives and legislation

Policy Title	Summary
Waste Framework Directive (2008/98/EC) (**Ref 18**)	The Directive provides a comprehensive foundation for the management of waste across the European Community and provides a common definition of waste. A definition of waste is provided in Article 3 of the Directive which defines waste as: *"any substance or object that the holder discards or intends or is required to discard".* It is important to note that the definition of 'discard' set out in the Waste Framework Directive is different to its dictionary definition: The Directive definition includes any substance or object that is discarded for disposal or that has not been subject to acceptable recovery (including recycling). In accordance with the Waste Framework Directive, Member States are obligated to give due consideration to waste prevention mechanisms and where possible recover, reuse or recycle waste. Specifically, explicit targets are laid out for CDE wastes: 70% of non-hazardous construction and demolition waste must be recovered, reused or recycled by 2020. Although the UK is no longer a member of the EU, the WFD will continue to apply whilst the UK establishes its own legislation. The Waste Hierarchy, from the WFD, will remain a central concept to waste management, even if the Directive from which it originates no longer applies.

Policy Title	Summary
Environment Act 2021 (**Ref 19**)	The Environment Act 2021 aims to improve air and water quality, tackle waste, improve biodiversity and make other environmental improvements. Part 3 of the Act relates to waste and resource efficiency. The Act outlines producer responsibility obligations; introduction of deposit return scheme; rules for transporting, storing or disposing of waste; detection of waste crime by electronic waste tracking; measures against littering; prohibition or restriction of waste imports and exports; management of hazardous waste; regulations around sellers of goods and services to charge for single use items.
The Controlled Waste (England and Wales) Regulations 2012 (**Ref 20**)	The Regulations provide a definition of controlled waste and classifies waste as household, industrial or commercial waste. It allows Local Authorities to implement charges for the collection of waste from non-domestic properties.
The Waste (England and Wales) Regulations 2011 (**Ref 21**)	Stipulates the requirement for industry and businesses to implement the Waste Hierarchy.
Clean Neighbourhoods and Environment Act 2005 (**Ref 22**)	States that it is the responsibility of site workers to guarantee that waste is disposed in the appropriate manner. In accordance with this, employees must undertake waste disposal activities as outlined in national law.

Policy Title	Summary
Hazardous Waste (England and Wales) Regulations 2005 (**Ref 23**)	Introduces measures to control the storage, transport and disposal of hazardous waste. It provides a means to ensure that hazardous waste and any associated risks are appropriately managed.
Waste Minimisation Act 1998 (**Ref 24**)	Enables Local Authorities to take the appropriate steps to reduce and minimise the generation of household, commercial or industrial waste within their area.
Environmental Protection Act 1990 (**Ref 25**)	Outlines the requirement of the manager of a development to ensure that any excess materials or waste as a result of site works activities are recovered or disposed of without any subsequent adverse effects upon the surrounding environment. Under Section 34 of the EPA, the duty of care code of practice makes provision for the safe management of waste to protect human health and the environment.
The Control of Pollution Act 1974 (**Ref 26**)	Makes provisions with respect to the generation and revision of 'waste disposal plans' and prohibits the unlicensed disposal of waste.

Policy Title	Summary
Environmental Permitting (England and Wales) Regulations 2016 (**Ref 27**)	These Regulations came into force on 1st January 2017 and replace The Environmental Permitting (England and Wales) Regulations 2010 replacing the Waste Management Licensing Regulations 1994 which dictated the licensing of persons or businesses involved in the management of waste and relate directly to the licensing of a site or activity to carry out the management, processing and disposal of wastes. The updated regulations provide a consolidated system of environmental permitting for England and Wales and extend the range of activities that require an environmental permit, including waste exemption.

6 Waste context for UK and east of England

6.1 UK perspective

6.1.1 The most recent available data from Defra shown in **Table 6-1** (Ref 28) confirms that, within England, the recovery rate for non-hazardous construction and demolition wastes have remained above 90% since 2010. This exceeds the EU target of 70%, which the UK must meet by 2020. This target excludes naturally occurring materials (specifically, category 17 05 04 in the List of Wastes, which is defined as non-hazardous soils and stones) (**Ref 29**).

Table 6-1 - Non-Hazardous construction and demolition waste recovery in England

Year	Generation (Mt)	Recovery (Mt)	Recovery rate (%)
2010	53.6	49.4	92.2%
2011	54.9	50.8	92.5%

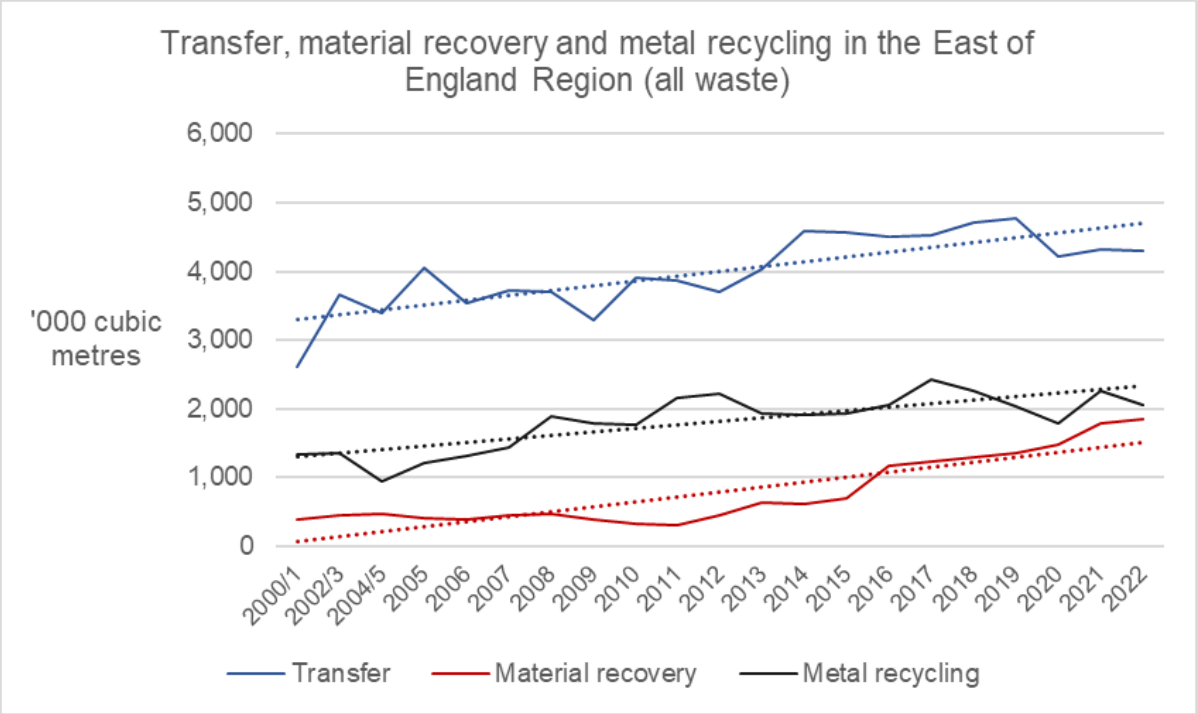
Year	Generation (Mt)	Recovery (Mt)	Recovery rate (%)
2012	50.5	46.4	92.0%
2013	51.7	47.6	92.0%
2014	55.9	51.7	92.4%
2015	57.7	53.3	92.3%
2016	59.6	55.0	92.1%
2017	62.2	57.9	93.1%
2018	61.4	57.5	93.8%
2019	62.3	58.3	93.6%
2020	53.6	50.0	93.2%

Note: Defra's 2022 update of this table does not extend the data range beyond 2020

6.2 Regional perspective

6.2.1 Environment Agency data in **Figure 6-1** (**Ref 30**) has been collated to show that rates of waste recovery in the region has risen steadily over the past 20 years. Metal recycling shows a slight decline in recent years; however overall, the trend is one that is increasing. Data are provided for all waste types in the East of England and hence will include, but is not specific to, construction, demolition and excavation wastes.

Figure 6-1 - Transfer, Materials Recovery and Metal Recycling in the East of England (2000/1 - 2021)



6.2.2 Whilst trends for transfer, recovery and metal recycling in the East of England display different characteristics, the information presented indicates that there is likely to be regional infrastructure and capacity for the transfer and recovery for construction, demolition and excavation wastes from the Proposed Scheme.

6.2.3 Construction and demolition recovery trends across East England (**Figure 6-1**) and data in **Table 6-2** (**Ref 30**) indicate the availability of materials recovery infrastructure in the East of England, and across England. This suggests that there is strong potential to divert from landfill site arisings generated by the Proposed Scheme, where those arisings are not already to be used on-site or another local project. The importance (positive value) of this infrastructure indicates there is potential to maximise the reuse / recycling value of site arisings.

Table 6-2 – Permitted waste recovery management sites in east of England (2021)

Waste recovery facility type	Number of sites
Incineration	21
Transfer	311
Treatment	349
Metal recovery	258
Use of waste	2
Total	**941**

7 Designing out waste measures adopted

7.1 Principles of designing out waste

7.1.1 This section of the SWMP describes principles and actions taken during design to respond to the principles of designing out waste. Examples (as expanded upon in **Table 9-1**) have been included in the descriptions of each principle, where applicable.

Design for reuse and recovery

7.1.2 Reuse of materials (including the use of recycled content) incorporates the use of reclaimed products, demounted/deconstructed arisings or crushed demolition materials. Reuse is preferable to recycling, however additional processes which may have their own environmental burdens should be taken into account. For example, asphalt plannings will be reused on site in temporary haulage roads and compound areas, prior to removal and recovery off-site.

Design for off-site construction

7.1.3 Prefabricated assets (if used) will generate less on-site waste through off-cuts and storage damage; they will also minimise on-site waste arisings and associated vehicle movements. Enabling the purchase of materials in shape/dimension and form that minimises the creation of off-cuts also reduces waste. Examples adopted on the Proposed Scheme include the (as standard) use of pre-fabricated street furniture (including lighting columns) and other technology, and pre-cast drainage elements.

Design for materials optimisation

7.1.4 This design approach focuses on the use of less material in a design (lean engineering), and/or design processes that will generate less waste during the construction process, whilst preserving the overall development vision / concept. For example, excavated arisings will be reused as fill in embankments and environmental bunds on the Proposed Scheme, to reduce the requirement to import primary resources.

Design for waste efficient procurement

7.1.5 Designs consider how work sequences affect the generation of site waste. Work is undertaken with specialist subcontractors to understand and minimise these opportunities, and often related contractual conditions are set. Once work sequences that cause site waste are identified and understood, they can often be ‘designed out’ (and precluded from procurement practices).

7.1.6 The Applicant will continue to work with the Principal Contractor and its value chain, to ensure that the design intent for reducing waste will be upheld and (where possible) refined as the Proposed Scheme advances.

Design for deconstruction and flexibility

7.1.7 This requires the consideration, during design, of how materials can be recovered effectively during the life of the Proposed Scheme when maintenance is undertaken and at end of life. When decommissioning assets, it is beneficial to separate materials, to reduce waste to landfill according to regulations. This principle applies in so far as where site assets can be

deconstructed and hence diverted from landfill through reuse or recycling, they should.

7.1.8 The Applicant will continue to work with the Principal Contractor to consider future technologies in the design that encourage streamlined maintenance and end of life procedures and management of waste, with the aim of diverting all waste from landfill.

8 Site waste management plan requirement for construction

8.1 General requirements

8.1.1 All construction related activities will be carried out in close conjunction with waste management contractors, to determine the best techniques for managing waste and ensure a high level of recovery of material resources.

8.1.2 Where wastes generated from the Proposed Scheme can be valuably reused on site or on other developments / processes, the benefits of doing so shall be quantified, recorded and shared with the Applicant, as the ultimate client / scheme adopter.

8.1.3 For all waste management options, consideration will be given to identifying whether waste exemptions or permits are required to enable effective management through storage and treatment.

8.1.4 Management in the highest tiers of the Waste Hierarchy will be supported by the identification of appropriately permitted recovery, waste management and other potential recipient facilities / activities, ideally in close proximity to the site.

8.1.5 The following sections describe actions that shall be taken to help minimise the production and disposal of waste to landfill.

8.2 Waste characterisation

8.2.1 Waste is classified as inert, non-hazardous or hazardous. In order to determine the suitability of a landfill or recovery facility to receive different waste classifications, Waste Acceptance Criteria (WAC) testing will be required. Responsibility for the basic classification of waste rests with the Principal Contractor (the 'Producer') and Landfill Operator.

8.2.2 The Landfill Directive (1999/31/EC as amended) also requires pre-treatment of any waste (including hazardous waste) prior to disposal off-site. Hazardous waste cannot be reused on the Proposed Scheme and the Principal Contractor will consider (where appropriate) additional treatment prior to disposal.

8.2.3 Pre-treatment relies on physical, thermal, chemical or biological processes, which includes sorting. The chosen process must change the characteristics of the waste, and it must either: reduce the wastes volume; or reduce its hazardous nature; or facilitate its handling; or enhance its recovery.

8.3 Duty of care

8.3.1 As part of the Environmental Protection Act (1990) waste produced on site will be subject to Duty of Care Requirements. The Principal Contractor will receive waste transfer notes (WTN, or a 'consignment note', if the waste is hazardous) from any waste management company contracted to move waste from site. The WTN will show the amount and type of waste removed from site and its destination. In each and every case, the Principal Contractor will document the name of each company removing waste, and the details of the site (including transfer stations) where the waste is being transferred to for each waste type.

8.3.2 Liaison with the Environment Agency will also, where required, be undertaken by the Principal Contractor (or the Environmental Manager) to ensure that all on-site materials and waste management is conducted in accordance with legal and good practice requirements.

8.3.3 Any Waste Contractor that removes waste from Proposed Scheme must be registered with the Environment Agency. The production, reuse and recycling of waste on Proposed Scheme is to be monitored and reported on a monthly basis to be able to identify trends in waste creation and to identify opportunities for reducing waste or increasing the rate of recycling.

8.3.4 **Table 8-1** (or similar) shall be used to log the relevant details of any waste management contractors to be commissioned, as obtained through early engagement:

Table 8-1 – Waste management log

Waste management contractor name	**Waste management contractor address**	**Waste Carrier Licence number; date of issue and expiry**	**Waste Management Licence number; date of use and expiry**	**Waste Transfer Note; storage location**
No data at present – example table	No data at present – example table	No data at present – example table	No data at present – example table	No data at present – example table

8.3.5 To comply with Duty of Care requirements, a site-wide waste minimisation scheme will be implemented by the Principal Contractor to encourage the reduction of waste, reuse of waste and recycling of waste. Measures which would be included in such a scheme would include:

- Reduction of materials wastage through good storage and handling;
- Use of modern methods of construction wherever possible, allowing significant reductions in waste and facilitating greater recycling;
- Providing waste minimisation induction courses for all Site personnel;

- Regular toolbox talks throughout the construction phase to raise awareness of the importance of minimising, segregating and recycling wastes during the construction processes;
- Ensuring adequate storage facilities are provided for waste streams generated; and
- Ensuring adequate security measures are in place.

8.3.6 The following additional requirements will be delivered through the application of the SWMP on the Proposed Scheme:

- The SWMP will be approved and signed off by the Applicant's Project Manager;
- Waste management targets will be set and agreed between these parties (as established through planning); continual progress against these will be measured, monitored and reported by the Principal Contractor at a frequency agreed with the client;
- Regular SWMP planning meetings will be arranged by the Principal Contractor;
- Training and briefings appropriate to the scale and nature of the works will be provided by the Principal Contractor, its own staff and its contracted value chain;
- The Principal Contractor shall agree data reporting procedures (including timings) with all management contractors employed to remove waste from site; and
- An area for waste segregation and collection will be created on the works site compound with clear signposting as to the location for each waste product.

8.4 Waste segregation

8.4.1 A specific area(s) at Site shall be laid out and clearly demarcated to facilitate the separation of wastes and materials, ready for potential diversion from landfill in accordance with the Waste Hierarchy. Discussions will be held between the Applicant and the Principal Contractor to validate space requirements to accommodate skips and storage of materials and waste.

8.4.2 Recycling and waste bins are to be kept clean and clearly marked in order to avoid contamination of materials. Skips for segregation of waste will include, but not necessarily be limited to, the following. Where it is possible to segregate further, by waste type (for example, segregating inert plastics, concrete and brick), this should be undertaken:

- Mixed inert;
- Mixed non-hazardous;
- Hazardous;
- Metals;
- Wood;
- Food;
- Paper, cardboard and glass; and
- Waste Electronic and Electrical Equipment.

8.4.3 Suitably qualified and/or experienced personnel, well defined responsibilities, and clear signage shall be used by the Principal Contractor to make sure waste management through skips is effective and maximised. This will reduce levels of contamination in the skips and increase the likelihood that a load will be accepted for off-site for reprocessing. In cases where a load is rejected, the likely destination would be landfill, which will increase the costs of the project and have adverse environmental effects.

8.4.4 Skips shall be monitored to ensure that cross-contamination of segregated waste does not occur.

8.4.5 Shelter may be needed to prevent materials (cardboard and paper, for example) from deteriorating while being sorted or awaiting collection.

8.4.6 Dust suppression measures will be put in place, and drainage shall be carefully addressed to eliminate the potential for pollution of nearby drainage ditches, water courses and groundwater.

8.5 Hazardous waste

8.5.1 Hazardous materials include any substance that can pose an unreasonable risk to health, safety or environment. The cost of hazardous waste treatment and disposal is significantly higher than treatment and disposal of non-hazardous or inert waste. Any such hazardous waste and associated contaminated materials, will be managed in accordance with legislation and best practice guidelines prior to disposal.

8.5.2 Substances used in construction processes such as oil, chemicals and cleaning materials have the potential to cause serious pollution, the impact of which would be exacerbated if a pollutant is discharged into a watercourse.

8.5.3 The Principal Contractor shall develop processes that specifically consider oils, fuels, and chemical and other hazardous materials and construction waste. The Principal Contractor shall also be responsible for identifying suitable areas for the storage of oils, fuels, chemical and other hazardous materials and construction waste.

8.5.4 Where required, the Principal Contractor will appoint a Control of Substances Hazardous to Health (COSHH) Co-ordinator who will be responsible for ensuring the control of all substances hazardous to health on Site, both covered by the COSHH Regulations (**Ref 31**), and the Control of Asbestos Regulations (**Ref 32**) for Asbestos Containing Materials (ACM).

8.5.5 All workers on Site should be informed of the arrangements for COSHH during induction training. This includes advice on the hazards and precautions to be taken regarding substances of general use on Site.

8.5.6 The storage, handling, and disposal of hazardous materials and/or waste should conform to standards, regulations, customer/client requirements and the SWMP.

8.5.7 The Principal Contractor will also detail plans and procedures relating to:

- Hazardous waste storage;
- Disposal requirements; and
- Pollution control in respect of nearby watercourses.

8.6 Reuse of arisings

8.6.1 Uncontaminated arisings will, where possible, be reused on site for environmental bunds and off site for future development. Surplus deconstructed, demounted and demolition materials will be managed in compliance with:

- The criteria and thresholds for exemption; and/or
- A permit issued in accordance with the Environmental Permitting Regulations 2016; and/or
- A Materials Management Plan, adhering to the CL:AIRE Definition of Waste Code of Practice (CoP).

9 Design waste forecasts

9.1 Initial design waste forecast

9.1.1 A detailed forecast of waste streams from the Proposed Scheme (and possible management options) has been undertaken in **Table 9-1**. All figures are rounded up to the nearest 10 tonnes, where suitable.

9.1.2 The forecast uses data provided through the detailed design stage and anticipated knowledge of waste generation and management. The forecast shall be updated and refined as the Proposed Scheme progresses into construction, particularly where material changes to the current design intent are found to be required, or current forecasts can be refined.

9.1.3 The prefabricated elements required for the Proposed Scheme (listed below) have been assigned a 0% wastage rate; these elements will be manufactured off-site (ready for on-site assembly) and it is therefore expected that they do not hold any potential for on-site waste generation. Prefabricated elements on the Proposed Scheme are as follows:

- Traffic signals (traffic signs and road marking section);
- Steet lighting; and
- Pre-cast items for drainage (e.g. manholes, culverts).

9.1.4 At the end of the construction phase the Principal Contractor shall confirm actual waste arisings and management techniques adopted, by comparison with the most up-to-date design forecasts issued during handover (**Table 9-1**). Where agreed to be appropriate, data shall be incorporated in a (to be confirmed) SWMP template.

Table 9-1 – Design waste forecasts

Site activity	Waste type	EWC code	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Site clearance	Road carriageway	17 09 03*	13,920	It is intended to reuse road planings on site for temporary roads and platforms, where suitable (**reuse**) These arisings have the potential to contain hazardous material (coal tar); further testing is to be carried out to determine if a specialist waste facility is required to manage certain arisings; accordingly, a 10% contingency for hazardous waste has been applied (**landfill**)	90%
Site clearance	Culvert	17 01 01	20	Concrete culverts to be removed and taken off site for recycling (**recycle**)	100%
Site clearance	Post and Rail fence	17 09 04	40	Post and Rail fence to be removed and taken off site for recycling (**recycle**)	100%
Site clearance	Road drainage	17 02 03	20	Road drainage to be removed and taken off site for recycling (**recycle**).	100%
Site clearance	Existing sign to be removed	17 04 07	1	Metal signs to be removed and taken off site for recycling (**recycle**)	100%
Construction site arisings	Waste from 552,311 tonnes aggregate required for permanent works and temporary works	17 05 04	560 (Figure based on 0.1% wastage rate)	Aggregates to be reused on site where possible or removed for reuse off-site (**recycle**)	100%
Construction site arisings	Aggregates for temporary compounds and haul roads	17 05 04	98,070	Aggregates to be taken off site for reuse (**recycle**)	100%

Site activity	Waste type	EWC code	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Construction site arisings	Waste from 89,070 tonnes asphalt required for permanent works	17 03 01*	90 (figure based on 0.1% wastage rate)	Asphalt to be reused on site where possible or take off site for reuse (**recycle**)	100%
Construction site arisings	Asphalt for temporary compounds	17 03 01*	6,790	Asphalt plannings to be reused on site for temporary compounds (**reuse**). Following completion of the works, the temporary compounds are to be removed and taken off site for reuse (**recycle**)	100%
Construction	Waste from 48,600 tonnes of poured concrete	17 01 01	970 (Figure based on 2% wastage rate)	Concrete will set and be crushed on site and either used in environmental bunds (**reuse**) or, if this cannot be achieved, sent off site for recycling (**recycle**)	100%
Construction	Waste from 2 tonnes of lighting cabling (copper)	17 04 11	<1 (Figure based on 1% wastage rate)	Copper lighting cable to be removed and taken off site for recycling (**recycle**)	100%
Construction	Waste from 26 tonnes of geotextile use for drainage ‘terram’ (separation and protection)	17 02 03	1.3 (Figure based on 5% wastage rate)	Geotextile to be removed and taken off site for recycling (**recycle**)	100%
Construction	Waste from 120 tonnes of HDPE	17 02 03	2.5 (Figures based on 2% wastage rate)	HDPE to be removed and taken off site for recycling (**recycle**)	100%
Construction	Waste from 1 tonne of paint used for road marking	20 01 27*	< 1 (Figure based on 1% wastage rate)	Paint to be removed and taken off site for recycling (**recycle**)	100%

Site activity	Waste type	EWC code	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Construction	Waste from 20 tonnes of polythene used as impermeable membrane	17 02 03	< 1 (Figure based on 1% wastage rate)	Polyethylene to be removed and taken off site for recycling (**recycle**)	100%
Construction	Waste from 29,000 tonnes of sand used for sand drains and ducting	17 05 04	30 (figure based on 0.1% wastage rate[#])	Sand to be used on site (**reuse**)	100%
Construction	Waste from 1,325 tonnes of stone to be used for scour protection	17 05 04	1 (figure based on 0.1% wastage rate[#])	Stone to be used on site (**reuse**)	100%
Construction	Waste from 18,920 tonnes of steel	17 04 05	190 (Figure based on 1% wastage rate)	Steel to be removed and taken off site for recycling (**recycle**)	100%
Construction	Waste from 380 tonnes of timber used for fencing and ecology mitigation features	17 02 01	20 (Figure based on 5% wastage rate)	Timber to be removed and taken off site for recycling (**recycle**).	100%
Construction	Timber (pallets)	17 02 01	200	Timber pallets will be collected from site and reused (**reuse**).	100%
Construction	Waste from 137 tonnes of timber formwork	17 02 01	20 (Figure based on 10% wastage rate)	Timber to be removed and taken off site for recycling (**recycle**).	100%
Construction	Waste from 4 tonnes of bitumen water-proofing	17 03 01*	< 1 (Figure based on 5% wastage rate)	Bitumen water-proofing to be removed and taken off site for recycling (**recycle**)	100%

Site activity	Waste type	EWC code	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Excavation	Earthworks (hazardous)	17 05 03*	1,000	A contingency of potentially hazardous material encountered on site will be disposed to landfill (**disposal**)	0%
Excavation	Earthworks (hazardous)	17 05 03*	69,670	An allowance for loamy peat soil to be removed from the floodplain and disposed of as potentially hazardous waste	0%
Excavation	Earthworks materials (surplus excavated arisings)	17 05 04	231,030	Surplus excavated arisings intended to be reused off-site (**recycle**)	100%

Please note - an asterisk (*) next to a code denotes that it is hazardous waste

- nominal quantity 0.1% wastage rate assumption made

Note: All figures rounded up to the nearest 10 tonnes, where suitable.

9.2 Conclusions

9.2.1 Based on the current design information, the Proposed Scheme is expected to achieve a 100% landfill diversion rate for inert and non-hazardous waste. This level of achievement is considered exemplar practice and exceeds the target outlined in the emerging Minerals and Waste Local Plan (publication version 2022), i.e. 90% diversion from landfill.

9.2.2 Subject to this ambition being achieved, the only remaining opportunity to further improve recovery rates is through the management of hazardous wastes at a treatment facility, in order to divert these arisings from landfill.

9.3 Recording Waste Performance

9.3.1 **Table 9-2** will be used to record waste minimisation and circular economy achievements on the Proposed Scheme. Data collated in this table may be transposed to the SWMP spreadsheet by the Principal Contractor, so that it can be compared with actuals.

Table 9-2 Waste Performance Data

Type of waste	Circular economy or DoW action identified or applied (qualification)	Waste avoided (m^3 or tonnes)	Total waste estimated (m^3 or tonnes)	Management technique adopted *
No data at present – example table	No data at present – example table	No data at present – example table	No data at present – example table	No data at present – example table

10 Review and lesson learned

10.1.1 Within three months of completion, the Principal Contractor and the Applicant are responsible for:

- Confirming that the SWMP has been finalised to the satisfaction of the responsible parties;
- Justifying any deviation from the agreed Plan;
- Finalising the comparison of design forecasts for each waste type, against the actual quantities generated and recovered;
- Establishing the success of any approaches taken to achieve a circular thinking or practice;
- Establishing the volume of waste diverted from landfill, the commercial benefits from the approach, and any carbon and other savings achieved; and
- Identifying lessons learned and describing how key messages will be communicated to the benefit of future developments to drive continual improvement.

10.1.2 Completion of the above stages will be confirmed through the post construction declaration below.

10.1.3 The Principal Contractor will keep the completed SWMP for at least two years after the Scheme is complete, either at the project site, or at their main place of business.

This Plan has been fully implemented to meet the requirements set out and has been updated to record details of the actual waste management actions and waste transfers, against the forecasts made in design.

11 References

Ref 1 CL:AIRE Definition of Waste Code of Practice [CL:AIRE Website]

Ref 2 Norfolk Minerals and Waste Local Plan (Publication version 2022) [Norfolk County Council Website]

Ref 3 SWMP Regulations 2008 [Gov.UK Legislation website]

Ref 4 The Butterfly Diagram, Ellen Macarthur Foundation [The Butterfly Diagram: Visualising the Circular Economy (ellenmacarthurfoundation.org)]

Ref 5 WRAP and the Circular Economy (2019) [WRAP Website]

Ref 6 Defra (2019) UK Statistics on Waste [Defra Website]

Ref 7 Defra (2011) Guidance on applying the Waste Hierarchy [Defra Guidance]

Ref 8 HM Government (2015) Waste: Guidance [Gov.uk Website]

Ref 9 HM Government (2018) Our Waste, Our Resources: A Strategy for England [Gov.uk Website]

Ref 10 Defra (2021) Waste Management Plan for England [Defra Guidance]

Ref 11 Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment [Gov.uk Website]

Ref 12 DCLG (2014) National Planning Policy for Waste [Defra Guidance]

Ref 13 Defra (2013) National Policy Statement for Hazardous Waste [Defra Guidance]

Ref 14 Norfolk Core Strategy and Minerals and Waste Development Management Policies (DPD) 2010-2026 [Norfolk County Council Website]

Ref 15 Norfolk Waste Site Specific Allocation DPD (adopted in 2013) [Norfolk County Council Website]

Ref 16 Norfolk Minerals Site Specific Allocation DPD (adopted in 2013) [Norfolk County Council Website]

Ref 17 Norfolk Minerals and Waste Local Plan, May 2022 (Publication version) [Norfolk County Council Website]

Ref 18 Waste Framework Directive (2008/98/EC) [Official Journal of the European Union]

Ref 19 Environment Act 2021 (2021c.30) [Gov.uk Website]

Ref 20 The Controlled Waste (England and Wales) Regulations [Gov.uk Website]

Ref 21 HM Government (2011) The Waste (England and Wales) Regulations 2011 [Gov.uk Website]

Ref 22 HM Government (2005) The Clean Neighbourhoods and Environment Act 2005 [Gov.uk Website]

Ref 23 HM Government (2005) Hazardous Waste (England and Wales) Regulations 2005 [Gov.uk Website]

Ref 24 HM Government (1998) Waste Minimisation Act 1998 [Gov.uk Website]

Ref 25 HM Government (1990) The Environmental Protection Act 1990 [Gov.uk Website]

Ref 26 HM Government (1974) The Control of Pollution Act 1974 [Environment Agency Website]

Ref 27 HM Government (2016) The Environmental Permitting (England and Wales) Regulations 2016 [Goc.uk Website]

Ref 28 Defra (2022) UK Statistics on Waste [Defra Website]

Ref 29 Directive 2008/98/EC of the European parliament and of the council of 19 November 2008 on waste and repealing certain directives. The European Parliament and the Council of the European Union (2008). European Union Legislation website

Ref 30 Environment Agency, Waste Data Interrogator (2022) 2021 Waste Summary Tables for England [Environment Agency Website]

Ref 31 The Control of Substances Hazardous to Health Regulations (2002) [Gov.uk Website]

Ref 32 The Control of Asbestos Regulations (2012) [Gov.uk Website]