TEESWORKS

LONG ACRES ENVIRONMENTAL STATEMENT

VOLUME 2: CHAPTER M
WASTE AND MATERIALS MANAGEMENT

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Long Acres, South Tees

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Chapter M: Waste and Materials Management

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Contents

M1.0 Introduction

M1.1 This chapter of the Environmental Statement ('ES') has been prepared by Atkins on behalf of the applicant, South Tees Development Corporation ('STDC').

M1.2 The generation of waste and consumption of materials, in one form or another, is an inevitable consequence of all forms of development and the sustainable management of waste is an important issue. This section assesses the effects of waste and materials generated by the proposed development on waste and materials management.

M1.3 The baseline is established before the likely environmental effects are identified, both during construction and operational phases of the proposed development. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.

M1.4 There are no appendices associated with this chapter.

About the Author

M1.5 Atkins demonstrates competence in environmental impact assessment through registration to the EIA Quality Mark with the Institute of Environmental Management and Assessment.

M1.6 The Author, Greg Logelain of this document is a Waste Management Consultant with over 7 years of experience in environmental consulting/ environmental impact assessment/ waste management. He is a Chartered Resource & Waste Manager and Chartered Environmentalist with the Chartered Institution of Wastes Management.

M1.7 Additionally, our Waste and Materials Leads are experienced EIA practitioners with depth of experience in EIA and hold Chartership status such as Chartered Environmentalist, Chartered Waste Manager and/or Chartered Scientist. The Chartered status of our staff characterises them as knowledgeable, experienced, competent and committed environmental professionals.

M2.0 Policy Context

M2.1 The following section provides a list of key waste legislation and policies which are relevant to both the construction and operational phases of the proposed development. This is not exhaustive but includes those which are the most pertinent to the proposed development and to this assessment.

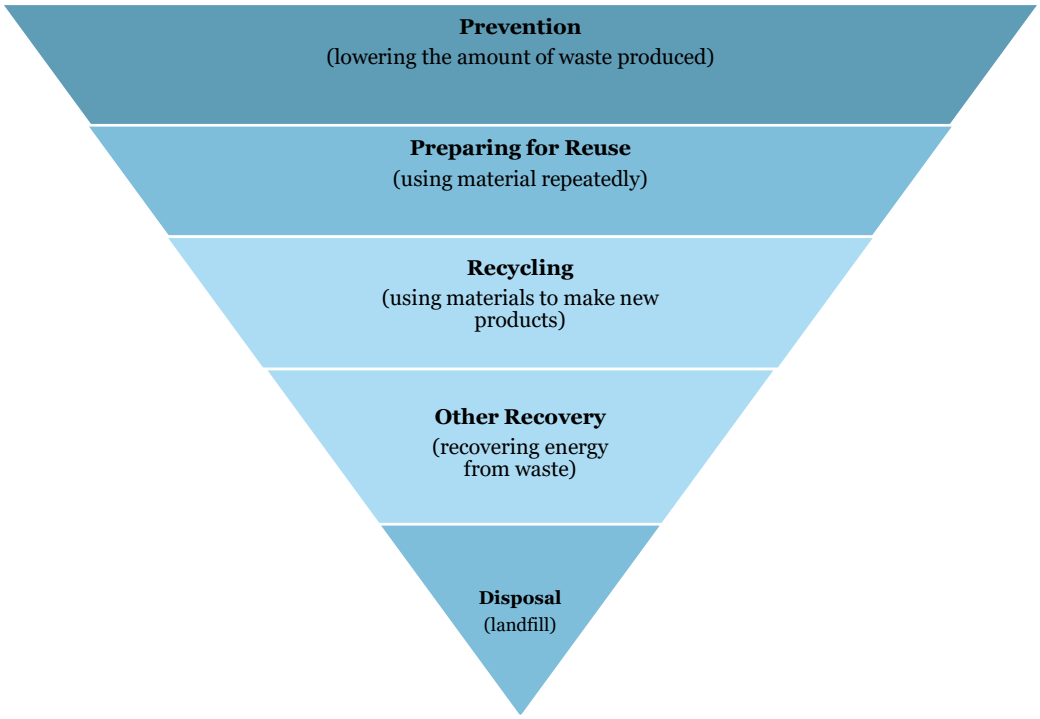
Statutory Legislation

EU Waste Framework Directive (revised) (2008/98/EC) (Ref 1)

M2.2 The Waste Framework Directive ('WFD') sets out an overarching legislative framework for the collection, transport, recovery, and disposal of waste. One of its key targets is that by 2020, the re-use, recycling and other material recovery (including backfilling operations by waste), of non-hazardous construction and demolition waste (defined in category 17) but excluding naturally occurring material should be, as a minimum, 70% by weight of that generated. Specifically, category 17 is most relevant for the Building Research Establishment (BRE) and should be considered as a minimum requirement for waste management contractors working on the scheme to achieve.

M2.3 Article 4 of the EU Waste Framework Directive (2008/98/EC) states that waste should be managed in accordance with the five-step waste hierarchy shown in Figure M2.1, and that member states should apply this in priority order.

Figure M2.1 - The Waste Hierarchy



EU Landfill Directive (1993/31/EC) (Ref 2)

M2.4 The EU Landfill Directive (1993/31/EC) as amended by EU Directive (2003/33/EC) altered the disposal mechanisms in landfills and introduced tighter monitoring and engineering standards.

The Directive set targets to reduce the amount of Biodegradable Municipal Waste (BMW) sent to landfill for disposal to 35% by 2020, against a 1995 baseline.

Environmental Protection Act 1990 (c. 43) (Ref 3)

M2.5 The Environmental Protection Act 1990 (c. 43) as amended in 1996 and 1999 implements integrated pollution control for the disposal of waste to air, land and water, including solid waste disposal. The generation of waste from the proposed development shall be managed in accordance with all applicable legislation and policy and in accordance with good practice.

Environmental Protection (Duty of Care) Regulations 1991 (Ref 4)

M2.6 This Act defines the fundamental structure and authority for waste management and control of emissions into the environment, within England and Wales and Scotland. This includes regulations surrounding the controlled disposal of waste on land, either household, industrial or commercial in origin. It introduced the concept of the Duty of Care for all wastes, with controls on the transportation, treatment, carrying and keeping of waste.

The Waste (England & Wales) Regulations 2011 (Ref 5)

M2.7 This amended several previous pieces of legislation including; Hazardous Waste (England and Wales) Regulation 2005, Environmental Permitting (England and Wales) Regulations 2010, Public General Acts and secondary legislation. Part of the stipulated duties included within the 2011 regulations is the obligation for establishments to adhere to the waste hierarchy. This new addition was intended to incorporate greater aspects of the circular economy.

The Environmental Permitting (England and Wales) Regulations 2016 (Ref 6)

M2.8 The Environmental Permitting Regulations 2016 (SI 2016/1154) replace the 2010 Regulations (SI 2010/675) (as amended in 2011 (SI 2011/2043), 2012 (SI 2012/630) and 2014 (SI 2014/255)). The Regulations put in place requirements to ensure that sites that produce certain materials and undertake certain activities (such as the storage, use or treatment of waste) have a permit or exemption from the regulator (i.e. the Environment Agency). Permit or exemption details of all sites that manage waste from the proposed development will be checked to confirm waste is being managed legally.

Hazardous Waste (England & Wales) Regulations 2016 (Ref 7)

M2.9 These Regulations control the movement and subsequent management of hazardous waste. This includes the restrictions placed on the co-mingling of hazardous waste types and mixing hazardous with non-hazardous waste. Since the 2016 amendment, organisations that produce or store 500kg or more hazardous waste per year are no longer required to register premises with the Environment Agency (EA), however it is still mandatory to complete a consignment note which ensures the hazardous waste information is recorded within the EA register.

Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (SI 2013/3113) (Ref 8)

M2.10 The Regulations revoke the previous WEEE Regulations (2006 (SI 2006/3289), 2007 (SI 2007/3454), 2009 (SI 2009/2957) and 2010 (SI 2010/1155)) and have a key objective to reduce the amount of WEEE that goes to landfill. This is to be achieved by making producers responsible for the collection, treatment and recovery of WEEE, including the associated costs.

The CLP (Classification, Labelling and Packaging) Regulation (EC 1272/2008) (Ref 9)

M2.11 The CLP Regulation (within the UK and EU) was introduced in a staggered manner between 1999 and 2015. It should be noted that within the UK and EU, the CLP Regulation, has replaced the Dangerous Substances Directive (67/548/EEC) and the Dangerous Preparations Directive (1999/45/EC). To summarise, the Regulation provides guidance on the application of the CLP criteria for hazards (physical, health and environmental). With specific reference to the proposed development, the Regulation should be used to support the classification of both waste and materials. All waste should be classified by a six-digit code, which must be recorded on all waste transfer notes and hazardous waste consignment notes for the movement of waste from the CD&E and operational phases of the project.

The Control of Asbestos Regulations 2012 (SI 2012/632) (Ref 10)

M2.12 The Regulations require notification to the appropriate authority of all notifiable asbestos works (as specified in the Regulations), the medical surveillance (from April 2015) and health records for employers dealing with asbestos, the provision of the correct equipment and training for working with asbestos; and the documentation of the method, storage and disposal of asbestos waste. Any waste containing asbestos (e.g. insulation or lagging) must be stored and disposed of, in suitable packaging to prevent fibre release, in line with the Regulations. All asbestos must be removed by a licensed contractor who has undergone the appropriate training for the removal of asbestos and must wear the appropriate PPE. Written records must be kept of the workers and the likely level of exposure. The asbestos must only be disposed of at an appropriately permitted disposal site.

Environmental Damage (Prevention and Remediation) Regulations 2009 (SI 2009/153) (Ref 11)

M2.13 The Regulations, as amended in 2010 (SI 2010/587), introduce obligations to ensure the polluter pays for any environmental damage caused. The Regulations are applicable to all economic activities and therefore cover businesses. The Regulations require caution to be taken when managing sites in order to prevent damage to water, land and biodiversity. Such damage could be caused by poor waste management practices and as such the generation of waste from the proposed development must be managed in accordance with all applicable legislation and policies and in accordance with good practice.

National Policy & Guidance

National Planning Policy Framework (NPPF) (Ref 12)

M2.14 The National Planning Policy Framework ('NPPF') was first published in March 2012, and later revised in 2018 and again in February 2019. The NPPF states that part of the environmental objective for achieving sustainable development is:

"to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

M2.15 In Chapter 17, 'Facilitating the sustainable use of minerals', the NPPF states that planning policies should:

"so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously" (paragraph 204 b)

M2.16 It should be noted that national planning policy for waste is not covered within the NPPF and as such it makes no specific references to waste policies, and instead suggests that it should be read in conjunction with the most up to date national waste policies. Paragraph M2.19 summarises the England Resources & Waste Strategy 2018, which is considered most relevant to this project.

National Planning Policy for Waste 2014 (Ref 13)

M2.17 The National Planning Policy for Waste is the formal replacement for Planning Policy Statement 10 (PPS10). It follows the principles set out in PPS10, which states that waste should be managed in line with the principles of the waste hierarchy (see Figure M2.1). It is important to ensure that, where possible, waste production is minimised to reduce environmental impacts and to ensure an assessment is made of the local waste infrastructure type and capacities, to include, but not be limited to, an assessment of the local policies.

Waste Planning Practice Guidance 2015 (Ref 14)

M2.18 The national Planning Practice Guidance provides supplementary guidance to the National Planning Policy for Waste 2014. The guidance requires that impacts introduced by a proposed development on the existing waste management facilities are acceptable and do not prejudice the implementation of the waste hierarchy.

England Resources & Waste Strategy 2018 (Ref 15)

M2.19 The strategy policy paper 'Our waste, our resources: a strategy for England' published in December 2018 in line with Defra's 25 Year Plan. The Resources & Waste Strategy 2018 sets out the actions to be taken in order to achieve the following key targets:

1. 50% recycling rate for household waste by 2020;
2. 75% recycling rate for packaging waste by 2030;
3. 65% recycling rate for Municipal Solid Waste ('MSW') by 2035; and
4. Municipal waste to landfill <10% by 2035.

Local Policy & Guidance

Redcar & Cleveland Local Plan 2018 (Ref 16)

M2.20 The Redcar & Cleveland Local Plan sets out the vision and overall development strategy for the Council's area and how it will be achieved for the period until 2032. The Local Plan provides the policy framework to meet the targets and ambitions set by wider national guidance and regional planning commitments. Policy regarding waste and minerals is set out in the Tees Valley Joint Minerals and Waste Development Plan Documents ('DPD') (2011).

The Tees Valley Joint Waste Management Strategy 2020-2035 (Ref 17)

M2.21 The strategy has been produced by the five local councils that comprise the Tees Valley: Darlington, Hartlepool, Middlesbrough, Redcar and Cleveland, and Stockton-on-Tees. The strategy sets out the joint approach to sustainable management of local authority collected waste within the Tees Valley and prioritises actions for the next fifteen years; it excludes construction and demolition waste. The strategy states that the region has in place a 60% recycling target for

municipal solid waste and commercial and industrial wastes by 2030. This target will be used to inform this assessment.

Tees Valley Joint Minerals and Waste Development Plan Documents 2011 (Ref 18)

M2.22 The Minerals and Waste Core Strategy DPD contains the long-term spatial vision and strategic policies for minerals and waste developments. The Minerals and Waste Policies and Sites DPD identifies specific sites for minerals and waste development and provides policies which will be used to assess minerals and waste planning applications.

M2.23 Key policies outlined in the Joint Minerals and Waste DPDs that are fundamental to future waste and materials management include:

Policy MWC 1 (Minerals Strategy) (Ref 18.1)

M2.24 The sustainable use of mineral resources in the Tees Valley will be delivered through:

a Where appropriate, identifying sources of alternatives to primary mineral resources including secondary and recycled minerals, and encouraging the development of facilities to process alternative materials either at the point of production or other suitable locations;

b Ensuring new-build developments, in particular those in regeneration and growth point areas, contribute to the efficient use of resources, to increase the proportion of construction and demolition waste recycled per year for use as an alternative mineral from 38% in 2005 to at least 80% from 2016 onwards;

c The efficient use of permitted reserves of primary minerals to help meet the identified need, whilst continuing to drive minerals supply up the minerals' hierarchy;

d Identifying those wharves which can be used for the landing of marine-dredged sand and gravels and safeguarding associated land for the development, extension and continuation of this activity;

e Safeguarding the necessary infrastructure to enable the sustainable transport of minerals, in particular the use of the existing rail and port facilities in the Tees Valley; and

f Identifying minerals resources underling the Tees Valley and protecting them from unnecessary sterilisation by built development.

M2.25 The target of 80% of construction waste to be used as an alternative mineral for construction will be considered as an additional mitigation measure for materials use within this assessment.

Policy MWC 4 (Safeguarding of Minerals Resources from Sterilisation) (Ref 18.2)

M2.26 Within the minerals safeguarding areas, non-minerals development will only be permitted in the following circumstances:

a the development would not sterilise or prejudice the future extraction of the mineral resource because there is evidence that the resource occurs at depth and can be extracted in an alternative way or there is evidence that the resource has been sufficiently depleted by previous extraction; or

b the mineral will be extracted prior to development and this will not significantly adversely affect the timing and viability of the non-mineral's development; or

c the need for the non-mineral development can be demonstrated to outweigh the need for the mineral resource.

Policy MWC 6 (Waste Strategy) (Ref 18.3)

M2.27 The sustainable management of waste arisings in the Tees Valley should:

a Make provision for sufficient annual waste management capacity;

b promote facilities and development that drives waste management up the waste hierarchy;

c allow for the distribution of waste management sites across the Tees Valley so that facilities are well related to the sources of waste arisings, related industries or the markets for any products created;

d safeguard the necessary infrastructure to enable the sustainable transport of waste, in particular the use of the existing rail and port facilities in the Tees Valley; and

e develop the regional and national role of the Tees Valley for the management of specialist waste streams.

M2.28 Other relevant policies include;

1. MWC2: Provision of Primary Aggregate Minerals: Provision made for the supply of primary aggregate minerals between 2010 and 2026 to meet the identified need in the Tees Valley;
2. MWC3: Alternative Materials for Aggregates Use: development of facilities to process materials which can be used as alternatives to primary aggregate resources;
3. MWC7: Waste Management Requirements: development of waste management facilities to meet the identified requirements of the Tees Valley; and
4. MWC11: Safeguarding of Port and Rail Facilities: development which is proposed on or in the vicinity of Tees Dock (Redcar and Cleveland) only permitted where it would not prejudice the transportation of minerals resources and waste materials by water and rail.

M3.0 Assessment Methodology & Significance Criteria

Assessment Methodology

M3.1 Waste is defined by the Waste Framework Directive (Directive 2008/98/EC) (Ref 1) as 'any substance or object which the holder discards or intends or is required to discard'. The directive definition includes any substance or object that is discarded for disposal or that has not been subject to acceptable recovery (including reuse and recycling).

M3.2 Where waste is disposed of, resources are lost, and the potential for indirect impacts exists (e.g. atmospheric emissions, pollution of water bodies, visual impact).

M3.3 According to the IEMA guidance (Materials and Waste in Environmental Impact Assessment, 2020 (Ref 19) (herein referred to as the IEMA guidance, 2020) (Ref 19), materials are substances used in each lifecycle stage of a development, with particular focus on the construction, operation and maintenance, and decommissioning or 'end of first life' (deconstruction, demounting, demolition and disposal) phases.

M3.4 The study area for the proposed development is the North East of England region for waste and materials.

M3.5 The following tasks have been carried out to determine the impact in relation to waste generation and materials use resulting from the proposed development:

1. Review of relevant waste legislation, national, regional and local planning policies and guidance to identify materials and waste management objectives and targets;
2. Review of the design and data from the client (where available) to estimate the quantities and types of materials to be used and wastes to be generated during construction and operation;
3. Establish the sensitivity of receptors in accordance with the IEMA guidance, 2020. Materials are in their own right sensitive receptors as consuming materials unavoidably impacts upon their availability, resulting in the natural depletion of resources. For waste, landfill capacity is considered a finite resource and through disposal, there is an ongoing need to develop new landfills, resulting in further in the depletion of the natural environment;
4. Identify and evaluate the impacts of the proposed development against regional landfill capacity for waste and regional material availability for materials; and
5. Identify opportunities/mitigation measures to reduce, re-use, recover and/ or recycle materials and wastes through a review of the proposed developments design.

M3.6 The assessment has been undertaken by quantifying the likely volumes of waste and materials which will be generated during both the construction (including excavation but excluding demolition) and operational phases of the proposed development, and by considering its potential impact on the known regional landfill void capacity. Similarly, for materials, the estimated quantities of material required for construction of the proposed development have been supplied to Atkins by the client and their impact assessed on the regional materials availability.

M3.7 Waste arisings from the following activities are considered:

a Waste generated by excavation activities:

i Hardstanding/ topsoil removal

ii Ground preparation for machinery/ equipment (including piling)

iii Site levelling

b Waste generated by construction activities:

i Construction of B2 General Industry, B8 Storage and Distribution, E Office and associated hardstanding/ carparking

c Construction waste is likely to include but not limited to concrete, aggregates, asphalt, bricks, ballast, mortar, glass, and timber (IEMA guidance, 2020 (Ref 19)).

d Waste generated by operation:

i Municipal solid waste (MSW) (e.g. food, plastic, paper, glass) and commercial & industrial (C&I) (e.g. metals, timber, electronic waste) waste generated by general activity and users of the site once operational.

M3.8 Estimations/ assumptions of excavation waste arising within the development site have been based on an understanding of the site's existing baseline conditions.

M3.9 Excavation material arising at the site is intended to be reused within earthworks and landscaping on the site and within the Teesworks area, such that the cut and fill balance for the proposed development will aim to be neutral within the wider Teesworks area. This will be considered within the early stages of design to ensure waste is not generated in earthworks.

M3.10 Calculation of the different quantities of construction and operational waste has been undertaken by applying standard waste indices to the known land uses and floor areas for the existing and proposed masterplans for the proposed development. Regional remaining landfill capacity data has been informed by the Environment Agency Conditional Licence Register, 2018.

Significance Criteria

M3.11 The receptors in this assessment are considered to be:

1. Regional landfill void capacity; and
2. Regional materials availability.

M3.12 The sensitivity of each receptor will first be considered based on the criteria in Table M3.1. This is in accordance with the IEMA Guidance, 2020, (Ref 19) and considers the future availability of materials/ landfill capacity in the region to determine whether the receptor is highly sensitive or not sensitive.

M3.13 The quantity of waste generated throughout each phase of the proposed development is then assessed against the regional landfill void capacity. Any expected material use is assessed against regional material availability, to determine the effect classification and thus if a significant impact is anticipated. The level of significance is determined based on the significance criteria outlined in Table M3.2 (IEMA Guidance, 2020 (Ref 19))

Table M3.1 Sensitivity of Receptors

Sensitivity of receptor	Definition (highest category applies where one or more criteria are met)
Very high	Materials are known to be insufficient in terms of production, supply and/or stock; and/or comprise no sustainable features and benefits compared to industry-standard materials. Inert and non-hazardous waste baseline landfill void capacity is expected to reduce very considerably (by >10%)/end during construction or operation; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand. Hazardous waste baseline landfill void capacity is expected to reduce very considerably (by >1%)/end during construction or operation; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand.
High	Materials are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock; and/or comprise little or no sustainable features and benefits compared to industry-standard materials. Inert and non-hazardous waste baseline landfill void capacity is expected to reduce considerably by 6-10% as a result of wastes forecast. Hazardous waste baseline landfill void capacity is expected to reduce considerably by 0.5-1% as a result of wastes forecast.
Medium	Materials are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock; and/or are available comprising some sustainable features and benefits compared to industry-standard materials. Inert and non-hazardous waste baseline landfill void capacity is expected to reduce by 1-5% as a result of wastes forecast. Hazardous waste baseline landfill void capacity is expected to reduce by 0.1- 0.5% as a result of wastes forecast.
Low	Materials are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock; and/or are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials. Inert and non-hazardous waste baseline landfill void capacity is expected to reduce by <1% as a result of wastes forecast Hazardous waste baseline landfill void capacity is expected to reduce by <0.1% as a result of wastes forecast.
Negligible	Materials are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock; and/or are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials. * Inert and non-hazardous waste baseline landfill void capacity is expected to remain unchanged or is expected to increase through a committed change in capacity. Hazardous waste baseline landfill void capacity is expected to remain unchanged or is expected to increase through a committed change in capacity.

* Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.

Table M3.2 Magnitude of Change

Impact severity	Definition (highest category applies where one or more criteria are met)
Major	The consumption of one or more materials would be >10% by volume of the regional baseline availability; and/or more than one allocated mineral site would be substantially sterilised by the proposed development rendering it inaccessible for future use. Inert and non-hazardous waste generated by the proposed development would reduce regional landfill void capacity baseline by >10%. Hazardous waste generated by the proposed development would reduce national landfill void capacity baseline by >1%.
Moderate	The consumption of one or more materials would be between 6-10% by volume of the regional baseline availability; and/or one allocated mineral site would be substantially sterilised by the proposed development rendering it inaccessible for future use. Inert and non-hazardous waste generated by the proposed development would reduce regional landfill void capacity baseline by 6-10%. Hazardous waste generated by the proposed development would reduce national landfill void capacity baseline by 0.5-1%.
Minor	The consumption of one or more materials would be between 1-5% by volume of the regional baseline availability; and/or the proposed development would have the potential to adversely and substantially impact access to one or more allocated mineral site (in their entirety), placing their future use at risk. Inert and non-hazardous waste generated by the proposed development would reduce regional landfill void capacity baseline by 1-5%. Hazardous waste generated by the proposed development would reduce national landfill void capacity baseline by 0.1-0.5%.
Negligible	The consumption of no individual material type would be equal to or greater than 1% by volume of the regional baseline availability. Inert and non-hazardous waste generated by the proposed development would reduce regional landfill void capacity baseline by <1%. Hazardous waste generated by the proposed development would reduce national landfill void capacity baseline by <0.1%.
No change	No consumption of materials is required. Inert and non-hazardous waste generation and disposal from the proposed development would be zero. Hazardous waste generation and disposal from the proposed development would be zero.

M3.14 The overall significance criteria of the effect is determined by combining the sensitivity of the receptor (Table M3.1) and the magnitude of impact (Table M3.2) as identified in Table M3.3. Table M3.3 has been produced in line with the methodology used in the rest of the EIA and therefore deviates from the standard criteria identified in the IEMA Guidance, 2020.

Table M3.3 Overall Significance Criteria

		Magnitude of Impact				
Sensitivity of receptor		No change	Negligible	Minor	Moderate	Major
	Very high	Neutral	Minor	Moderate	Substantial	Substantial
	High	Neutral	Minor	Moderate	Moderate	Substantial

	Medium	Neutral	Negligible	Minor	Moderate	Moderate
	Low	Neutral	Negligible	Negligible	Negligible	Moderate
	Negligible	Neutral	Neutral	Negligible	Negligible	Negligible

M3.15 The significance criteria relate to adverse effects only, as effects on waste and materials sensitive receptors are unlikely to be beneficial. All Substantial and Moderate effects are considered to be Significant in EIA terms.

M3.16 Following the assessment, mitigation measures will be identified where practicable. All mitigation measures identified will aim to ensure waste and materials are managed in accordance with best practice and in line with the principles of the waste hierarchy.

Consultation

M3.17 Informal scoping has taken place for the Waste and Materials chapter with the Council by Lichfields. No further consultation has taken place.

Assumptions and Limitations

M3.18 The proposed development will include the construction of:

1. E Office buildings (18,581 sqm)
2. B2 General Industry and B8 Storage and Distribution buildings (BRE 167,225 sqm)

M3.19 The remainder of the developable area of the site (as shown on the Parameter Plan) will be covered with hardstanding/ carparking (437,494 sqm) This has been calculated by total footprint area of developable area (623,300 sqm) minus the total building footprint area (185,806 sqm).

M3.20 The hardstanding/ carparking is expected to require the following materials and quantities:

1. Concrete hardstanding depth assumptions: 650mm pavement concrete. 300mm granular subbase (aggregate).
2. Asphalt depth assumptions: 300mm surface layer. 300mm granular subbase (aggregate)

M3.21 All material quantities will be converted into tonnes using industry standard conversion rates.

M3.22 All materials will be grouped according to main material types.

M3.23 The proposed development is currently at outline stage and it comprises a set of high-level development parameters. This ES chapter is based on the information available at the time of submission and it is anticipated that as the scheme develops further, information and assessments will be undertaken to calculate the waste and materials associated with the construction of the development.

M3.24 As this proposed development is in outline and where information is unknown, previous or similar developments or industry baselines have been used to provide estimates. In the case that none of this information is available, the assessment will not be fully complete against the criteria set out in the Significance Criteria and Magnitude Criteria tables within this section.

M3.25 No bill of quantities (types and quantities of construction materials to be used) information or similar was available at the point of writing this chapter. In this context, no assessment of construction materials for the building element of the project has been undertaken and this will need to be assessed at the Reserved Matters stage once details of the design and construction of buildings is known.

M3.26 The construction waste arisings from the proposed development have been calculated based on data compiled from the Building Research Establishment (BRE) SMARTstart tool (Ref 20), together with completed projects on the SMARTWaste Plan for the construction of new build projects.

M3.27 The construction programme is based on the information included within Chapter B of this ES. It is assumed that material use, and waste generation will be spread equally across the construction period of up to 11 years. As such 11 years has been assumed for the purposes of this assessment, as a worst-case annual scenario. This is intended to consider the worst-case scenario for waste generated.

M3.28 It is assumed that the proposed development will be cut and fill neutral within the wider Teesworks area and includes reuse of the bulk of the waste within the CLE31 landfill. Non recoverable wastes from the CLE31 landfill will go to existing waste management facilities (such as Highfield landfill sites). A deposit for Recovery Permit will be sought for the reuse of waste excavated from the CLE31 landfill.

M3.29 The demolition of the existing buildings on site are subject to separate consents and as such waste arising from demolition has not been assessed in this chapter. The demolition assessment will be undertaken as part of the wider cumulative impact assessment in Chapter N.

M3.30 The remaining landfill capacity includes data for inert and non-hazardous landfills in the region only, as waste arising from the proposed development is expected to be inert/ non-hazardous.

M4.0 Baseline Conditions

Existing Conditions

M4.1 Made Ground is present at the surface across the site and is several metres thick. The composition of the Made Ground is highly variable but largely consists of slag arising from historic iron and steel works and was deposited as part of land raising and reclamation. It is underlain by superficial deposits consisting of tidal and glacial deposits.

Remaining Landfill Capacity within the North East Region

M4.2 The total remaining landfill capacity for the North East of England region is estimated to be 19,451,401 m^3 (based on data from 2018) or 23,341,681 tonnes (Ref 21).

M4.3 This is based on information from the Environment Agency Conditional Licence Register, 2018 (Ref 22), and takes into consideration inert and non-hazardous landfills only.

M4.4 The client has confirmed that the Highfield landfill located within the Teesworks area is the preferred site for any hazardous waste which arises during the construction phase of the proposed development. Its remaining approximate hazardous merchant landfill capacity is 2,025,194 cubic metres as of 2019 (Ref 23). Due to the limited nationwide availability of hazardous waste landfill and as this site is acting as a key hub this is therefore considered to be a medium sensitivity.

M4.5 Landfills operated by Highfield Environmental Limited at the STDC site are included within the total landfill capacity data for the region.

M4.6 Landfill capacity within the region is considered to be sufficient in comparison to typical quantities of waste arising from construction projects in the UK. Furthermore, the consideration of high rates of materials reuse/ recycling within construction projects, supported by national targets, means the risk to remaining landfill capacity is low, and has been used to establish the sensitivity of the receptor.

M4.7 Based on Table M3.1, the remaining landfill capacity in the region is considered to be a low sensitivity receptor.

Materials Availability within the North East Region

M4.8 Data from the Profile of the UK Mineral Products Industry (2018) (Ref 24) indicates that primary aggregate availability in the North East region is estimated at 7 million tonnes. This is based on primary aggregate sales by region.

M4.9 Ready-mixed concrete availability is estimated at 0.7 million cubic metres (0.84 million tonnes).

M4.10 Asphalt availability for the region is estimated at 0.8 million tonnes.

M4.11 Materials availability within the region is considered to be sufficient compared with the typical volumes of material used within construction projects in the UK. Additionally, there is more onus on ensuring the use of recycled aggregates and secondary materials over primary materials in the construction sector, which further reduces the pressure on natural resources. This, together with the ongoing mineral extraction of sands, gravels, and crushed aggregate in the North East region, has been used to establish the sensitivity of the receptor.

M4.12 Therefore, material availability within the region is considered to be a low sensitivity receptor.

Future Baseline

M4.13 The future landfill capacity within the North East region is expected to decrease per year as the void space is used up by other proposed developments in the region, however the maximisation of reuse of materials within construction projects is a fundamental component of sustainable development, and therefore waste to landfill is also expected to decrease. With this in consideration, it is likely the remaining landfill capacity in the region will still decrease per year but at a slower rate than in the last decade.

M4.14 The availability of materials in the region is likely to remain constant and in line with the existing baseline. Whilst primary minerals will still be used in future developments, there will be a larger focus on the use of secondary minerals/ recycled material in construction, reducing the need for primary minerals. Furthermore, primary mineral extraction (i.e. sand, gravel, crushed aggregate) is likely to continue in the future, feeding the supply of primary resources.

M5.0 Potential Effects

M5.1 This section considers the potential effects of the proposed development (and its development parameters) in relation to the forecast volume of waste generated and material used during the construction and operational phases of the proposed development. Regard has been had to the Parameters Plan and the construction methodology set out in Chapter B.

Embedded Mitigation

M5.2 In assessing the effects, it is assumed that the following embedded mitigation measures apply to the proposed development:

1. The proposed development will aim to be cut and fill neutral within the wider Teesworks area, ensuring the reuse of suitable excavated materials generated on site is maximised;
2. In the above context, waste will be designed out in the early design phases to ensure the volume of waste generated is minimised;
3. Actions will be taken in the early design phases to ensure the use of recycled/ reclaimed materials are maximised in line with the Waste Hierarchy; and
4. Utilisation of existing waste management facilities (such as Highfield landfill sites) within the STDC site will be prioritised, in accordance with the proximity principle whereby waste should be treated/ disposed of as close as possible from the point of generation.

Major Hazards and Accidents

M5.3 No major hazards or accidents relevant to waste and materials have been identified.

Phasing

M5.4 Phasing is not relevant to waste and materials as demolition will be complete prior to the construction phase. The construction phase is considered to be 11 years and waste generation is considered over this entire period.

During Construction

M5.5 The construction phase of the development will generate predominantly inert and non-hazardous type wastes with the potential for limited hazardous waste to arise (details of which are outlined in Chapter H: Ground Conditions and Remediation). For the purposes of this assessment, the construction phase is considered to include excavation, and construction activities.

M5.6 Excavated material would comprise inert soils and stones and Made Ground. In line with the assumption that the site will be cut and fill neutral, this material will be re-used on site, subject to geotechnical and chemical testing requirements.

M5.7 Construction waste materials would comprise of concrete, other inert materials, masonry, steel, wood, plastic, glass, plasterboard, mixed waste, canteen waste and hazardous waste.

Excavation

M5.8 Activities requiring the use of excavated materials are outlined in paragraph M3.7. The finished floor levels at the site will be a minimum of 5.2 m AOD. This will rise across the site to accommodate a cut and fill neutral position (based on provided LiDAR data).

M5.9 As the EIA assumption is that the site will be cut and fill neutral within the wider Teesworks area, there will be no surplus material requiring off-site disposal beyond the Teesworks area and no void space remaining requiring the import of soils. This assumption is supported by STDC's intention to maximise the reuse of excavation material at the site and within the wider Teesworks Master Plan area.

M5.10 This assumption will be reviewed and quantified when the design has been developed further. Appropriate geotechnical and chemical testing will be required on any excavated material to ensure it is suitable for reuse on site.

M5.11 However, any material that is classified as hazardous waste, following testing, will need to be disposed of at a licenced hazardous waste facility such as Teesport 3 Highfield Landfill Site.

M5.12 No information on quantities of primary aggregates for earthworks has been made available at this stage in the design, however in addition to maximising the reuse of site-won materials, the production and procurement of alternative/ recycled aggregates to reduce the need for raw primary aggregates will also be sought out where possible.

Construction

M5.13 The construction waste arisings for the proposed development have been calculated based on data compiled from the Building Research Establishment (BRE) SMARTstart tool (Ref 20), together with completed projects on the SMARTWaste Plan for the construction of new build projects. These benchmarks are based on construction works only and do not include demolition, excavation or groundworks waste.

M5.14 Based on the construction assumptions in paragraphs M3.18 and M3.19, the waste arising from the construction of the buildings has been estimated and is shown in Table M5.1 For the purposes of this assessment B2 and B8 land uses have been considered as industrial buildings.

Table M5.1 - Estimated Construction Waste Arisings

Landuse	Waste per 100m^2 floor area (tonnes)	Estimated construction waste arisings (tonnes)
Industrial buildings	12.6	21,070
Commercial offices	23.8	4,422
Total		**25,493**

M5.15 Based on the assumptions set out in paragraph M3.20, the anticipated waste arisings from the construction of the hardstanding/ carparking for each material have been calculated using standard WRAP SMARTwaste wastage rates for concrete, asphalt, and aggregate, and are shown in Table M5.2 below.

Table M5.2 - Estimated Construction Waste (Hardstanding/ carparking area)

Material	Volume required for construction (tonnes)	Estimated waste arising (tonnes)
Concrete	310,282	10,261
Asphalt	15,912	75
Aggregate	159,119	8,406
Total	485,313	18,743

M5.16 Therefore, the total construction waste arisings for the proposed development are estimated to be 44,235 tonnes.

M5.17 A certain volume of municipal type waste will also be generated by the construction workers themselves (examples of this waste are set out in paragraph M3.7). Based on the assumption that the proposed works will require 101 FTE (worst case scenario assumed with an upper limit for 11 years construction activity), the total waste generated by employees is estimated to be 1.35 m^3 per day or 492.75 m^3 per year (591.3 tonnes per year).

M5.18 Waste generation calculations made in this section represent total waste generated for the entire construction period (11 years), however these can be broken down on an annual basis. For the purpose of this EIA it has been assumed that waste will be generated in equal quantities across the construction period.

M5.19 It is estimated that 4,021 tonnes of waste would arise per year of construction (11 years), equating to a total of 44,235 tonnes of construction waste over the 11 years. Taking into consideration the MSW arising from construction workers, the total construction waste anticipated to arise from the proposed development is 4,613 tonnes per year.

Total C & E waste

M5.20 Based on the previous assessment of Construction and Excavation the following summarised figures have been calculated.

Table 5.3

Activity	Total tonnes)
Excavation;	0
Construction (B1/B2);	25,493
Construction (Hardstanding);	18,743
FTE	6,504.3
Total	**50,740**

M5.21 The quantity of all C & E materials combined compared with the total regional landfill capacity equates to an impact of 0.22% and has a magnitude of change impact considered to be Negligible (Not Significant).

M5.22 The small quantity of non-recoverable waste expected to be generated from CLE31 is not expected to change the magnitude of the impact detailed above.

Materials

M5.23 Information on materials to be used in the construction of the buildings (i.e. bill of quantities or similar) within the proposed development has not been made available for this assessment.

M5.24 Materials consumption information is limited to the construction of the carpark and hardstanding area (shown in Table M5.4). Whilst building materials are not fully quantified, even assuming a very high magnitude of change, given the low sensitivity of the receptor, the effects are likely to be no worse than Negligible.

M5.25 Table M5.4 below shows the anticipated impacts on material availability within the region. It assumes an 11-year construction period, and that materials will be utilised equally across this period.

Table M5.4 - Impacts of materials on regional availability

Material	Quantity required per construction year (tonnes)	Regional annual material availability (tonnes)*	Utilisation of regional annual material availability (%)
Concrete	33,849	840,000	4%
Asphalt	1,736	800,000	0.2%
Aggregate	17,358	7,000,000	0.2%
Total	**52,943**	**8,640,000**	**0.61%**

*data from 2017 (Mineral Products Association, 2018)

M5.26 The quantity of all materials combined compared with the total regional material availability is 0.61%, therefore materials required for the construction of hardstanding/ carparking only within the proposed development would have a magnitude of impact of negligible on the regional annual material availability. Given the low sensitivity of the regional material availability as a receptor, the overall significance of the effect is considered to be Negligible (Not Significant).

During Operation

M5.27 The operational phase is expected to generate largely municipal type waste with some commercial and industrial waste. At this stage, as end users are not known material usage has been scoped out of further assessment, however it is thought to be minimal in quantity.

M5.28 To estimate the volume of waste that would arise during the operational phase of the proposed development (i.e. when buildings are occupied), published indices from the British Standard (BS) 5906:2005 Waste Storage in Buildings have been used. These assume that 0.002 m^3 (0.0024 tonnes) of waste will arise per week for every square metre of an E office landuse and 0.001 m^3 (0.0012 tonnes) for B2 general industry and B8 storage and distribution.

M5.29 Based on an area of 167,225 m^2 for B2 and B8 land uses and 18,581 m^2 for E, the total operational waste arisings are estimated to be 245 tonnes per week or 12,734 tonnes per year (assuming 52 weeks per year of operation).

M5.30 The estimated total annual operational waste arisings from the proposed development will occupy 0.05% of the remaining landfill capacity for the North East of England.

M5.31 Therefore, the magnitude of the impact of waste generation in the operational phase of the proposed development are considered to be Negligible. Given the low sensitivity of the regional landfill capacity as a receptor, the overall significance of the effect is considered to be Negligible (Not Significant).

M6.0 Mitigation and Monitoring

During Construction

Waste

M6.1 It is assumed that the proposed development will be cut and fill neutral within the wider Teesworks area and this is embedded into the design of the scheme. The assessment includes the recovery of the bulk of the waste within the CLE31 landfill for reuse on the Long Acres site or within the Teesworks area. Non recoverable materials from the CLE31 landfill, will go to existing waste management facilities (such as Highfield landfill sites).

M6.2 If at the detailed design stage, it becomes clear that an earthworks balance cannot be achieved, then further assessment of environmental effects will be required, and this would be picked up in further environmental information submitted with a reserved matters application.

M6.3 In addition to the embedded mitigation identified in Chapter B and Section M5.0 of this chapter, the following principles should be adhered to when manging construction waste for each phase of the proposed development:

- a Generation of the scheme (and zone) specific architecture associated with the re-use of site-won materials and generation of earthworks wastes;
- b A Deposit for Recovery Permit will be sought for the reuse of waste excavated from the CLE31 landfill;
- c Develop mechanisms to re-use site won materials through the use of the CL:AIRE DoW CoP (Ref 25);
- d Utilising site-won materials generated during the development from earthworks;
  - i Reviewing opportunities to utilise excavated materials from other developments in proximity, using a Materials Management Plan under DoW CoP;
  - ii Develop a Construction Waste Management Plan (CWMP);
- e Sustainable management of wastes requiring treatment and/ or off-site disposal to minimize waste going to landfill and demonstrate end-of-waste.

M6.4 The CWMP should include the following measures:

1. Setting targets for waste recovery and recycling to enable those working on the project to have a clear understanding of what is expected. Further details of which are provided below;
2. Use of existing transport infrastructure should be utilised where possible when moving site-won and imported primary/secondary materials and wastes;
3. Incorporating source segregation of waste and providing enough space to do so at all stages of the proposed development;
4. Specification and use of industry standard sizes for materials and products, wherever possible (e.g. standard height plasterboard sheets);
5. Using precast concrete and other materials that can be prepared off site to minimise waste generation on site;
6. Not over ordering materials and using materials brought to site as efficiently as possible;
7. Organising deliveries so materials arrive on site as they are needed to reduce the possibility of damage and wastage occurring;

8. Having clearly defined and separated skips on site and a clearly demarked waste area;
9. The contractors will work to ensure sustainable procurement of construction materials and minimise waste to landfill. In addition, during construction, the site should be managed so as to avoid unnecessary waste such as excess material brought to the site without need and left to be damaged or wasted;
10. Setting down site rules for good practice for procurement, on-site handling and storage of materials to prevent wastage; and
11. Training staff to understand how they should sort any waste and having regular reminders and updates.

M6.5 In terms of setting targets for waste recovery and recycling in the CWMP, the contractors should be committed to achieving a high recycling and recovery rate for all waste generated on site. Table M6.1 demonstrates standard, good and best practice for construction material recovery rates (Ref 26). Based on this it should be possible to achieve a minimum of a 55% recovery rate although the Principal Contractor should aim for a best practice recovery rate of 90% and above.

Table M6.1 - Standard, good and best practice recovery rates by material (WRAP)

Material	Standard Practice Recovery (%)	Good Practice Recovery (%)	Best Practice Recovery (%)
Timber	57	90	95
Metals	95	100	100
Plasterboard*	30	90	95
Packaging	60	85	95
Ceramics/Masonry	75	85	100
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical Equipment	Limited Information	70**	95
Furniture	0-15	25	50
Insulation	12	50	75
Cement	Limited Information	75	95
Liquids and Oils	100	100	100
Hazardous	50	Limited information***	Limited Information***
Total	55%	78%	90%

* Excludes plasterboard from demolition.

** This is a required recovery target for the type of WEEE likely to be produced from construction sites.

*** This cannot be 100% as a large proportion of hazardous waste (e.g. asbestos) must be landfilled.

M6.6 Using the mitigation measures above and the appointment of a licensed and high performing waste contractor should help enable the proposed development to achieve high recovery rates which would reduce the waste requiring disposal by at least 80%, in accordance with the targets for construction and demolition waste in the Tees Valley Joint Minerals and Waste Core Strategy Development Plan Documents, 2011 (Ref 18).

M6.7 It is proposed that the targets above are included in CWMP for each phase, unless otherwise agreed in writing.

Materials

M6.8 The use of secondary aggregates and recycled materials will be sought out where possible, with a target of 30% of construction materials required for each phase of the proposed development to be recycled and/or secondary, unless otherwise agreed in writing.

During Operation

Waste

M6.9 The end users of the proposed development are not yet known. However, in order to ensure that the operational development meets the waste objective of aiming to reduce, re-use, recycle and recover waste as much as possible before considering disposal, it will be necessary for an Operational Waste Management Plan (OWMP) to be prepared and approved by the Council for each phase of the proposed development.

M6.10 This OWMP should consider the whole process of waste management including storage, collection, waste transport, treatment and disposal and include the following mitigation:

1. Provision of adequate internal storage space and containers for office units;
2. Residual and recyclable office wastes to be stored and collected separately via provision of clearly marked and/or colour-coded bins aligned with the local authority's guidance and infrastructure;
3. Provision of recycling facilities within the proposed development (i.e. card compactors, woodchippers/ pelletizers, etc.); and
4. Provision of education and awareness to end-users on recycling and waste reduction.

M6.11 The OWMP should include recycling targets in line with The Tees Valley Joint Waste Management Strategy 2020-2035 (Ref 17), which states that the region has in place a 60% recycling target for MSW and C&I wastes by 2030.

Materials

M6.12 As noted in Section M5.0, at this stage, as end users are not known material usage has been scoped out of further assessment and therefore no additional mitigation measures have been identified at this stage.

M7.0 Residual Effects

During Construction

Waste

M7.1 The recovery target for construction and excavation waste for the Tees Valley is 80% (Tees Valley Joint Minerals and Waste Core Strategy Development Plan Documents, 2011) (Ref 18). If this recovery/ recycling rate was achieved in the construction phase of the proposed development, via the implementation of the mitigation measures outlined in Section M6.0 above, the total construction waste to landfill (44,235 tonnes) for the entire construction period would reduce to 8,847 tonnes. This equates to 804 tonnes per year based on the worst-case scenario of a 11-year construction period.

M7.2 The Tees Valley Joint Waste Management Strategy 2020-2035 states that the region has in place a 60% recycling target for municipal solid waste and commercial and industrial wastes by 2030. If this recycling rate was applied to the municipal solid waste expected to arise from construction workers within the proposed development (591.3 tonnes per year), municipal solid waste to landfill would reduce to 236.52 tonnes per year.

M7.3 Therefore, the total waste to landfill during the construction phase would equate to 1,041 tonnes per year and equate to 0.004 % of regional landfill capacity.

M7.4 Excavation material is expected to have a 0% impact on landfill capacity as the proposed development will aim to be cut and fill neutral within the wider Teesworks area, as intended to be included within the early stages of design.

M7.5 The earthworks balance assumes the reuse of the bulk of the waste within the CLE31 landfill. Non recoverable materials from the CLE31 landfill, will go to existing waste management facilities (such as Highfield landfill sites).

M7.6 However, in the event that material is classified as hazardous, following testing, it will be disposed of at a licenced hazardous waste facility such as Teesport 3 Highfield landfill site, which would increase the impact on landfill capacity slightly. Any surplus or unsuitable material will be captured by the Definition of Waste: Development Industry Code of Practice to be reused within the wider Teesworks area or another nearby development.

M7.7 Therefore, residual effects of the construction phase of the proposed development would be Negligible Adverse impact (Not Significant). Whilst mitigation will reduce any effects, the overall significance of these effects would not change.

Materials

M7.8 The Profile of the UK Mineral Products Industry (2018) (Ref 24) by the Mineral Products Association indicates that in 2018, recycled and secondary materials formed 30% of the total material consumption in the UK for that year. Using this as a target, as set out in Section 6.0, and assuming 30% of construction materials required for the proposed development are recycled/ secondary, the quantity of primary material required would reduce to 37,060 tonnes per year of construction. This equates to 0.43% of regional material availability, and therefore residual effects would remain as Negligible Adverse impact (Not Significant).

During Operation

M7.9 The effects of implementing the OWMP with recycling targets is considered as follows.

M7.10 The Tees Valley Joint Waste Management Strategy 2020-2035 (Ref 17) states that the region has in place a 60% recycling target for MSW and C&I wastes by 2030. If this recycling rate was achieved in the operational phase of the proposed development, the total waste to landfill (12,754 tonnes) would reduce to a total of 5,101 tonnes per year. This would reduce the impact on landfill capacity to 0.02%.

M7.11 Therefore, residual effects of operational waste arising from the proposed development would be Negligible Adverse (Not Significant).

M8.0 Summary & Conclusions

M8.1 The proposed development will result in the generation of 50,740 tonnes of construction waste in the construction phase (assumed to be 11 years). Excavation waste is assumed to be zero (or cut and fill neutral for the Teesworks area) for the purposes of this assessment. Construction waste per year of the proposed development period is estimated to be 8,847 tonnes.

M8.2 During the operational phase, the proposed development is expected to generate a total of 12,754 tonnes of waste per year, largely comprising municipal solid waste and commercial and industrial wastes.

M8.3 Based on a worst-case scenario (if all waste arisings were sent to landfill), construction waste arisings would account for 0.22% of the regional landfill capacity (Negligible Adverse), and excavation arisings 0%, with a small quantity of hazardous waste going to landfill (Neutral). Operational waste arisings would account for 0.055% of the regional landfill capacity (Negligible Adverse). Material consumption would account for 0.61% of regional material availability.

M8.4 In the case that good recycling and recovery practices are adopted, as proposed as additional mitigation, it is possible the volumes of waste requiring disposal may be reduced by at least 80% for construction and excavation waste (mostly construction phase) and 60% for municipal solid waste (mostly operational phase). For materials, it has been assumed that 30% would comprise recycled/ secondary materials and the remaining 70% would be primary materials.

M8.5 Where these targets are met, it is possible to reduce the waste sent to landfill to 1,041 tonnes per year (construction waste). Operational phase waste could reduce to 5,101 tonnes per year. This would account for an average of 0.055 % (construction waste), and 0.02% (operational waste) of regional landfill capacity. The impacts from this would be Negligible Adverse (construction and operational phase). Adopting these recycling and recovery rates will reduce the impact of the waste arising from the proposed development on the existing regional landfill capacity and associated environmental impacts.

M8.6 The use of materials for construction of the proposed development is estimated to be 52,943 tonnes, which equates to 0.61% (Negligible Adverse impact) of the regional material availability. This data does not include material required for the construction of the buildings and relates to the construction of hardstanding/ carparking areas only. The use of secondary aggregates and recycled materials will be sought out where possible. Based on the proposed target defined in Section M6.0, e.g. a recycled/ secondary material content of 30% the primary material consumption of the proposed development would reduce to 37,060tonnes per year. This equates to 0.43% of regional annual material availability and therefore, the residual effects remain Negligible Adverse.

Table M8.1 Summary of Effects

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
During Construction				
Regional landfill capacity	Reduction in landfill capacity: Construction waste equals 0.22% of landfill	Negligible Adverse	Preparation of CWMP, including guidance on achieving appropriate segregation and	Negligible Adverse and Not Significant

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
	capacity over 11 years		management of waste on site and ensuring reuse and recovery as per targets.	
Regional materials availability	Depleting regional materials availability. For hardstanding: 52,943 tonnes of material required for hardstanding area This equals 0.61% of regional material availability (8,640,000 tonnes) Building materials not known but assumed to be at worst of very high magnitude.	Hardstanding: Negligible Adverse Building materials at worst Negligible Adverse Whilst building materials are not fully quantified, even assuming a very high magnitude of change, given the low sensitivity of the receptor, the effects are likely to be no worse than Negligible	Secondary aggregates/ recycled materials will be sought out wherever possible.	Negligible Adverse and Not Significant
During operation				
Regional landfill capacity	Reduction in landfill capacity: 0.43% of regional landfill capacity	Negligible Adverse	Operational Waste Management Strategy, including guidance on segregation and separation of waste streams Recycling as per targets	Negligible Adverse and Not Significant
Materials scoped out of assessment				

M9.0 Abbreviations & Definitions

1. MSW - Municipal solid waste
2. C&I - Commercial & industrial
3. C&D - Construction & demolition
4. CD&E - Construction, demolition, & excavation
5. Framework CEMP - Framework Construction environmental management plan
6. SWMP - Site waste management plan
7. MMP - Materials Management Plan
8. DoW CoP - Definition of Waste: Development Industry Code of Practice
9. WRAP - Waste and Resources Action Programme
10. EA - Environment Agency

M10.0 References

1. EU Waste Framework Directive (revised) (2008/98/EC)
2. EU Landfill Directive (1993/31/EC)
3. Environmental Protection Act 1990
4. Environmental Protection (Duty of Care) Regulations 1991
5. The Waste (England & Wales) Regulations 2011
6. The Environmental Permitting (England and Wales) Regulations 2016
7. Hazardous Waste (England & Wales) Regulations 2016
8. Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 (SI 2013/3113)
9. The CLP (Classification, Labelling and Packaging) Regulation
10. The Control of Asbestos Regulations 2012 (SI 2012/632)
11. Environmental Damage (Prevention and Remediation) Regulations 2009 (SI 2009/153)
12. National Planning Policy Framework 2012 (revised 2019)
13. National Planning Policy for Waste 2014
14. Waste Planning Practice Guidance 2015
15. England Resources & Waste Strategy 2018
16. Redcar & Cleveland Local Plan 2018
17. The Tees Valley Joint Waste Management Strategy 2020-2035
18. Tees Valley Joint Minerals and Waste Development Plan Documents 2011
    a Tees Valley Joint Minerals and Waste Core Strategy DPD (2011)
    b Tees Valley Joint Minerals and Waste Policies & Sites DPD (2011)
19. IEMA guide to: Materials and Waste in Environmental Impact Assessment - Guidance for a proportionate approach (March 2020)
20. Building Research Establishment (BRE) SMARTstart tool (2012)
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