Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Environmental Statement
Volume 1: Main Statement

Chapter 17: Materials and waste

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Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Regulation 14

This document forms a part of the Environmental Statement for the Hinckley National Rail Freight Interchange project.

Tritax Symmetry (Hinckley) Limited (TSH) has applied to the Secretary of State for Transport for a Development Consent Order (DCO) for the Hinckley National Rail Freight Interchange (HNRFI).

To help inform the determination of the DCO application, TSH has undertaken an environmental impact assessment (EIA) of its proposals. EIA is a process that aims to improve the environmental design of a development proposal, and to provide the decision maker with sufficient information about the environmental effects of the project to make a decision.

The findings of an EIA are described in a written report known as an Environmental Statement (ES). An ES provides environmental information about the scheme, including a description of the development, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

Further details about the proposed Hinckley National Rail Freight Interchange are available on the project website:

[redacted]

The DCO application and documents relating to the examination of the proposed development can be viewed on the Planning Inspectorate's National Infrastructure Planning website:

https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/hinckley-national-rail-freight-interchange/

Chapter 17 ◆ Materials and waste

INTRODUCTION

17.1. This Environmental Statement Chapter provides an assessment of potential impacts from the generation and management of waste and a consideration of material use. The current baseline conditions have been assessed and subsequently considered against the potential effects of the construction and operational phases of the Proposed Development. This assessment follows the guidance laid out in the IEMA Guide to Materials and Waste in Environmental Impact Assessment[1] (EIA).

17.2. An EIA Scoping Report was submitted for opinion by Tritax Symmetry (Hinckley) Limited ('TSH') in November 2020. This document concluded that the Proposed Development would result in a significant amount of construction and demolition waste being produced, hence an assessment of waste is required. This ES Chapter presents the results of the assessment of the potential environmental effects related to construction and operational waste arisings in terms of the likely quantities of waste arising, the proposed management of the waste onsite and the regional capacity to treat or dispose of residual waste. Operational waste is only of direct reference to the SRFI development containing buildings and the Railport (on the 'Main HNRFI Site'), and not to the highways related elements. Construction and Demolition waste relates to the whole of the Proposed Development including the Main HNRFI Site but excludes the development of the highway's improvement works. Excavation waste arisings includes all anticipated excavations as a result of the Proposed Development.

17.3. The consideration of material resources comprises maximising the beneficial reuse of materials arising from the demolition of existing structures and construction of the Proposed Development (e.g., excavated material). Only if excavated material is not required or is unsuitable for the Proposed Development or specified receiver sites would it be transported offsite as waste.

17.4. In lieu of defined and detailed information with respect to end-user requirements, applied knowledge and assumptions have been applied qualitatively. Please refer to paragraphs 17.43 to 17.45 for details of the assumptions that have been applied.

17.5. The principal objective of sustainable waste and material resource management is to use material resources more efficiently, thereby preventing and reducing the amount of waste generated as well as minimising the quantity of waste that requires final disposal to landfill. It is proposed that waste and materials would be dealt with in line with the Government's waste hierarchy, for sustainable waste and material resource management to which regard must be had under regulation 15(1) of the Waste (England

[1] *IEMA, (2020): Materials and Waste in Environmental Impact Assessment.*

and Wales) Regulations 2011.

17.6. The waste hierarchy generally describes a priority order of what constitutes the best overall environmental option for the management of waste. It advocates the use of disposal only as a last resort, due to the range of potential adverse environmental effects associated with its use, such as loss of valuable land resources, greenhouse gas (GHG) emissions, and nuisance effects (e.g., dust and odour emissions).

17.7. The assessment of the suitability of soils excavated onsite for re-use onsite is outside the scope of this ES Chapter, the assessment of material quality is covered in Chapter 16: *Geology, soils and contaminated land* (document reference 6.1.16). Materials extracted and processed offsite are outside the scope of this assessment.

17.8. This assessment also only covers solid waste; the management of liquid waste such as wastewater from dewatering operations is covered in Chapter 15: *Hydrogeology* (document reference 6.1.15).

METHODOLOGY AND DATA SOURCES

Consultation

17.9. Local waste statistics were obtained from the Environment Agency (EA) to provide a forum for consultation with interested parties.

17.10. Two informal consultations were held between 22nd October and 7th December 2018 and 8th July 2019 and 6th September 2019 respectively. A statutory consultation was undertaken between 12th January 2022 and 8th April 2022, a summary of the responses received relating to materials and waste have been included within Table 17.1.

Table 17.1: Summary of section 42 consultation (2022) responses

Consultee	Consultee Comment	Response
Hinckley & Bosworth BC	**Paras 17.72 – 17.76** Agree with the ambitions to reuse most demolition materials from existing buildings and barns within the development. Off-site removal to landfill should be minimised, with the exception of any contaminants (e.g. asbestos). This should be included as an aim within a Site Waste Management Plan/Materials Management Plan.	This is included in the Site Waste and Materials Management Plan.

Consultee	Consultee Comment	Response
Hinckley & Bosworth BC	**Paras 17.78 – 81** Agree with the ambitions to use cut and fill to minimise the off-site removal of earthworks. A cap on the quantity of material that can be removed can be included within a Site Waste Management Plan/Materials Management Plan to ensure this aim is achieved.	The height and shapes of the plateaux have been determined with a cut and fill exercise across the site, minimising the need to import or export soils. Organic material will be managed; volumes can be minimised by measurement of organic content of soils with depth. This will minimise the volume stripped. Topsoil quantities can be managed through the construction phase of the whole development by additional techniques introduced into the strategy to manage volume by creating additional uses. No cap will be considered until the grade / quality of soils is confirmed upon commencement of construction. This is addressed in the Site Waste and Materials Management Plan.
Hinckley & Bosworth BC	**Para 17.94** Within the impacts of construction, no mention is made of the location of materials. Locally sourced materials should be used where appropriate/possible in order to reduce travel miles/CO2 footprint for construction. This aim can be included within a Materials Management Plan. The also generates potential localised economic benefits.	This is addressed in the Site Waste and Materials Management Plan.

Section 47 Consultation

17.11. There were no written Section 47 comments or responses received following consultation with regards to waste and materials relevant to this chapter.

The 2020 Scoping Opinion

17.12. An initial request for a scoping opinion was submitted to PINS in March 2018. A response from the Planning Inspectorate (on behalf of the Secretary of State) was received in April 2018.

17.13. An updated request for a scoping opinion covering amendments and updates since the project was reviewed in 2019, was submitted to PINS in November 2020. A Scoping Opinion document was received in December 2020 from the Planning Inspectorate, on behalf of the Secretary of State.

17.14. As set out in the EIA Scoping Opinion (dated December 2020), comments specific to materials and waste were returned. These are included in Table 17.2 for completeness. Each of the comments have been considered in the authoring of this ES Chapter and are included or qualified if excluded.

Table 17.2: Summary of scoping opinions and responses

Source	ID/Ref	Scoping Comment	Response
PINS	4.11.1	The Scoping Report states that the likely significant environmental effects from the use of materials for the construction of the Development will not be addressed in the ES as there is no fixed design to assess against or end-user to define requirements. The Inspectorate considers that whilst uncertainty exists surrounding the final design, an assessment of the nature and quantity of materials and natural resources would be feasible, to the extent that such information is available, applying knowledge of similar developments and the Rochdale envelope approach to uncertainty. The Inspectorate therefore does not agree to scope this matter out of the ES.	Considered: estimates of material consumption and waste generation during both construction and operation have been set out using information available at the time of writing from the following sources: • EA Waste Data Interrogator • WRAP Designing out Waste Tool for Buildings • Smart Waste BRE Benchmark Data • Cut and fill balance • BS5906:2005

Source	ID/Ref	Scoping Comment	Response
			Please see paragraphs 17.69 to 17.99 for more details.
PINS	4.11.2	The Scoping Report states that liquid waste such as wastewater from dewatering operations is covered in Chapter 14: *Surface Water and Flood Risk*. Wastewater and dewatering operations are not mentioned in Chapter 13: *Cultural heritage*. This should be addressed in the ES.	Noted: dewatering is considered within Chapter 15: *Hydrogeology* Recommendations for the management of wastewater are set out in Chapter 15: *Hydrogeology* (document reference 6.1.15)
PINS	4.11.3	The description of baseline conditions in the Scoping Report provides no description of local or regional landfill capacity. The ES must consider the baseline and future baseline waste disposal capacity.	Considered: Tables 17.11, 17.12 and 17.13 of this chapter identify local and regional waste treatment facilities and confirm current capacity.
PINS	4.11.4	The Scoping Report refers to the interchange site only. The ES must assess the impacts from the entirety of the Proposed Development. For clarity, and in line with the referenced IEMA (2020) guidance, the study area should be expressed in terms of (1) the '*development study area'* comprising the scheme or project footprint (the red line boundary) and (2) the '*expansive study area*' extending to the availability of construction materials, and capacity of waste management infrastructure (reflecting the anticipated extent of potential impacts).	Considered: The Spatial Scope has been widened to account for both points 1 and 2 in paragraphs 17.17, 17.18 and 17.19.
PINS	4.11.5	Application of published waste generation rates, and assumptions	Considered: the chapter seeks to identity and

Source	ID/Ref	Scoping Comment	Response
		regarding the type and quantity of waste to be diverted from landfill via reuse, recycling and recovery should be clearly stated, referenced and justified in the ES. Agreement with consultees should be sought on the approach taken, and this should be evidenced in the ES	define the baseline before quantifying the effects of the Proposed Development upon sensitive receptors. This chapter makes effort to agree the approach to the collection and presentation of information with relevant consultation bodies. The information presented is considered reasonable *'for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)'.*
PINS	4.11.6	The Scoping Report does not provide a methodology for the assessment of the magnitude of impact from the generation and disposal of waste. The referenced IEMA (2020) guidance offers two methods (paragraph 10.3.2). The ES should clearly set out the approach taken.	Noted: Tables 17.12 to 17.18 of this chapter and associated text define the approach to defining sensitivity of receptors, the magnitude of effect and the significance of effect in accordance with best practice guidance.

Guidelines

17.15. This assessment has been carried out in accordance with guidance laid out in the IEMA Guide to Materials and Waste in EIA[2].

[2] *IEMA (2020) IEMA Guide to: Materials and Waste in Environmental Impact Assessment.*

Study Area

17.16. The spatial scope of waste assessments is often not easily defined as issues associated with waste management can be far-reaching and extend beyond the DCO boundary.

17.17. For this assessment, the '*Development Study Area*' in which operational waste arisings are likely to occur is defined by the SRFI development containing buildings and the Railport. The '*Development Study Area*' in which construction and demolition waste arisings are likely to occur, is defined by the application boundary of the Main HNRFI Site (187.00 hectares or 1,870,000 m^2). Operational, construction and demolition waste arisings exclude any waste generated as part of the highways improvement works as minimal construction and demolition waste is expected. Excavation waste arisings would include all anticipated excavations as a result of the Proposed Development.

17.18. The '*Expansive Study Area'* is defined by the availability of landfill sites relative to the proximity of the 'Development Study Area' – this is based on a 30 kilometre (km) radius of the Main HNRFI Site and available waste collection facilities. This has to be realistic around the practicalities of construction and operation. If this process identifies a supply problem, then the Proposed Development would be forced to look at a wider catchment of landfill capacity. This comes with added challenges in that an increase in the Expansive Study Area would increase the catchment of other waste users/projects competing for capacity. This assessment looks at the available capacity and the quantities received to assess available capacity. The use of material received is an accurate record of the regional requirements when determining the baseline assessment. An increase of the Expansive Study Area would only be undertaken if the needs of the development cannot be met by local capacity. A smaller regional assessment is considered a more conservative approach than increasing the Expansive Study Area to outside the region.

17.19. A similar approach has been made for the assessment of available quarries for the supply of aggregates. The region is known to be rich in minerals and is a principal mineral producer nationally. As a result, the Expansive Study Area for materials has been able to remain relatively local in this assessment (20 km).

Establishing the baseline

17.20. Baseline data that is proportionate to the scale and nature of the Proposed Development has been collected. Regional baseline information was targeted as a priority.

17.21. Where applicable, production of excavated arisings, and generation and disposal of waste is described and quantified for the existing activities and operations within the Development Study Area. A high-level assessment of the mineral resources and aggregates has been made.

17.22. The assessment of the baseline is proportionate to the Study Area receptors (landfill sites). This is measured by waste received by each receptor based on EA data.

Identifying the receptors

17.23. The IEMA Guide to Materials and Waste in EIA defines:

> *'For waste, the sensitive receptor is landfill capacity. Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities. This requires the depletion of natural and other resources which, in turn, adversely impacts the environment.'*
>
> *'Materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary materials) long-term availability; this results in the depletion of natural resources and adversely impacts the environment.'*

17.24. Receptors have been identified by a desk study of Ordnance Survey map data, publicly available data, the TSH EIA Scoping Report, the project Materials Management Plan (estimates of the cut and fill balance) and the use of waste management experience and judgement.

Sources of waste

17.25. The Proposed Development would generate the following types of waste during construction and is considered in the assessment:

- excavation wastes;
- demolition wastes; and
- construction wastes.

17.26. Operationally, the completed scheme; used for logistics and distribution, is expected to generate waste. The assessment of potential waste output is undertaken using typical weekly waste arisings from British Standard BS 5906:2005[3].

Assessing sensitivity of a receptor

17.27. The significance of waste arisings is largely based on the nature of the waste, the location and capacity of local and regional waste management facilities and the sustainability of the disposal or processing method.

17.28. Overall, the purpose of a waste management assessment is to characterise development waste types and arisings and to identify existing and potential methods employed for their management, as well as the significance of change associated with a proposed development in comparison to the current and likely future situation without the development. For the purposes of this assessment, a methodology has been utilised that allocates a 'score' based on various considerations of waste type and quantity, as well as disposal. This score is used to determine the significance of impact.

[3] *British Standard BS5906:2005 Waste management in buildings – Code of Practice.*

17.29. This approach broadly conforms with the standard EIA approach of assessing significance as a function of the magnitude of impact and sensitivity of any receptors. In this case, magnitude of impact and proximity and sustainability of receptors. The IEMA Guide to Materials and Waste in EIA divides the assessment of the sensitivity into the sensitivity of materials as a receptor and the sensitivity of landfill void capacity.

17.30. The sensitivity of materials can be determined by identifying where one or more of the criteria displayed in Table 17.3 are met.

Table 17.3: Assessment criteria for the sensitivity of material receptors

MATERIALS	
Negligible	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.
Low	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.
Medium	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
High	Are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock; And/or

MATERIALS	
	comprise little or no sustainable features and benefits compared to industry-standard materials.
Very High	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.

17.31. The sensitivity of landfill void capacity can be determined using Table 17.4 and Table 17.5.

Table 17.4: Inert and non-hazardous landfill void capacity sensitivity

WASTE	
Across construction and/or operation phases, the baseline/future baseline (i.e., without development of regional (or where justified, national) inert and non-hazardous landfill void capacity is expected to…	
Negligible	...remain unchanged or is expected to increase through a committed change in capacity.
Low	...reduce minimally: by <1% as a result of wastes forecast.
Medium	...reduce noticeably: by 1-5% as a result of wastes forecast.
High	...reduce considerably: by 6-10% as a result of wastes forecast.
Very High	... 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.

Table 17.5: Hazardous landfill void capacity sensitivity

HAZARDOUS WASTE	
Across construction and/or operation phases, the baseline/future baseline (i.e., without development of regional (or where justified, national) hazardous landfill void capacity is expected to…	
Negligible	...remain unchanged or is expected to increase through a committed change in capacity.
Low	...reduce minimally: by <0.1% as a result of wastes forecast.
Medium	...reduce noticeably: by 0.1-0.5% as a result of wastes forecast.
High	...reduce considerably: by 0.5-1% as a result of wastes forecast.
Very High	... 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.

17.32. The quantity of waste is assessed by interrogating the designs for the Proposed Development (shown on the Illustrative Parameters Plan, document reference 6.3.3.2 and the Illustrative Context Masterplan, document reference 6.3.3.1) where possible, and by using professional judgement. An interpretation is then made as to whether it is likely to be hazardous.

Assessing magnitude of impact

17.33. The IEMA methodology[1] divides the assessment of magnitude of impact into the sensitivity of materials as a receptor and the sensitivity of landfill void capacity.

17.34. The magnitude of impact from materials can be determined using Table 17.6.

Table 17.6: Assessment criteria for the magnitude of impacts from materials

MATERIALS	
The assessment is made by determining whether, through a development, the consumption of:	
No change	…no material is required.
Negligible	...no individual material type is equal to or greater than 1% by volume of the regional baseline availability.
Minor	...one or more materials is between 1-5% by volume of the regional baseline availability; and/or the development has the potential to adversely and substantially impact access to one or more allocated mineral site (in their entirety), placing their future use at risk.
Moderate	...one or more materials is between 6-10% by volume of the regional baseline availability; and/or one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use.
Major	...one or more materials is >10% by volume of the regional baseline availability; and/or more than one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use.

17.35. The magnitude of impact from inert and non-hazardous waste can be determined using Table 17.7.

Table 17.7: Assessment criteria for the magnitude of impacts from inert and non-hazardous waste

WASTE	
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce regional landfill void capacity baseline by <1%.
Minor	Waste generated by the development will reduce regional landfill void capacity baseline by 1-5%.
Moderate	Waste generated by the development will reduce regional landfill void capacity baseline by 6-10%.
Major	Waste generated by the development will reduce regional landfill void capacity baseline by >10%.

17.36. The magnitude of impact from hazardous waste can be determined using Table 17.8.

Table 17.8: Assessment criteria for the magnitude of impacts from hazardous waste

HAZARDOUS WASTE	
No change	Zero waste generation and disposal from the development.
Negligible	Waste generated by the development will reduce national landfill void capacity baseline by <0.1%.
Minor	Waste generated by the development will reduce national landfill void capacity baseline by 0.1-0.5%.
Moderate	Waste generated by the development will reduce national landfill void capacity baseline by 0.5-1%.

HAZARDOUS WASTE	
Major	Waste generated by the development will reduce national landfill void capacity baseline by >1%.

Assessing significance of impact

17.37. The significance of impact can be determined using the sensitivity of receptor and the magnitude of impact to identify thresholds as shown in Table 17.9.

Table 17.9: Thresholds of impact

	Magnitude of impact					
Sensitivity of receptor		No change	Negligible	Minor	Moderate	Major
	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

17.38. Impacts which reach a threshold of moderate or above are considered significant. Where the threshold is "*slight or moderate*", professional judgement should be used in combination with documented justification, to determine a final outcome.

Assessing cumulative effects

17.39. The Study Area for the consideration of cumulative effects has been developed considering the predicted extent of impacts associated with waste regarding the Proposed Development, and with the point at which the associated effects become insufficient to contribute in any meaningful way to those of another development.

17.40. A precautionary approach has been adopted in the definition of the Cumulative Effects Study Area to help to ensure that all potentially significant effects (including cumulative effects) have been effectively identified. Information on the likely extent of impacts associated with other developments in the area has also been considered. Where sufficient information exists, the Cumulative Effects Study Area includes all known proposed developments in the surrounding area that could potentially result in cumulative effects. Assessing the cumulative effects against operational waste is undertaken by a review of development projects in the pipeline for the region (including developments which have planning permission and pipeline applications), by a review of local development plans (stating future housing and other development requirements), and waste policy Appendix 20.1 of this ES (document reference 6.2.20.1) provides a full list of all developments considered within the cumulative effects assessment.

17.41. Leicestershire County Council has recently produced the Leicestershire Minerals and Waste Local Plan Up to 2031 (adopted in 2019) which is referred to and used for assessing the operational cumulative effects in this chapter.

Identifying potential mitigation measures

17.42. Mitigation measures are identified using engineering judgement based on experience from previous projects.

Limitations and assumptions

17.43. The impacts associated with the by-products and associated wastes from the extraction of raw materials and the manufacture of products outside of the Materials and Waste Expansive Study Area are excluded from the scope. These stages of a products or a materials life cycle would have been subjected to environmental assessment and are therefore outside the scope of this assessment.

17.44. There are a number of assumptions used in the preparation of this chapter in the absence of some design information and the end operational use. A summary of principal assumptions is summarised in Table 17.10.

Table 17.10: List of main assumptions

Assumption	
Floor footprint of units (including Railport)	650,000 m^2
Mezzanine floor footprint	200,000 m^2
External hardstanding	555,280 m^2
Earthworks cut and fill volume	Cut: 2,338,266 m^3 Fill: 2,344,437 m^3 Net: additional 6,171 m^3 required
Operational Recycling rates	65%[4]
Study area for landfill sites	30 km radius

17.45. For the assessment, the landfill capacity has been based on a projection of available capacity data from 2020 projected to 2025 based on the known material received in 2020. Although the bulk of the waste would be sent to landfill during the construction of the development, the construction period is likely to span a number of years and may not fall solely in one year. However, 2025 has been deemed as an appropriate approximation of the availability of capacity as it is expected that 2025 will experience peak earthworks activity during the construction period.

RELEVANT LAW, POLICY AND GUIDANCE

Legislation

The Environmental Permitting (England and Wales) Regulations (2016)[5]

17.46. The Environmental Permitting Regulations aim to ensure that waste activities are authorised and that their discharges do not harm human health or the environment.

[4] *Waste Management Plan for England, January 2021 Department for Environment Rural & Food Affairs Available from: www.gov.uk/government/publications see p33 - Business Waste.*

[5] The Environmental Permitting (England and Wales) Regulations 2016. 675. London: The Stationery Office. Available from: https://www.legislation.gov.uk/ukdsi/2010/9780111491423/contents

For the Proposed Development, environmental permits must be granted by the EA. The Regulations combine the requirements for an integrated waste management approach and for hazardous waste management. This provides a framework for regulation that enables the EA to assess permitting and compliance.

The Waste (England and Wales) Regulations (2011 plus amendments)[6]

17.47. The Waste Regulations implement revisions to the Waste Framework Directive in England and Wales. They apply the waste hierarchy which details methods to reduce waste generation and the amount of waste sent to landfill. The methods of waste management in order of preference are:

- Prevent;
- prepare for re-use;
- recycle;
- recover; and
- dispose.

The Hazardous Waste (England and Wales) Regulations (2005)[7]

17.48. The Hazardous Waste Regulations set out the regime for the control and tracking of hazardous waste in England and Wales. The regulations introduced a process of registration of hazardous waste producers and a new system for recording the movement of waste.

Policy

National Policy Statement for National Networks (2014)[8]

17.49. This policy statement produced by the Department for Transport set out the need to manage waste when delivering the development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England.

17.50. The policy states that human health and the environment should be protected by producing less waste and by using it as a resource wherever possible. Where this is not possible, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health, i.e., by implementing

[6] The Waste (England and Wales) Regulations 2011. 988. London: The Stationery Office. Available from: https://www.legislation.gov.uk/uksi/2011/988/contents/made

[7] The Hazardous Waste (England and Wales) Regulations 2005. 894. London: The Stationery Office. Available from: https://www.legislation.gov.uk/uksi/2005/894/made

[8] *National Policy Statement for National Networks, Department for Transport, Available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf*

sustainable waste management through the waste hierarchy (describe in paragraph 17.55).

National Planning Policy Framework (2021)[9]

17.51. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England. The NPPF must be taken into account in preparing development plans and is a material consideration in planning decisions. The policy sets out objectives for sustainable development which includes protecting and enhancing our natural, built and historic environment through minimising waste and pollution.

Our Waste, Our Resources: A Strategy for England (2018)[10]

17.52. The Our Waste, Our Resources Strategy, building on the previous national waste strategies for 2000 and 2007, contains actions and commitments, which set a clear direction towards a zero-waste economy.

Leicestershire Minerals and Waste Local Plan up to 2031 (adopted 2019)[11]

17.53. This Minerals and Waste Local Plan includes the spatial vision, spatial strategy, strategic objectives, and core policies which to guid the future winning and working of minerals within Leicestershire. These also guide the waste management development within the County.

Mineral and Waste Safeguarding Hinckley and Bosworth (2015)[12]

17.54. The Mineral and Waste Safeguarding guidance document produced by Leicestershire County Council identifies the areas within Hinckley and Bosworth District for mineral safeguarding. It also identifies the location of waste sites within the district for safeguarding.

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[9] *Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. London. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf*

[10] *HM Government (2018) Our Waste, Our Resources: a Strategy for England. London. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf*

[11] Leicestershire County Council (2019) Leicestershire Minerals and Waste Local Plan. Leicestershire. Available from: https://www.leicestershire.gov.uk/sites/default/files/field/pdf/2019/10/3/Leicestershire-Minerals-and-Waste-Local-Plan-Up-to-2031-Adopted-2019.pdf

[12] Leicestershire County Council (2015) Mineral and Waste Safeguarding: Hinckley and Bosworth Borough. Leicestershire. Available from: https://www.leicestershire.gov.uk/sites/default/files/field/pdf/2016/10/4/hinckley_bosworth_borough_s4_2015.pdf

Mineral and Waste Safeguarding Blaby District (2015)[13]

17.55. The Mineral and Waste Safeguarding guidance document produced by Leicestershire County Council identifies the areas within Blaby District for mineral safeguarding. It also identifies the location of waste sites within the district for safeguarding.

Waste Management Hierarchy

17.56. The waste management principles of the waste hierarchy are now fully incorporated in the Waste Management Plan for England as objectives to be delivered through waste local plans. The Requirement of a Best Practicable Environmental Option (BPEO) appraisal has been replaced in PPS 10 with a requirement for Strategic Environmental Assessment (SEA)/Sustainability Appraisal (SA) to be undertaken for planning strategies and for it to be demonstrated that planned facilities represent the Best Available Technology (BAT).

Table 17.11: Principles of waste management - definitions.

Principle	Description
Waste Hierarchy	A theoretical framework used as a guide to the waste management options that should be considered when assessing the BPEO.
Waste as a Resource	Certain wastes can be directly used or separated / processed for use as a replacement for raw materials, saving resources and potentially reducing energy use or other impacts associated with virgin resource extraction and transport.
Proximity Principle	Certain wastes can be directly used or separated / processed for use as a replacement for raw materials, saving resources and potentially reducing energy use or other impacts associated with virgin resource extraction and transport.
Regional Self-sufficiency	Where practical, waste should be treated or disposed of within the region in which it is produced.

[13] Leicestershire County Council (2015) Mineral and Waste Safeguarding: Blaby. Leicestershire. Available from: https://www.leicestershire.gov.uk/sites/default/files/field/pdf/2019/10/3/SUB2-Blaby-Safeguarding-2015.pdf

Principle	Description
Best Practicable Environmental Option (BPEO)	Defined by the Royal Commission on Environmental Pollution (1988) as '*the outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water*'. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits, as a whole, at acceptable cost, in both the short term and the long term. SA is designed to ensure compliance with SEA and as such includes for requirements on environmental decision making such as an opportunity for the public to express their opinion on draft plans (community involvement), take into account significant environmental effects including those on human health, material assets and climatic factors and a full assessment of alternative options and reasons why alternatives have been assessed and why others have not.

BASELINE CONDITIONS

Current baseline

17.57. At present the Main HNRFI Site comprises a mixture of farmland small holding and private dwellings. There is existing infrastructure in the immediate vicinity, the M69 motorway, including the roundabout infrastructure of junction 2, and the Leicester to Hinckley railway line along the north-western boundary.

17.58. The Main HNRFI Site is a source of agricultural and green waste[14] and potentially small quantities of commercial waste[15] from Hobbs Hayes Farm and Woodhouse Farm. The exact quantities generated from the Main HNRFI Site are unknown but any waste from the agricultural activities that is sent off site for processing is considered to be negligible.

Ground conditions

17.59. A geological baseline and assessment is presented in Chapter 16: *Geology, soils and contaminated land* (document reference 6.1.16) but a summary of ground conditions is as follows.

17.60. 1:50,000 British Geological Survey mapping shows surface geology to variously consist of some Alluvium, overlying Glacial Till (including Bosworth Clay, Thrussington Member and Wolston Sand and Gravel), underlain by Mercia Mudstone beneath the entire site. In local areas there are no superficial deposits. Such variation would be expected to

[14] organic waste that can be composted.
[15] residual waste or recycling produced by a business.

significantly affect soil types and land quality.

17.61. The majority of the agricultural land is expected to remain undisturbed beyond standard farming practices. However disturbed ground is expected around the existing road and rail infrastructure. Potential sources of contamination arising from agricultural activities are also assessed in Chapter 16: *Geology, soils and contaminated land* (document reference 6.1.16).

Receptor - Mineral resources

17.62. None of the Main HNRFI Site falls within a Coal Authority reporting area. Desk based studies do reference sand and gravel within the superficial deposits, further information is available in Chapter 16: *Geology, soils and contaminated land* (document reference 6.1.16).

17.63. A number of quarries have been identified within the Expansive Study Area to provide mineral sources. These are summarised in Table 17.12 . There is no publicly available data on the capacity of the quarries that serve this area. A review of available aerial photography indicates that these are well established and of a significant size. On the basis of evidence of a number of available quarries but in the absence of any supporting capacity data, the sensitivity of the aggregate supply has been conservatively assessed as medium.

17.64. Information in the Leicestershire Minerals and Waste Local Plan supports this, confirming that the region is rich in mineral resources and meets the supply requirement for Leicestershire until 2031. The plan confirms a significant surplus of crushed rock from existing capacity in the Study Area. For sand and gravel there is resource but there is a requirement for extensions to existing permits.

Table 17.12: Regional quarries identified within a 20 km radius of the main HNRFI site.

Quarry Name	Operator	Address	Distance from Site
Croft Quarry	Aggregate Industries	Marion's Way, Leicester, LE9 3GP	7 km
High Cross Quarry	KSD Aggregates	High Cross Road, Claybrooke Magna, Lutterworth, LE17 5AU	10 km
Griff Quarry	MQP Griff Quarry	Gipsy Lane, Nuneaton, CV10 7PH	16 km

Quarry Name	Operator	Address	Distance from Site
Hartshill Quarry	Crown Aggregates	Haartshill Quarry, Nuneaton Road, Nuneaton, CV10 0RT	18 km
Mansetter Winstone Quarry	Tarmac Mancetter quarry	Quarry Lane, Atherstone, CV9 2RF	19.5 km

Receptor – Existing Facilities for the Deposition of Waste

17.65. A summary of the capacity and annual waste received data from active landfill sites within 30km of the Main HNRFI Site has been summarised in Table 17.13. This data has been collated from '*2020 remaining landfill capacity data*[16]' along with the '*2020 waste data interrogator data*'[17] both from the environment.gov.uk website.

17.66. The extent of the regional baseline for landfill void capacity was determined to include three landfill sites that are accepting waste: Griff No4 Quarry Landfill, Cotesbach Landfill, and Ling Hall Landfill.

Table 17.13: Regional landfill sites identified within 30 km of the main HNRFI site

Facility Name	Facility Address	Local Authority	Site Type	Total tonnes Received 2020	Remaining Capacity end 2020 (cubic metres)
Barrow Hill Quarry	Barrow Hill Quarry, Mill Lane, Earl Shilton, Leicestershire, LE9 7AW	Hinckley and Bosworth	L05 - Inert Landfill	Not found	52,000

[16] *Environment Agency 2020 remaining landfill capacity data: https://environment.data.gov.uk/portalstg/home/item.html?id=dc5ca7a937d34844b7e37e8bb8e6a360*

[17] *Environment Agency Waste Data Interrogator 2020: https://environment.data.gov.uk/portalstg/home/item.html?id=f11654b533574f4cbedd4f15b2691f5f*

Facility Name	Facility Address	Local Authority	Site Type	Total tonnes Received 2020	Remaining Capacity end 2020 (cubic metres)
Judkins Landfill Phase 3 (13 km)	Tuttle Hill, Nuneaton CV10 0JQ	Nuneaton and Bedworth	L04 - Non-Hazardous	6,628	1,991,911
Griff No4 Quarry Landfill (18 km)	Griff Quarry, Gipsy Lane, Nuneaton, Warks, CV10 7PH	Nuneaton and Bedworth	L05 - Inert Landfill	628,795	2,958,916
Cotesbach Landfill (19.5 km)	Cotesbach Landfill, Gibbet Lane, Shawell, Lutterworth LE17 6AA	Harborough	L02 - Non-Hazardous Landfill with Stabilised Non-Reactive Hazardous Waste (SNRHW) cell	342,436	9,708,837
Ling Hall Landfill (27.5 km)	Coalpit Lane, Lawford Heath CV23 9HH	Rugby	L02 - Non-Hazardous Landfill with SNRHW cell	396,254	3,439,381
Kingsbury Landfill (29 km)	Rush Lane, Tamworth B77 1LT	North Warwickshire	L04 – Non-Hazardous	Not found	3,460,000

Source: EA Waste Data Interrogator 2020[18] and EA Remaining Landfill Capacity 2020[19]

17.67. By conservatively assessing the cumulative landfill void capacity of Judkins, Griff No4 Quarry, Cotesbach and Ling Hall Landfill sites in Table 17.13 (excluding Barrow Hill Quarry and Kingsbury Landfill as the amount received in 2020 is not known), the calculation in Figure 17.1 determines that the regional landfill void capacity forecasted for 2025 is 14.2 Million tonnes based on a projection of the quantity of material received in 2020 over a 5 year period against the 2020 capacity. At this same rate of receiving material (1.4 million tonnes per year), based on the assessment criteria presented in the Table 17.4 in the methodology section, the sensitivity is assessed as very high.

Figure 17.1: Regional non-hazardous / inert landfill capacity and received waste

Total Capacity of 5 sites 2020	= 18.1M m^3
At 1.2 tonnes per m^3	= 21.7M tonnes
Total material received 2020	= 1.4M tonnes
2020 sensitivity	= 1.4/21.7 x 100% = 6.5% (High)
Projection of 5 years based on 1.4M tonnes per year	
5-year tonnage	= 7M tonnes
2025 Total Capacity	= 14.7M tonnes
2025 Sensitivity	= 1.4/14.7 x 100% = 9.5% (High)

17.68. Based on the EA Waste Data Interrogator 2020, there are nationally a limited number of hazardous waste landfill sites. The management and disposal of hazardous waste is a specialist process and usually would involve some interim treatment processes prior to disposal at landfill. The nearest hazardous waste landfill site is the East Northants Resource Management Facility located near Peterborough which is approximately 71 km from Hinckley. The calculation in Figure 17.2 calculates the void capacity for Hazardous waste sites for 2020 and forecasted for 2025 both at a Regional and National level. In all cases the sensitivity is very high.

Figure 17.2: Regional and national hazardous waste landfill capacity and received waste

[18] *Environment Agency Waste Data Interrogator 2020:* *https://environment.data.gov.uk/portalstg/home/item.html?id=f11654b533574f4cbedd4f15b2691f5f*

[19] *Environment Agency Remaining Landfill Capacity 2020:* *https://environment.data.gov.uk/portalstg/home/item.html?id=dc5ca7a937d34844b7e37e8bb8e6a360*

	Regional	**Nationally**
Capacity in 2020 (volume) Capacity in 2020 (tonnage) At 1.2[20] tonnes per m^3	= 0.5M m^3 = 0.6M tonnes	= 16.4M m^3 = 19.7M tonnes
Material received 2020 2020 sensitivity	0.1M tonnes 0.1/0.5 x 100% = 20% (Very High)	0.85M tonnes 0.85/19.7 x 100% = 4.3% (Very High)
Projection of material received in 5 Year period (tonnage) 2025 Capacity based on 5-year projection 2025 sensitivity	= 0.5M tonnes = 0.1M tonnes Insufficient capacity – very high	= 4.25M tonnes = 15.45M tonnes 0.85/15.45 x 100% = 5.5% (Very High)

17.69. Asbestos is considered a hazardous waste. Asbestos waste is however accepted at non-hazardous landfill sites with SNRHW Cells (Stable Non-Reactive Hazardous Waste). Two sites in Table 17.13, Cotesbach Landfill and Ling Hall Landfill both have SNRHW cells and accept asbestos. Cotesbach Landfill has the greater capacity, however, due to the higher sensitivity for hazardous waste receptors, the cumulative hazardous landfill void capacity sensitivity for these two sites is very high.

Figure 17.3: Regional landfill capacity of sites with SNRHW cells and received waste

Total Capacity of 2 sites 2020 (volume)	= 13.1M m^3
Capacity in 2020 (tonnage) At 1.2 tonnes per m^3	= 15.7M tonnes
Total material received 2020 (tonnes)	= 0.74M tonnes
2020 sensitivity	= 0.74/15.7 x 100% = 4.7% (Very high)

[20] *Using WRAP Waste Density Conversion Factor*

Projection of 5 years based on 0.74M tonnes per year	
Projected 5-year tonnage	= 3.7M tonnes
2025 forecasted Capacity	= 12M tonnes
2025 Sensitivity	= 0.74/12 x 100% = 6.2% (Very high)

Waste Material and Management Facilities

17.70. A review of waste management facilities located in Blaby, and Hinckley and Bosworth were conducted using the EA Waste Data Interrogator 2020[21]. The sites presented in Table 17.14 accepted Construction & Demolition waste at quantities of over 1,000 tonnes in that year.

Table 17.14: Facilities which accepted over 1,000 tonnes of construction and demolition waste in 2020

Site Name	Facility Type	Facility District	Tonnes Received
1st Choice Waste Yard	Non-Haz Waste Transfer / Treatment	Blaby	19,445
Aggregate Industries U K Limited	Physical Treatment	Blaby	4,040
Cliffe Hill Quarry	Physical Treatment	Hinckley and Bosworth	29,599
Enva Whetstone Recycling and Resource Facility	Non-Haz Waste Transfer / Treatment	Blaby	20,409
Granite Close South	Non-Haz Waste Transfer / Treatment	Blaby	1,401
Granite Close Treatment and Transfer Facility	Non-Haz Waste Transfer / Treatment	Blaby	29,929

[21] *Environment Agency Waste Data Interrogator 2020: https://environment.data.gov.uk/portalstg/home/item.html?id=f11654b533574f4cbedd4f15b2691f5f*

Site Name	Facility Type	Facility District	Tonnes Received
L C C Operational Highways - Croft Depot	Physical Treatment	Blaby	1,657
Lynden Lea	Non-Haz Waste Transfer	Hinckley and Bosworth	7,439
M A C Skip Hire Limited	Non-Haz Waste Transfer / Treatment	Hinckley and Bosworth	19,361
Wiggs Farm	Physical Treatment	Hinckley and Bosworth	2,793

17.71. There are ten waste transfer or treatment sites accepting more than 1,000 tonnes of construction and demolition waste respectively in 2020. These are sorting and recycling waste streams reducing the quantity going to landfill. The sensitivity of this receptor is considered to be low.

POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSALS

Construction phase

17.72. This assessment has been separated to identify the impacts of solid waste that would be generated by demolition, earthworks, and construction activities that require off-site disposal during the construction period.

Demolition waste

17.73. Demolition works would be required as part of the Main HNRFI Site preparation works. This would include the demolition of highways infrastructure, hardstanding areas and buildings comprising farm buildings, residential dwellings, stables and other buildings. This would include a mixture of inert, non-inert and hazardous waste compounds.

17.74. Demolition of the buildings on the Main HNRFI Site would produce a variety of waste materials including concrete, masonry, aggregates, ferrous and non-ferrous material, timber, glass, plasterboard and slate. A relatively small quantity of material is expected to be generated from these demolition works. Using the Waste & Resources Action Programme ('WRAP') Designing out Waste Tool for Buildings[22] and based on the footprint area of existing buildings it has been calculated that demolishing the buildings within the Main HNRFI Site would result in approximately 20,424 tonnes of demolition

[22] *WRAP Designing out Waste Tool for Buildings:* [redacted]

waste, shown in Table 17.15. However, waste from steel frame buildings is expected to be less than the shown calculated values as the buildings in this category are all agricultural barns with a lighter construction than the typical steel frame building.

Table 17.15: Building demolition waste, source: WRAP designing out waste tool for buildings

Building type	Total Building Demolition Volume (m^3)	Total Building Demolition Material (tonnes)
Masonry buildings (Housing)	8,946	4,866
Steel Frame buildings (barns)	33,106	15,558
Total	42,053	20,424

17.75. Existing roads would be demolished generating additional material, these have not been quantified, instead being included in the quantities for earthworks. Material generated would likely include crushed concrete, aggregate road base and road planings.

17.76. A high proportion of this demolition and site clearance material is expected to be suitable for reuse and recycling on site. This includes: reinforcement and structural steel work; masonry and brickwork; reinforced concrete and concrete; aggregate sub base; and bituminous pavement material. Where necessary, these materials would be suitably processed, either onsite or offsite, to meet specification requirements.

17.77. The volumes of non-hazardous waste from demolition works are considered to be relatively low in comparison to the regional capacity. It is expected that a high proportion of the material generated would be recyclable and not go to landfill. The magnitude of the non-Hazardous / inert waste is considered to be negligible (not significant).

17.78. It is likely that the demolition would generate some asbestos hazardous waste. Asbestos would need to be surveyed prior to the commencement of demolition works so that all asbestos material can be separated and managed appropriately. The quantities are expected to be very low in comparison to the national capacity. The magnitude of the hazardous waste is considered to be negligible (not significant).

Earthworks

17.79. The topography of the Main HNRFI Site would require a cut and fill exercise to produce a development plateau. The majority of the cut would be generated from the south western end of the Main HNRFI Site redistributing material in the lower lying central area of the Main HNFRI Site and to the north west of the Main HNRFI Site. The more

significant earthworks would be required around existing infrastructure, particularly the upgrades and links to Junction 2 of the M69 and around the railway where rail sidings and a new bridge and associated structures are to be constructed. Areas of cut and fill are shown on Figure 17.1.

17.80. The majority of excavated material (non-organic) is expected to be reused onsite e.g., a cut and fill balance is intended. For the purpose of this assessment, only if excavated material is not required or is unsuitable for the development or specified receiver sites it would become waste.

17.81. Further details on the ground conditions are included in Chapter 16: *Geology, soils and contaminated land (*document reference 6.1.16). This includes an assessment of the materials suitability for reuse of soils and aggregates.

17.82. Engineering specifications and a Material Management Plan (MMP), part of the Site Waste and Materials Management Plan (SWMMP) (document reference 17.3), would outline the suitability of material for re-use onsite and offsite in respect to structural and contamination status. It is anticipated that an MMP would be secured by the DCO and be updated with additional detail once building design has been confirmed and materials are known post-consent.

17.83. The volume of cut has been estimated at 2,338,266 m^3 of material. In the event that this all goes to landfill then this would equate to a high impact based on the regional landfill void capacity. However, the principal of this scheme is to achieve a cut and fill balance to eliminate the generation of this waste. The earthworks would be designed to achieve a cut and fill balance, material quality would be assessed to ensure material is placed in a suitable location onsite, minimising the requirement to dispose of excavated material. The estimated fill volume is 2,344,437 m^3 (would require additional material brought to site), therefore offsite disposal volumes are expected to be minimal (less than 1% of the regional capacity), the magnitude of impact for earthwork material being disposed of to landfill as non-hazardous or inert waste is assessed as negligible (not significant).

17.84. There are no known contamination sources that would cause the ground to be impacted to levels that could classify soils as hazardous waste and therefore the magnitude of impact from hazardous waste from the earthworks is no change (not significant).

Construction waste

17.85. Waste produced from the construction of buildings (including the Railport) within the Proposed Development is displayed in Table 17.16. This figure has been calculated using Smart Waste BRE Waste Benchmark Data[23] and assumes the buildings to be constructed are industrial buildings, producing an average quantity of 12.6 tonnes of construction waste per 100 m^2. This data provides an estimate of waste produced during the construction phase only and does not include demolition, excavation, or groundworks waste.

[23] *Smart Waste BRE Waste Benchmark Data (2012)*

Table 17.16: Waste produced during construction of buildings within the proposed development, Source: BRE Waste Benchmark Data

Total Floorspace of New Buildings (m^2)	Total Building Construction Waste (tonnes)
650,000 m^2	81,900 tonnes

17.86. On the assumption that the recycling rates would be 90%[24], with the remaining 10% sent to landfill, the total amount of construction waste to be recycled is 73,710 tonnes and 8,190 tonnes is to be sent to landfill.

17.87. Waste produced from the construction of roads and paved areas within the Main HNRFI Site (including hardstanding for the Railport) has been calculated based on an assumed average wastage rate of 3% of total material use[25] and is displayed in Table 17.17.

Table 17.17: Waste produced during construction of roads and paved areas within the proposed development

Area of roads and car parks (m^2)	Volume of material, (assuming surface and road base thickness of 0.5m)	Estimated construction waste tonnes (3%)
555,280 m^2	277,640 m^3	9,995 tonnes

17.88. Assuming a recycling rate of 90% and the remaining 10% being sent to landfill, 8,995.5 tonnes will be recycled and 999.5 tonnes is to be sent to landfill.

17.89. The magnitude of impact from the total quantity of construction waste (calculated in Tables 17.16 and 17.17) is considered to be negligible, having regard to available capacity. The impact from construction waste is therefore considered to be not significant.

Construction materials

17.90. Aside from the earthwork operations the Proposed Development would require the use of a range of other construction materials. These include: road paving, concrete, precast

[24] *Waste Management Plan for England, January 2021 Department for Environment Rural & Food Affairs Available from: www.gov.uk/government/publications see p30 - Arrangements for construction and demolition waste.*

[25] *Based on industry standard quantity surveying estimates.*

concrete, steel, plastics and timber.

17.91. The exact source of materials required for the construction of the Proposed Development cannot be defined at this stage. However, materials for construction would be sourced locally where practicable by the contractor.

17.92. Although the source of concrete and road surface cannot be defined at the moment, a significant quantity of minerals are expected to be required for use as a sub-base, production of concrete, and road surfaces. For the benefit of this study some broad estimates have been made based on an allowance of an average of 0.8m thickness of aggregate in all forms of engineering fill, aggregate component of concrete and road paving. Concrete would be used for slabs within buildings and also for foundations. The built footprint comprises circa 650,000m^2 and the cumulative area of each of the plots is 1,340,000m^2. The estimated volume of mineral extraction is assumed to be 1,072,000m^3.

17.93. A review of the available quarries has been undertaken and five quarries have been identified in close proximity to the Main HNRFI Site and is summarised in Table 17.12. All five are within 20 km of the Main HNRFI Site. Mineral capacity data is not readily available as it is commercially sensitive information to operators and therefore not forthcoming. It is considered that given the number of quarries in close proximity to the Main HNRFI Site that there is a substantial quantity of quarried material available to this Site. On this basis the magnitude of impacts for materials for aggregate extraction is minor (not significant).

Storage of materials and waste

17.94. Measures to control the management and temporary storage of materials and waste during construction are detailed within a Construction Environmental Management Plan (CEMP, document reference 17.1).

17.95. It is anticipated that waste would be separated at source where practical, with storage areas laid out to facilitate the segregation of waste material to encourage reuse and recycling; for example, by using colour coded skips. Signage should be used to clearly identify the material to be stored in each area and the site set up should be continuously reviewed and modified where necessary to maximise the opportunity for reuse and recycling.

17.96. It is expected that temporary storage areas would be provided with the capacity to store excavated material required for reuse onsite. Best practice guidance recommends that topsoil should not be stored at heights greater than 3m[26]. The area to be used for stockpiling topsoil should be sized appropriately so that the height of the pile does not need to extend above 3m.

[26] *Defra, 2009. Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available online at: Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (publishing.service.gov.uk)*

Transportation of waste

17.97. The movement of waste would be undertaken by road. The extent of the impacts would be proportional to the waste generated and any reduction in waste would reduce the impacts on the road network. During construction works the reuse of material onsite would reduce waste movements. The impact on air quality (Chapter 9: *Air quality*), noise (Chapter 10: *Noise and vibration*), and traffic (Chapter 8: *Transport and traffic*) is assessed elsewhere in this ES. Any betterment in the reduction of waste generated would automatically reduce the transportation impact.

Construction impacts

17.98. An assessment of construction impacts in terms of materials use and waste is presented in Table 17.18.

Table 17.18: Assessment of the construction impacts

Project Activity	Activities with Potential impacts on material resource / waste	Sensitivity of Receptor	Description of Magnitude	Significance
Demolition	Disposal of demolition waste	High	Negligible	Slight
Demolition	Disposal of asbestos from demolition works	Very High	Negligible	Slight
Site preparation earthworks	Excavation and filling using site won materials, disposal of unsuitable material	Very High	Negligible	Slight
Construction	Use of quarried aggregate for construction	Medium	Minor	Slight

Project Activity	Activities with Potential impacts on material resource / waste	Sensitivity of Receptor	Description of Magnitude	Significance
	(Concrete, sub-base, road surfacing)			
Construction	Generation of construction waste	Low	Negligible	Neutral

Operation phase

17.99. An assessment of the likely waste impact is based on the typical weekly waste arisings quantities from BS5906:2005. The British Standard has typical quantities for a wide range of building types, this proposed use best fits with the industrial weekly arising of five litres per m^2 of floor area. Based on the assumed floor total area of 850,000 m^2, this equates to approximately 4,250m^3 of waste generated per week, or an annual waste arisings of 221,000m^3 / 46,410 tonnes per annum of waste generated (using the WRAP conversion of 0.21 tonnes per m^3 for municipal waste). It is anticipated that 46,410tpa (tonnes per annum) is above the expected figure for the proposed logistics park. On the assumption that the recycling rates would be 65%[27] this amounts to less than 1% of the annual landfill capacity for the Study Area. The magnitude of the operational waste is therefore assessed as negligible.

17.100. The Railport is only expected to generate negligible amounts of waste through its operation or maintenance. The replacement of rails on sidings would occur at a frequency greater than 50 years and it is assumed rails are recycled and ballast is cleaned and reused.

17.101. The decommissioning of the new structures/buildings has not been assessed as the structures are all permanent structures and are expected to last for 60 years.

17.102. An assessment of operational impacts in terms of waste is presented in Table 17.19.

[27] *Waste Management Plan for England, January 2021 Department for Environment Rural & Food Affairs Available from: www.gov.uk/government/publications see p33 - Business Waste.*

Table 17.19: Assessment of the operational impacts

Project Activity	Activities with Potential impacts on material resource / waste	Sensitivity of Receptor	Description of Magnitude	Significance
Operation of logistics park	No manufacturing or processing is expected. There is potential for repackaging to occur	High	Negligible	Slight

PROPOSED MITIGATION

Construction phase

17.103. Measures would be implemented to collectively mitigate the impacts identified from both the use of materials and the management of waste in relation to the Proposed Development. There is significant synergy between materials re-use and the avoidance of the generation of waste, and therefore there is a substantial overlap between the mitigation measures for materials and waste.

17.104. The importance of careful management of materials to promote re-use and waste reduction has been widely recognised by the construction industry. Both legislation and voluntary best practice mechanisms have been developed and implemented. These provide measurable and accountable processes and provide the basis for mitigating environmental effects associated with materials and waste.

17.105. The principal mitigation measure relating to this topic is the implementation of a CEMP (document reference 17.1), the CEMP has been submitted alongside the DCO application. The CEMP includes the following:

- Details of the approach to environmental management throughout the construction phase, with the primary aim of mitigating any adverse impacts from construction activity on the identified sensitive receptors;
- methods for the prevention and control of any potential short-term construction phase impacts (e.g., construction dust, and the risk of accidental spillages of

contaminating materials) and also permanent impacts (e.g., disturbance to vegetation, archaeology and heritage);

- good materials management methods, such as location of temporary haul routes and re-use of temporary works materials from haul routes, plant and piling mats etc; and

- risk/impact-specific method statements and strategic details of how relevant environmental impacts would be addressed throughout the Proposed Development.

17.106. Although not required by the regulations, a Site Waste and Materials Management Plan (SWMMP, document reference 17.3) would be regularly updated during the lifetime of the Proposed Development. The SWMMP identifies:

- The types and likely quantities of construction, demolition and excavation (CD&E) wastes that may be generated as a result of the proposed development;

- relevant reuse, recycling and landfill diversion targets applicable to the proposed development; and

- a review of the waste management measures and procedures to be implemented on site during construction in line with relevant legislation, guidance and best practice. These measures would set out how the CD&E wastes would be reduced, reused, managed and disposed of.

17.107. The natural undulating terrain inside the Main HNRFI Site will be remodelled to provide two level plateaux for development. The elevation and shape of these plateaux provide a suitable formation to deliver the development at, or below, the maximum finished floor levels (FFL). The earthworks required to provide the two plateaux require the movement of up to 2.35 million cubic metres of subsoil and have been designed to provide a cut and fill balance across the Main HNRFI Site, removing the need to import or export subsoil for earthworks.

17.108. Organic material will be managed; volumes can be minimised by measurement of organic content of soils with depth. This will minimise the volume stripped. Topsoil quantities can be managed through the construction phase of the whole development by additional techniques introduced into the strategy to manage volume by creating additional uses. No cap will be considered until the grade / quality of soils is confirmed upon commencement of construction. This is addressed in the Site Waste and Materials Management Plan (document reference 17.3).The topsoil removed will first be used in the following hierarchy:

- Topsoil will be set aside for re-use in on site landscaping requirements (used in permanent works)

- Topsoil will be used to create the various noise / visual bunds (used in permanent works)

- Topsoil requirements for offsite BNG areas will be taken from the site (used in

permanent works)

- Topsoil will be placed back on plots for future development to protect the formation until they are ready to come forward (used in temporary works)

- Topsoil may be used to create surcharge loading if geotechnical conditions require ground improvement (pre-loading technique) (this will be a temporary use)

17.109. The residual topsoil that cannot be utilised in the above listed activities will be stockpiled for storage. Given that a balance of topsoil cannot be achieved on site, there are a number of options for movement of the excess:

- Reuse of the topsoil elsewhere, for use in agricultural or biodiversity uses or to meet the needs of developments in the region.

- The remainder will be transferred for re-use or recovery via a Waste Transfer Station or potentially for inert landfill cover and restoration if a suitable home cannot be found at the right time.

17.110. The transport movements associated with the removal of this residual topsoil from the site during the construction period have been allowed for in the modelling as set out in Chapter 8: *Transport and traffic* (document reference 6.1.8) and therefore no additional transport related effects arise through this process.

Earthworks

17.111. A SWMMP (document reference 17.3) would contain a Materials Management Plan (MMP)

17.112. An MMP would:

- Demonstrate the quantity of material to be reused on site;

- identify the origin of the material to be used on site, and/or identify the receiver site for surplus material; and

- demonstrate that the material is suitable for reuse and there would be no risk to either human health or the environment by reusing the material either on site or on the receiver site.

17.113. Implementation of the SWMMP and the accompanying MMP would ensure that material reuse is maximised by minimising waste at source (reducing the requirement for new construction materials) and during construction. For example, this could include screening, crushing, and recycling of demolition materials onsite, or the use of in-situ recycling of tar bound bituminous materials. Further, an MMP allows for imported material to come from donor sites as waste material or material for reuse.

17.114. The assumption in this assessment is that all material from the cut and fill exercise to

develop a development plateau would be suitable for reuse onsite. The MMP controls the quantity of this excavated material classified as waste and this may require the material to be managed in accordance with the Definition of Waste: Development Industry Code of Practise (CL:AIRE, 2011).

17.115. The reuse of site won materials would be subject to conformance with material specification and assessment criteria to ensure suitability for use. Any materials that do not initially comply to suitable for use criteria would be treated or processed until suitable for reuse.

17.116. In addition, the MMP outlines the material management options for donor sites. Both for material that remains unsuitable for reuse such as surplus topsoil that may be suitable for use on other donor sites and the Main HNRFI Site could act as a receiver site allowing material from other sites where the material may meet the specifications thus avoiding the waste classification subsequent disposal of material to landfill.

Management of hazardous waste

17.117. It is not expected that any significant quantity of hazardous waste would be produced during the operational phase. Although there would be oily rags and other light plant maintenance wastes that would be hazardous. Any hazardous waste produced during the operational phase would be segregated and stored securely before being disposed of by an approved and appropriately licensed hazardous waste contractor, in accordance with the Hazardous Waste Regulations (as amended 2015) and the associated Hazardous Waste Classification Guidance (2015).

RESIDUAL ENVIRONMENTAL EFFECTS

17.118. Receptors which were assessed with potential to be significantly impacted during the construction phase have been reassessed with the mitigation measures detailed above in place. Careful management of material from the earthworks can avoid material that is not suitable to be reused onsite being sent to landfill. Material designated for an alternative use such as surplus topsoil can be sent to donor sites without classifying the material as waste. In addition, material treated or processed and then reused onsite would reduce what is required for disposal. It is reasonable to assume, that if the material unsuitable for reuse cannot be used onsite then as part of the mitigation in the MMP the material is more likely to be managed in a Waste Transfer Station than sent to landfill. A small proportion of any earthwork material sent to a waste transfer station would be sent to landfill reducing the impact to a negligible significance.

CUMULATIVE AND IN-COMBINATION EFFECTS

17.119. There may be additional impacts on materials use and waste disposal when assessed in combination with other schemes. The assessment of construction waste is included in the baseline assessment within this chapter with a review of capacity capturing the effects from any other scheme currently operating and feeding the landfill sites.

17.120. Regional development would however, have an increased drawdown on the regional landfill capacity. Locally, the Hinckley and Bosworth Borough Council Local Plan[28] has identified requirements for somewhere in the region of an additional 9000 homes to be built in Hinckley and Bosworth between 2006 and 2026, with 1150 homes in Hinckley town. Much of this requirement is met by an 850 dwelling housing scheme to the west of Hinckley on Normandy Way, yet to commence to the west of Hinckley. As well as Barwell and Earl Shilton Sustainable Urban Extensions ('SUE') with a further 2500 and 1550 new dwellings respectively. For the purpose of this assessment an increase of 9000 homes is expected to produce an additional 9000 tpa of waste.

17.121. Blaby District Local plan[29] identifies a requirement for a minimum of 8,740 houses to be developed in the Blaby District between 2006 and 2029, and a minimum of 68 hectares of employment land. For the purposes of this assessment, an increase of approximately 9000 homes and 68 hectares of employment land is expected to produce an additional 12,000 tpa of waste.

17.122. Additional development can also be considered to have a positive cumulative effect. The above schemes can also provide opportunities to be donor or receiver sites for surplus excavated material. For example, any surplus excavated material produced as part of the Proposed Development can be re-used on another scheme which requires additional material (subject to the material being suitable for re-use).

17.123. Two other planning applications of note is the installation of a recycling plant at Croft Quarry (planning application reference: 18/0907/CC) and the proposed lateral extension to the mineral extraction area within Croft Quarry (planning application reference: 2019/CM/0125/LCC). The proposal for the new recycling plant could provide an additional 200,000 tonnes of capacity per annum to recycle construction, demolition and other inert materials. This would provide additional capacity to manage construction or demolition waste generated by the Proposed Development. The proposal for the extension to the existing quarry void would release approximately 6.3 million tonnes of aggregate (approximately 300-500,000 tonnes of aggregate produced per year). This provides a potential additional source of local mineral resources to be used for the Proposed Development.

17.124. The Leicestershire County Council Minerals and Waste Local Plan identifies the potential increase in capacity for minerals and landfill volume and the inclusion of the Proposed Development for mineral requirement and landfill use in its projections going forward. The Barwell and Earl Shilton SUEs were the exception and the plan identified a requirement for new waste sites to be incorporated into the employment land allocated within the master planning of these urban extensions.

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[28] *Hinckley and Bosworth Local Plan 2006 – 2026 Site Allocations and Development Management Policies DPD, Adopted July 2016 Available From: https://www.hinckley-bosworth.gov.uk/downloads/file/5295/site_allocations_and_development_management_policies_dpd_-_adopted_july_2016*

[29] *Blaby District Local Plan (Core Strategy) Development Plan Document, Adopted February 2013 Available From: https://www.blaby.gov.uk/media/4107/adopted-core-strategy.pdf*

17.125. In conclusion, future schemes will generate construction and operational waste and feed into the local waste management facilities, diminishing the capacity available for the Proposed Development. However, regional development also provides opportunities for local sources of material – both through donating surplus earthwork material and/or through extensions to quarries. Other schemes can also act as receiver sites for any surplus material that arises as a result of the Proposed Development. Overall, it is expected that the cumulative effects will increase the impacts from the construction and operational waste generated by the Proposed Development but as the volume of waste compared to the waste management capacity is small, the effect is assessed to be not significant.

SUMMARY AND CONCLUSIONS

17.126. As a nationally significant infrastructure project there is a significant quantity of earthworks required to develop a level development platform with connections to the highway and rail infrastructure. A large volume of material is expected to be required to create a platform for the proposed units and surrounding infrastructure. The design of the earthworks aspires to optimise the balance of requirements of excavation and infill, this would maximise the quantity of material reused onsite and minimises the material disposed off-site.

17.127. The Waste Hierarchy should be followed through adherence to a Materials Management Plan that manages all aspects of material re-use, predominantly onsite but, where not suitable, on alternative sites (for example the schemes described in Section Cumulative And In-Combination Effects – paragraphs 17.113 to 17.119). This would minimise material classified as waste and outline an approach which would maximise the potential to recover material and ultimately prevent the material from being disposed of in landfill.

17.128. It is inevitable that there will be a requirement to import material particularly where large quantities of engineering graded material are required and for the production of concrete. Reuse and recycling material has minimised the volume of material imported, and the Main HNRFI Site is well served with a number of quarries in the near vicinity. The importation of material is therefore not expected to have a significant impact on the supply of aggregates with the impact assessed as slight adverse.

17.129. Waste generated by the Proposed Development which cannot be reused would have to be taken off-site. The Main HNRFI Site benefits from a range of waste facilities in close proximity to the Main HNRFI Site. With the adherence of the Material Management Plan and the associated reuse of material the quantity of waste would not have a significant impact on the capacity of the landfill sites in the region with the impact assessed as slightly adverse.

17.130. Overall, with the use of mitigation measures in place (such as a Material Management Plan), the Proposed Development is not expected to have any significant residual effects.

17.131. A summary of effects and mitigation is provided in Table 17.20 and Table 17.21 respectively.

Table 17.20 - Summary of effects

Description of impact	Inherent mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation measures	Residual effect	Proposed monitoring
Disposal of demolition waste	Follow the waste hierarchy	Negligible	High	Slight adverse (not significant)	Separate demolition waste at source to encourage reuse and recycling	Not significant	N/A
Disposal of asbestos from demolition works	Survey prior to commencement of demolition works	Negligible	Very High	Slight adverse (not significant)	Use of a CEMP to set out how to manage asbestos waste safely	Not significant	N/A
Excavation and filling using site won materials, disposal of unsuitable material	Aim to optimise the design to balance the requirements of excavation and infill and reduce the need for imported or exported material	Negligible	Very High	Slight adverse (not significant)	Use of a materials management plan	Not significant	N/A

Description of impact	Inherent mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional mitigation measures	Residual effect	Proposed monitoring
Use of quarried aggregate for construction (Concrete, sub-base, road surfacing)	Aim to optimise the design to balance the requirements of excavation and infill and reduce the need for imported or exported material	Minor	Medium	Slight adverse (not significant)	Use of a materials management plan	Not significant	N/A
Generation of construction waste	-	Negligible	Low	Neutral	-	Not significant	N/A
Operation of logistics park	No manufacturing or processing is expected. There is potential for repackaging to occur	Negligible	High	Slight adverse (not significant)	65% recycling rate targeted	Not significant	N/A

Table 17.21 – Summary of mitigation

Description of impact	Effect	Mitigation measures adopted as part of the project	Secured by	Responsible party
Disposal of asbestos from demolition works	Slight adverse	Preparation of a CEMP	Appendix to Environmental Statement	Savills
Excavation and filling using site won materials, disposal of unsuitable material	Slight adverse	Preparation of an SWMMP	Part of the CEMP	BWB Consulting