

A585 Windy Harbour to Skippool Improvement Scheme

TR010035

6.14 Environmental Statement Chapter 14: Materials

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
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Infrastructure Planning

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The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009

**A585 Windy Harbour to Skippool
Improvement Scheme**
Development Consent Order 201[]

ENVIRONMENTAL STATEMENT CHAPTER 14: MATERIALS

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14 MATERIALS

14.1 Introduction

14.1.1 This Chapter presents the assessment of materials associated with the Scheme. It presents the regulatory framework, assessment methodology, study area, existing and future baseline, mitigation measures, residual effects, monitoring and a summary.

14.1.2 This Chapter should be read in conjunction with Figure 14.1: Waste Management Facilities and Landfill Sites, the draft Site Waste Management Plan (SWMP) and the draft Materials Management Plan (MMP) (Appendix L and Appendix M of the Outline Construction Environmental Management Plan (CEMP) (document reference TR010035/APP/7.2)).

14.2 Regulatory Framework / National Policy Statement for National Networks (NN NPS) Requirements

14.2.1 This assessment has been undertaken considering current legislation, together with national, regional and local plans and policies. A summary is provided within Table 14-1 and full details are within the Planning Statement and NN NPS Accordance (document reference TR010035/APP/7.1).

Table 14-1: Materials – Regulatory Framework and NN NPS Requirements

Policy / Legislation
NN NPS (2014)
EU Directive on Waste Framework Directive (Directive 2008/98/EC on waste)
Environmental Permitting (England & Wales) Regulations 2018 (as amended)
Waste (England and Wales) Regulations 2011 (as amended)
Environmental Protection Act 1990 (Part 2)
Landfill Regulations 2002, as amended
National Planning Policy Framework (2018)
Waste Management Plan for England (2013)
National Planning Policy for Waste, Department for Communities and Local Government (2014)
Joint Lancashire Minerals and Waste Development Framework Core Strategy Development Plan Document (DPD), 2009
Greater Manchester Joint Minerals Plan DPD 2013
Adopted Fylde Borough Local Plan (2005)
Fylde Local Plan to 2032 (emerging document – due to be adopted 2018)
Adopted Wyre Local Plan (1999)
Wyre Local Plan to 2031 (emerging document – due to be adopted 2018)
Highways England Sustainable Development Strategy 2017

14.3 Methodology

Items Scoped in and out of the Assessment

14.3.1 In accordance with Interim Advice Note (IAN) 153/11 this Chapter provides an assessment of impacts during construction on:

- Material resources (the use of primary, secondary, recycled and manufactured materials)
- Waste (arising from existing site materials and demolition activities and materials brought on site but not used for the original purpose)

14.3.2 During operation of the Scheme, it is anticipated that only minor quantities of resources would be used, and minor quantities of waste produced. Significant effects are unlikely to occur and therefore, this has been scoped out of the assessment (in accordance with the Scoping Opinion received from the Planning Inspectorate (the Inspectorate) (document reference TR010035/APP/6.5.1).

Baseline Information

14.3.3 The following information and baseline information has been identified to inform the assessment of materials:

- Description of the site
- Available information about construction methods and techniques
- Statutory requirements e.g. need for a SWMP and any other relevant legislation and statutory targets influencing materials resource use and waste management
- High level policy and strategy targets influencing materials resource use and waste management

14.3.4 In addition to the information listed above from IAN 153/11, information regarding the following has been obtained:

- Mineral safeguarding areas
- Peat resources

Material Resources

14.3.5 The baseline conditions for material resources have been established through desktop research, engagement with Local Authorities and the following:

- Lancashire Minerals and Waste Local Plan
- Department for Business, Energy and Industrial Strategy 2017
- Mineral Product Industry, 2016

14.3.6 This information has been used to determine the current landbank of available resources and the anticipate availability in the future, when the Scheme is due to commence construction.

Waste

- 14.3.7 Baseline conditions have been established to support the assessment of waste arisings, through desktop research. This includes the review of the following key data sources:
- Environment Agency (2016) Waste Data Tables [accessed July 2018]
 - Environment Agency (2016) EPR database [accessed July 2018]
 - Environment Agency (2016) Waste Data Interrogator [accessed July 2018]
 - Government Statistical Service (2016) UK Statistics on Waste
 - Lancashire Joint Plan (2013)

14.3.8 The information has been used to determine the current capacity of the local waste infrastructure and anticipate future capacity, when the Scheme is due to commence construction

14.3.9 Construction waste is not just an inert waste stream. It is likely that non-hazardous and hazardous wastes may also arise. In addition, inert waste is a subset type of non-hazardous waste and often not separated in statistics. The assessment has referenced all types of waste and explore the anticipated waste types and quantities.

[Post-Scoping and Preliminary Environmental Information Consultation](#)

14.3.10 No further consultation was undertaken since the receipt of the responses to the Environmental Impact Assessment (EIA) Scoping Report and the Preliminary Environmental Information Report.

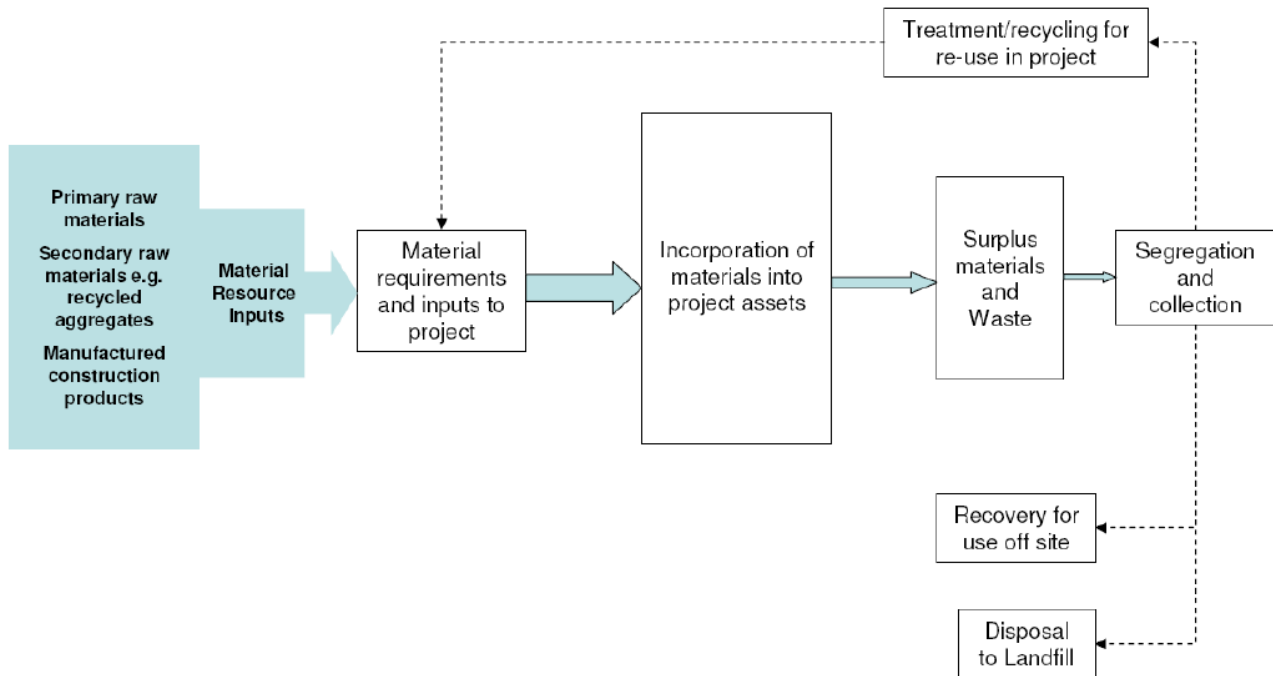
[Identifying Mitigation and Enhancement Measures and Assessing Residual Effects](#)

14.3.11 The assessment of effects arising from materials concentrates on 2 areas:

- Material resources, including the use of primary / secondary / recycled / manufactured materials
- The generation and management of waste

14.3.12 For the purposes of this Chapter the definition of material resources encompasses the materials and construction products required for the construction. Material resources include primary raw materials (materials that are from a non-renewable source, such as aggregates and minerals), and manufactured construction products. Many material resources originate off-site, purchased as construction products, and some arise on site such as excavated soils or recycled road planings. The way the material resources are used throughout the process is known as the Material Resource Flow as is set out in Insert 14-1.

Insert 14-1: Materials - Material Resource Flow



Material Resources

- 14.3.13 For material resource use, the potential environmental effects are associated with the extraction and transport of primary raw materials, the manufacture of products, and their subsequent transport to and use on construction sites. The Scheme would consume quantities of materials and hence may have permanent and direct effects on the environment. For example, effects could occur as a result of the depletion of natural resources as the Scheme would involve substantial earthworks and import of material (e.g. to build up features such as embankments). The potential environmental effect of sourcing, locally or from borrowpits, the remaining import would also be investigated.
- 14.3.14 However, many impacts occur off-site and may possibly occur outside the UK. They include the depletion of non-renewable resources and the production of waste at the point of extraction and during manufacturing. It is outside the scope of guidance to assess the environmental impacts associated with the extraction of raw materials and the manufacture of products. These stages of a product's or a material's life cycle are likely already to have been subject to environmental assessment. Instead this assessment focusses on the assessment of the impacts and effects that would occur as a result of the use of primary, secondary and recycled raw materials and manufactured construction products.
- 14.3.15 Impacts on material resources are reported using an assessment reporting matrix. For each of the impacts identified, a description of the impact is included with a description of the nature and magnitude of the impact. Conclusions reached are also accompanied by a statement justifying the decision.

Waste

- 14.3.16 Guidance (IAN 153/11) states that a judgement of what is considered waste for the purposes of the assessment rests with an individual project in the first instance. For the A585 Scheme waste is defined as any material which is going to be discarded or is required to be discarded.
- 14.3.17 The Environment Agency is responsible, as a "competent authority", for the enforcement of waste management controls in England and Wales. A project is likely to result in surplus material when material supply exceeds material demand. Some surplus materials may be considered as waste and would fall under the relevant regulatory controls. Surplus material and waste would arise from 2 sources:
- Existing site materials (e.g. concrete from demolition of existing structures, excavation of material from earthworks)
 - Materials brought on to site but not used for the original purpose (e.g. damages, off cuts, surplus)
- 14.3.18 For surplus materials and waste, the potential environmental effects are associated with the production, movement, transport, processing, and disposal of arisings from sites.
- 14.3.19 Impacts on waste are reported using the assessment reporting criteria presented within Source: Professional knowledge and advice from Highways England
- 14.3.20 Table 14-3. For each of the impacts identified, a description of the impact is included with a description of the nature and magnitude of the impact. Conclusions reached are also accompanied by a statement justifying the decision.

Identifying Mitigation

- 14.3.21 Mitigation measures have been developed to address potential impacts as a result of construction activities and are reported using a mitigation matrix. The matrix identifies:
- Mitigation measures
 - Commentary on the likely effectiveness of mitigation
 - A description of how the measures would be implemented, measured and monitored (e.g. Contractor's design, method statements, Outline CEMP (document reference TR010035/APP/7.2) and SWMP (Appendix L of the CEMP)).

Significance Criteria

- 14.3.22 Residual effects on materials have been assessed in accordance with Table 14-3 and significance of effects have been reported in accordance with the criteria in Table 14-4.

Table 14-2: Materials – Effect Categories for Material Resources and Waste

Significance Category	Description
Neutral	Material Resources

Significance Category	Description
	<ul style="list-style-type: none"> No reduction or alteration in the availability of material resources within UK (relating to the resources the Scheme has used). <p>Waste</p> <ul style="list-style-type: none"> No reduction or alteration in the capacity of waste infrastructure within Lancashire and Greater Manchester.
Slight	<p>Material Resources</p> <ul style="list-style-type: none"> Requires ≤50% of primary materials to be sourced nationally (with other primary materials sourced at a lower geographic scale); Comprises re-used/recycled aggregate (alternative materials) above the higher of the relevant regional or national percentage target . <p>Waste</p> <ul style="list-style-type: none"> ≤1% reduction or alteration in the Lancashire and Greater Manchester capacity of waste infrastructure; and Waste infrastructure has sufficient capacity to accommodate waste from a Scheme, without compromising integrity of the receiving infrastructure (design life or capacity) within Lancashire and Greater Manchester.
Moderate	<p>Material Resources</p> <ul style="list-style-type: none"> >50% of primary materials to be sourced nationally (with other primary materials sourced at a lower geographic scale); Comprises re-used/recycled aggregate (alternative materials) below the national percentage target of 25% <p>Waste</p> <ul style="list-style-type: none"> >1% reduction or alteration in the Lancashire and Greater Manchester capacity of waste infrastructure as a result of accommodating waste from a Scheme; and 1-50% of Scheme waste requires disposal outside of Lancashire and Greater Manchester.
Large	<p>Material Resources</p> <ul style="list-style-type: none"> >50% of primary materials to be sourced internationally; Sterilises ≥1 mineral safeguarding site and/or peat resource (existing or potential peat extraction sites) Comprises no re-used/recycled aggregate (alternative materials). <p>Waste</p> <ul style="list-style-type: none"> >1% reduction or alteration in the Lancashire and Greater Manchester capacity of waste infrastructure as a result of accommodating waste from a Scheme; and >50% of Scheme waste requires disposal outside of Lancashire and Greater Manchester.
Very Large	<p>Material Resources</p> <ul style="list-style-type: none"> No criteria: use criteria for large category <p>Waste</p>

Significance Category	Description
	<ul style="list-style-type: none"> • >1% reduction or alteration in national capacity of waste infrastructure, as a result of accommodating waste from a Scheme; or • the Scheme would require new (permanent) waste infrastructure to be constructed to accommodate waste.

Source: Professional knowledge and advice from Highways England

Table 14-3: Materials - Significance Criteria for Material Resources and Waste

Significance	Description
Not significant	<ul style="list-style-type: none"> • The material resources category description met for neutral, slight or moderate effect. • The waste category description met for neutral or slight effect.
Significant (1 or more criteria met)	<ul style="list-style-type: none"> • The material resources category description met for large effect. • The waste category description met for moderate, large or very large effect.

Source: Professional knowledge and advice from Highways England

Assumptions and Limitations

- 14.3.23 This chapter, and all material resources and assessments, is based on the Scheme’s design, detailed in Chapter 2: Description of the Scheme (document reference TR010035/APP/6.2), and assumes that the Scheme would be developed in accordance with this information.
- 14.3.24 Whilst considered sufficient to inform the assessment, quantifications of material resources use, and waste arisings forecast from the Scheme have been derived from the Scheme’s design and professional judgement.
- 14.3.25 A draft SWMP and an Outline MMP have been produced and are contained within Appendix L and Appendix M of the Outline CEMP (document reference TR010035/APP/7.2). This draft SWMP would be developed into a full SWMP by the Contractor. The SWMP is a key part of the CEMP and would be a live document based on the construction activities. It would contain specific information on how to manage and dispose of waste generated during the construction of the Scheme.
- 14.3.26 This assessment has not considered the environmental effects associated with the off-site extraction of raw materials used for the off-site manufacture of products. These stages of the products’ or materials’ life-cycles are outside of the scope of the assessment due to the range of unknown variables associated with the processes involved.
- 14.3.27 Total waste management capacity for contaminated soils has not been presented due to a lack of an available, consistent data-set.
- 14.3.28 This Chapter provides an assessment of both options: the use of borrowpits; and bringing in material from off-site to address the material deficit. The baseline section addresses the availability of materials from off-site sources and borrowpits are described in Section 4.5 of the Appendix 2.1: Construction Information (document

reference TR010035/APP/6.2.1).

14.4 **Study Area**

- 14.4.1 The study area to assess existing environmental conditions encompasses the spatial area over which the Scheme would be expected to have an effect. It is informed by the Scheme's requirements.
- 14.4.2 For the purposes of materials resources and waste assessment it is necessary to use different study areas due the need to use material resources from across the UK which are not available locally and the uneven distribution of waste facilities, particularly those accepting hazardous waste. Different study areas are therefore proposed for material resources, non-hazardous waste (including inert) and hazardous waste:
- 14.4.3 Material resources would be required to construct the Scheme, and the assessment would consider the effect of the Scheme on the availability of natural resources. It is intended that material resources such as aggregate would be sourced either from the site (e.g. from borrowpits), locally or regionally, wherever possible. However, as some material resources may have to be sourced from other regions, the study area has been extended to the whole United Kingdom (UK).
- 14.4.4 The study area for waste is defined as the area within the recognised administrative boundaries for Lancashire and Great Manchester.

14.5 **Existing and Future Baseline**

Existing Baseline

Material Resources

- 14.5.1 Material resources include primary raw materials, such as aggregates and minerals, and manufactured construction products which include recycled and secondary aggregates. The term "aggregate" is an umbrella descriptor for bulk raw materials used in infrastructure construction. These materials can be further defined as primary, secondary or recycled aggregate.
- 14.5.2 The materials required for construction of the Scheme would include metals, aggregate, pavement, concrete and soils. Many of these material resources would originate offsite, purchased as construction products, and some would arise onsite such as excavated soils, from the proposed borrowpits, or recycled road planings. A non-exhaustive list of key material resources likely to be used in the Scheme is presented in Table 4 – 4 . This has been compared to the UK demand in 2015 for aggregates, pavement and concrete (Mineral Products Industry 2016¹) and in 2016 for steel (International Steel Statistics Bureau, 2016²).

¹ Minerals Products Association (2016) The Mineral Products Industry at a Glance: 2016 Edition [online] available at: http://www.mineralproducts.org/documents/Mineral_Products_Industry_At_A_Glance_2016.pdf (last accessed August 2018)

² International Steel Statistics Bureau (2017) Steel Demand [online] available at: <http://issb.co.uk/news/news/uk.html> (last accessed August 2018)

Table 14-4: Materials - UK Demand of Key Materials Resources Likely to be Used in the Scheme

Key Material Resources	Quantity Demand (tonnes)
Aggregates	225,00,000
Crushed rock	104,000,000
Sand and gravel – land won	46,000,000
Sand and gravel – marine won	12,000,000
Recycled and secondary	63,000,000
Cementitious	13,000,000
Cement	11,000,000
Other cementitious materials (e.g. fly ash, ground clay bricks)	2,000,000
Asphalt	24,000,000
Concrete	81,000,000
Ready mixed concrete	54,000,000
Concrete products	27,000,000
Steel	10,870,000

14.5.3 The Scheme crosses a number of small areas which are designated as ‘Mineral Safeguarding Areas’. These areas are illustrated on Figure 13.2 found in Chapter 13: Geology and Contaminated Land (document reference TR010035/APP/6.13). These appear to relate to the Glaciofluvial Deposits (Sand and Gravel) mapped in these areas. In consultation with Lancashire County Council (see Appendix 13.1: Consultation (document reference TR010035/APP/6.13.1)), the mineral safeguarding areas are not considered to be an environmental impact that needs to be considered within the Environmental Statement (ES).

14.5.4 In terms of third party aggregate sources, the tonnage of aggregate reserves available (including sand and gravel, crushed rock and recycled aggregates) are identified by the Lancashire Minerals and Waste Local Plan¹¹:

- Limestone – 1.5 million tonnes (mt) produced in 2012. Reserves of 62.5mt in 2011 to 60.64mt in 2012
- Gritstone – 0.94mt of gritstone produced in 2012. Reserves increased from 66mt to 71.4mt in 2012
- Sand and Gravel – 0.36mt of gritstone produced in 2012. Reserves decreased from 8.6mt in 2011 to 8.36mt in 2012

14.5.5 There is currently no information available relating to the capacity of recycled aggregates. Therefore, it is not possible to quantify how much CD&E waste is re-used as aggregate.

Waste

14.5.6 The Scheme would result in the production of waste arising from a number of activities, including damage to materials and goods, off-cuts, excavation of soils, packaging and demolition activities.

14.5.7 Table 14-5 outlines the tonnage of non-hazardous CD&E waste produced in England between 2010 and 2014 (Government Statistical Service, 2016).

Table 14-5: Materials – Non-hazardous CD&E Waste Arisings in England

Year	CD&E Waste (tonnes)	Recovery Rate (%)
2010	43,900,000	90.5
2011	44,100,000	90.6
2012	45,300,000	91.1
2013	46,300,000	91.1
2014	49,100,000	91.4

14.5.8 At present the UK is committed to recovering (e.g. diverting from disposal) at least 70% of non-hazardous construction waste by 2020 as required by the European Community Waste Framework Directive. The last published data from 2014 indicated that the UK was achieving a recovery rate of 91.4%.

14.5.9 A breakdown of CD&E waste arisings for the Wyre Borough Council, and Fylde Borough Council is not available. Instead, data for Lancashire and Great Manchester has been used.

14.5.10 The current CD&E wastes arisings generated locally for Lancashire and Greater Manchester have been reported in their individual reported waste capacity assessments, the values are summarised in Table 14-6.

Table 14-6: Materials – Local CD&E Waste Arisings Generated

Year	Exports from the Plan Area	Imports to the Plan Area	Net Self Sufficiency
2010	112,000	120,000	8,000 imports
2011	187,000	49,000	138,000 exports
2012	304,000	172,000	132,000 exports
2013	358,000	231,000	127,000 exports
2014	142,000	412,000	270,000 imports
2015	160,000	504,000	344,000 imports

14.5.11 Lancashire and Great Manchester has an estimated total CD&E waste arisings of 6,122,496 tonnes per year (based on 2005 data). Of this total:

- 66% was recycled to produce graded and ungraded aggregates and soil (excluding topsoil) by the regions 69 recycling crushers
- 20% entered licensed landfill sites (of this 43% was used for engineering and capping and 57% was waste)
- 14% was used on exempt sites

14.5.12 Within the area covered by the Lancashire Joint Plan (2013) there is capacity for the disposal of inert CD&E waste and hazardous waste. Remaining capacity in 2011

was 63,510 tonnes of hazardous waste, 7,792,590 tonnes of non-hazardous waste and 188 tonnes of inert waste.

- 14.5.13 Total landfill inputs amounted to 900,000 tonnes, continuing a significant trend in the reduced inputs to landfill, which has been relatively consistent across the hazardous, inert and non-inert waste type.
- 14.5.14 The Environment Agency Waste Data Interrogator Tool has been used to present, in Table 14-7, the fate of CD&E waste arisings (Chapter 17 List of Waste (LoW) codes) based on receipt at the facility type. The majority of CD&E waste is received at landfill, but this may include reuse e.g. as capping or restoration.

Table 14-7: Materials – Receipt of CD&E Waste by Facility Type in 2016

Local Authority	Site Category	Tonnage Received 2016	% of Total
Lancashire	Landfill	308,750	18.99
	Recycled	13,573	0.83
	On/In Land	224,814	13.83
	Transfer	249,568	15.35
	Treatment	758,040	46.63
	Use of Waste	70,931	4.36
	TOTAL	1,625,676	18.99
Greater Manchester	Landfill	822,862	30.61
	Recycled	44,643	1.66
	On/In Land	4,360	0.16
	Transfer	645,149	24.00
	Treatment	976,691	36.34
	Use of Waste	194,085	7.22
	TOTAL	2,687,789	30.61

- 14.5.15 As the Scheme would result in waste streams other than inert waste, the breakdown of receipt of CD&E waste by landfill type is also provided in Table 14-8 to demonstrate the range and availability of such facilities.

Table 14-8: Materials – CD&E Waste Capacity by Landfill Facility Type in 2016

Facility Type	Area		Total (tonnes received)	Percentage of the Total (%)
	Lancashire	Greater Manchester		
Hazardous Merchant/Restricted	18,809	0	18,809	1.66
Non-Hazardous with SNRHW	131,589	68,872	200,461	17.71
Non-Hazardous	97,318	499,829	597,147	52.77
Hazardous	0	0	0	0
Inert	61,035	254,160	315,195	27.85
Total	308,750	822,862	1,131,611	100

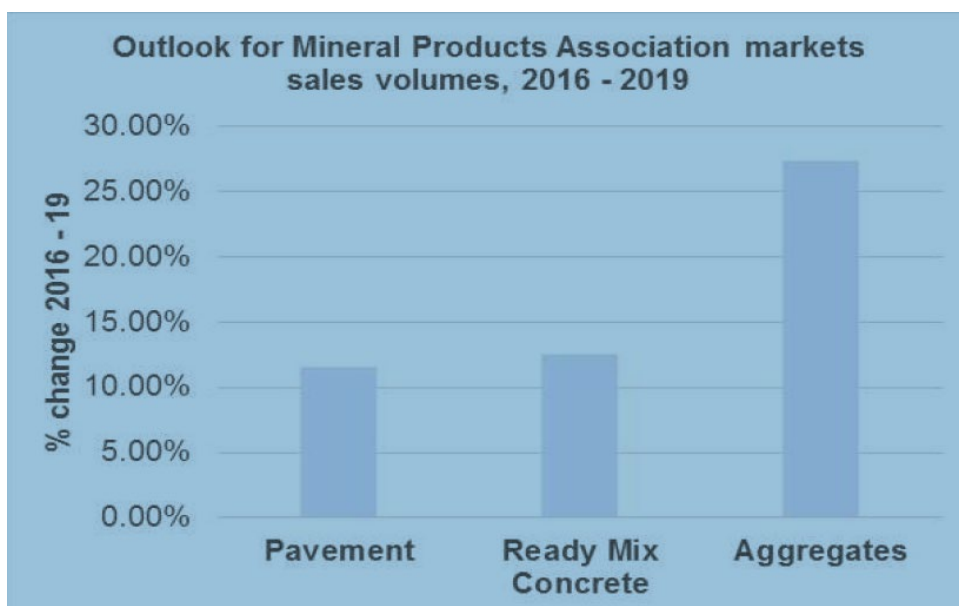
14.5.16 Figure 14-1 shows the location of waste facilities within 30km of the Scheme.

Future Baseline

Material Resources

14.5.17 Despite a potentially slower economic and construction outlook in the medium term as a result of the decision to leave the European Union (EU), the Mineral Product Association expects a cumulative demand for aggregates of between 3.2 and 3.8 billion tonnes over the next 15 years. A breakdown of the key material resources likely to be used in the Scheme and the projected market sales volumes within the UK (Mineral Products Industry 2016) are presented in Insert 14-2. These indicate that production is proposed to increase over the next few years.

Insert 14-2: Materials – UK Projected Markets Sales Volumes for Key Material Resources, 2016 - 2019



- 14.5.18 Due to recent changes in the UK steel market, a reliable forecast of sales is not available. A recent study by the UK Government has indicated there is the potential to grow the market by 150% by 2030, providing some barriers to capacity are addressed (Department for Business, Energy & Industrial Strategy 2017).
- 14.5.19 As the Scheme would seek to use local materials where possible, the future baseline data has been collated from Lancashire and Greater Manchester and their Local Aggregate Assessments. These Local Authorities have not estimated the possible future demand for the same periods and as such the future baseline dates differ.
- 14.5.20 The Lancashire Local Aggregate Assessment (Lancashire County Council, 2017) states that currently has sufficient permitted reserve and allocations to satisfy the assessed sand and gravel requirement over the period of the current Minerals Local Plan (until 2032). The Local Authority has stated that the permitted reserves for limestone are sufficient to meet the forecast demand. The Local Aggregate Assessment also states that the gritstone permitted reserves are sufficient to meet the forecast demand, but the majority of the permitted reserve is held in one quarry.

Table 14-9: Materials – Lancashire Permitted Reserves, 2017 - 2032

2017 -2032	10-year Average Land Won Sales Forecast (tonnes)		
	Sand and Gravel	Limestone	Gritstone
Annual demand	400,000	2,000,000	920,000
Forecast demand	6,150,000	30,000,000	13,800,000
Permitted reserves	7,000,000	58,020,000	77,860,000
Surplus or shortfall in supply at the end of forecast demand period	1 mt surplus (representing a 3-year landbank)	28 mt surplus (representing 14-year landbank)	64.1 mt surplus (representing a 69.8 year landbank)

- 14.5.21 The Greater Manchester, Merseyside and Halton, and Warrington Joint Local Aggregate Assessment 2016 states that in Greater Manchester, glacio-fluvial sand and gravel is currently worked at Astley Moss, Salford. Extraction of crushed rock aggregate in Greater Manchester is confined to a broad strip running north-south along the eastern margin and east-west along the northern margin. There are 4 quarries active for the production of aggregates.

Table 14-10: Materials – Greater Manchester Permitted Reserves Forecast

	Aggregate (tonnes)	
	Sand and Gravel	Crushed Rock
10-year average sales (2006 – 2015)	300,000	700,000
3-year rolling average of sales	270,000	630,000
Total requirement (2014 – 2029)	4,650,000	11,100,000
Permitted reserves as at 31/12/2015	3,700,000	20,430,000
Landbank as at 31/12/2015	12.3 Years	29.19 Years

14.5.22 In addition, the Department for Communities and Local Government (DCLG) has set out the following targets for aggregate recycling between 2005 and 2020³.

Table 14-11: Materials – Recycled Aggregates Targets, 2005-2020

Region	Recycled content target (alternative materials)	Total aggregate provision (tonnes)
North West	30%	392,000,000
England	25%	3,908,000,000

Waste

14.5.23 The Joint Lancashire Local Waste Assessment (2017)⁴ projects CD&E waste arisings for the Plan Area to 2032. CD&E arisings are forecast to increase from 3,750,000 in 2012 to approximately 5,750,000 tonnes per annum in 2032. The projected figures are based on the projection of economic growth for the construction industry averages around a 2.3% growth rate between 2012 and 2032.

14.5.24 In 2012, recycling rates of CD&E waste in Lancashire were recorded at 34%, this figure is forecast to increase to 40% by 2032. Waste to landfill figures in 2012 were recorded at 42% with this figure projected to decrease to 30% by 2032.

14.5.25 With regard to landfill capacity, the collated Department for Environment, Food and Rural Affairs (Defra) data indicates that, in 2015, Lancashire and Cumbria had a remaining inert landfill capacity of 96,525,239 cubic metres (m³) and non-hazardous landfill capacity of 12,368,252 m³.

14.5.26 In 2007, it was estimated that in the Lancashire plan area, 40% of CD&E waste was sent to landfill for disposal, with the rest being either recycled, reused or otherwise recovered. Approximately 10% short of the national target to recycle or recover 70% of CD&E waste, and it is estimated that the national rate in 2007 was 93%.

14.5.27 There is very limited information available on arisings of CD&E waste in Greater Manchester. However, with regard to landfill capacity, the collated Defra data indicates that, in 2015, Greater Manchester had a remaining inert landfill capacity of 117,139,565 m³ and non-hazardous landfill capacity of 123,190,453 m³.

Receptors Potentially Affected

14.5.28 Table 14-12 outlines materials receptors potentially affected by the Scheme.

Table 14-12: Materials – Receptors Potentially Affected

Receptor
Material reserves
Local waste infrastructure capacity
Transport infrastructure and local residents

³ DCLG (2009) National and regional guidelines for aggregates provision in England 2005-2020 [online] available at: <https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020> (last accessed August 2018).

⁴ Lancashire County Council (2017) Joint Lancashire Local Waste Assessment

14.6 Mitigation and Enhancement Measures

Mitigation

- 14.6.1 Measures would be implemented to reduce the impacts on material resources use and waste arisings from the Scheme.
- 14.6.2 An Outline CEMP (document reference TR010035/APP/7.2) has been submitted with the Development Consent Order (DCO) application. The CEMP requires the contractors to:
- Promote opportunities for the potential reusing and recycling of all material resources and waste
 - Sort and segregate waste into different waste streams (where technically and economically feasible)
 - Manage material use to maximise the environmental and Scheme benefits from the use of surplus materials
- 14.6.3 The Outline CEMP (document reference TR010035/APP/7.2) mandates several subsidiary management plans, which form part of the suite of mitigation measures of particular relevance to materials and waste. These include:
- The draft SWMP (contained in Appendix L of the Outline CEMP) which would be developed into the full SWMP by the appointed Contractor. The SWMP would ensure that waste is managed in accordance with the waste hierarchy and other relevant legislative requirements, The SWMP would also detail information on the waste carriers and waste management facilities that would be used
 - The draft MMP (contained in Appendix M of the Outline CEMP) has been produced to identify ways to reuse site-won or excavated materials within the construction of the Scheme provided it meets the requirements of the CL:AIRE Code of Practice (CoP)⁵. The draft MMP would be developed into a full MMP by the appointed Contractor
- 14.6.4 The design would apply the 5 key principles of waste minimisation (design for reuse and recovery, off-site construction, materials optimisation, waste efficient procurement and deconstruction and flexibility) as detailed in the Outline CEMP (document reference TR010035/APP/7.2) in future design phases to support the use of materials in a more efficient manner and to consider how reuse, recycling and recovery of materials can be incorporated into the design and ultimately reduce waste to landfill.
- 14.6.5 The Contractor would register with the Considerate Constructors Scheme.

Material Resources

- 14.6.6 The depletion of finite material resources would occur through extraction of primary aggregates (e.g. sands and gravels). Structures, drainage and signage products would be procured with consideration of the environmental impacts associated with

⁵ Contaminated Land Applications In Real Environments (CL:AIRE) (2011) The Definition of Waste: Development Industry Code of Practice [online] available at: <https://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document> (last accessed August 2018).

their manufacture, as well as other considerations such as structural design, carbon footprint, energy consumption, long-life performance, visual impacts, durability and cost.

- 14.6.7 The Scheme would involve substantial earthworks and import of material (e.g. to build up features such as embankments and false cuttings (designed for noise and visual mitigation)) – quantities are provided in paragraph 14.7.5. Where fill material would be required, it has been designed as far as is practicable to come from within the same section of works. The remaining import would be sourced locally or obtained from the proposed borrowpits described in Section 4.5 of the Appendix 2.1: Construction Information (document reference TR010035/APP/6.2.1).
- 14.6.8 The procurement process shall ensure that material resources are ordered so that the timing of the delivery (e.g. 'just in time' deliveries), the quantities delivered, and the storage are optimised to reduce opportunity for oversupply and damage onsite.
- 14.6.9 It is anticipated that, wherever possible and where specification allows, construction materials would include a measurable recycled content in their manufacture.
- 14.6.10 Consideration of the durability of the materials to be utilised by the Scheme (considering the 120-year design life) would be provided at a detailed design stage.
- 14.6.11 Wherever possible, standardisation of materials and elements would be incorporated into the Scheme design in order to minimise required material resources and the production of waste. For example, the use of prefabricated components.
- 14.6.12 Local sources for aggregate supplies would be considered whenever and agreements with suppliers would be explored to reduce the amount of packaging used to protect materials or to participate in a packaging take back scheme.

Waste

- 14.6.13 The Outline CEMP (document reference TR010035/APP/7.2) contains the measures the contractor would implement during construction including those detailed below.
- 14.6.14 Excavated material would be targeted for fill and landscaping where this is feasible, and the material is suitable. Excavated materials, such as soils, would be carefully stored in segregated piles for subsequent reuse on the site, where possible. If the material is contaminated then it would be kept separate from clean material and sent for either treatment, recycling or recovery, where appropriate, or disposal at appropriately permitted facilities.
- 14.6.15 Surplus inert excavated materials (e.g. soils, stone, bricks, clay, rubble, rock) may be suitable for use in land reclamation projects. This would require compliance with the criteria and thresholds for an exemption or a permit under the Environmental Permitting Regulations 2010 (as amended). The CL:AIRE DoWCoP⁶ may also be applicable for the reuse of this material.
- 14.6.16 Materials unsuitable for use onsite (e.g. timber off cuts that cannot be used onsite) would be collected in receptacles for subsequent separation and considered for recycling at an off-site facility.

⁶ Contaminated Land Applications In Real Environments (CL:AIRE) (2011) The Definition of Waste: Development Industry Code of Practice [online] available at: <https://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document> (last accessed August 2018).

Vegetation

- 14.6.17 In order for construction to take place, areas of vegetation, comprising mainly of grass and shrubs would require clearance. This would be managed in accordance with the Outline CEMP (document reference TR010035/APP/7.2). As a minimum all vegetation waste should be diverted from landfill, unless identified as an invasive species and no other options are available. The greatest opportunity for the sustainable management of vegetation waste is through recycling into compost.
- 14.6.18 Any material produced by the enabling works (e.g. good quality topsoil) deemed acceptable, would be stored and re-laid within the Scheme whenever possible in accordance with the Outline CEMP (document reference TR010035/APP/7.2).

Hazardous Waste

- 14.6.19 Based on the baseline information presented in Chapter 13: Geology and Contaminated Land (document reference TR010035/APP.6,13), there does not appear to be a high probability of significant sources of contaminated land being present within the application site. The Scheme is generally in a rural setting with the majority of the new road being constructed through agricultural fields.
- 14.6.20 However, any hazardous waste including any contaminated soil would be identified, removed and kept separate from other CD&E wastes as detailed in the Outline CEMP (document reference TR010035/APP/7.2), in order to avoid contaminating 'clean' materials.
- 14.6.21 Asbestos based materials and other contaminants may arise during the excavation works. Any asbestos encountered onsite would be managed by a qualified asbestos removal contractor in accordance with the Outline CEMP Appendix O: Asbestos Management Plan (document reference TR010035/APP/7.2). All asbestos would be removed off site in accordance with the CEMP and legislation and disposed of at a suitable permitted landfill by a licensed contractor in accordance with all appropriate regulations.

Site Practices

- 14.6.22 The Scheme would have a Waste Manager or Champion who would oversee the implementation of the waste control strategy and the handling of any waste material, as set out in the Outline CEMP (document reference TR010035/APP/7.2). The Contractor would consider setting off-cut/surplus targets for sub-contractors with a positive incentive scheme for onsite waste champions.
- 14.6.23 The waste management compound would be established within the application boundary, at Poulton Junction, to handle incoming waste from construction activities as set out in the Outline CEMP (document reference TR010035/APP/7.2). This would be designed to facilitate the segregation of key waste streams to maximise the opportunity to reuse, recycle and return wastes generated onsite.
- 14.6.24 Construction and demolition work would be carried out closely with the waste management contractors, in order to determine the best techniques for managing waste and ensure a high level of recovery of materials for recycling. An area would be established for spoil classification at the application boundary, as detailed in the Outline CEMP (document reference TR010035/APP/7.2).

- 14.6.25 All transport of waste from site would be in accordance with relevant waste legislation as set out in the Draft SWMP.
- 14.6.26 Successful recycling relies upon early planning, clear responsibility and space within a compound for segregation and storage. Shelter would be provided to prevent materials such as cardboard and paper from deteriorating while being sorted or awaiting collection. Space would be provided to accommodate skips and the storage of reusable materials.
- 14.6.27 For all waste management options on the site compound, consideration would need to be given for identifying whether waste exemptions or permits are required to enable for the storage and treatment of waste materials.
- 14.6.28 Waste management options would be supported by the identification of appropriately permitted waste management and recycling facilities in close proximity to the site compound as set out within the Draft SWMP.

Transport of Material Resources and Waste

- 14.6.29 Only where required material resources cannot be provided from within the Scheme section, either due to insufficient material resources or the wrong type of material resource, the required material resources would be imported onto the Scheme via the existing road network.

Enhancement

- 14.6.30 No enhancement measures are proposed.

14.7 Residual Effects

- 14.7.1 There are 2 options identified for addressing the Schemes material deficit as identified in Chapter 2: Scheme Description (document reference TR010035/APP/6.2) these include:
- Option 1 - Importing all required inert deficit material; and
 - Option 2 - A combination of using the borrowpits and importing inert deficit material to site.
- 14.7.2 The residual effects of each option are considered within this section.

Material Resources

The estimated quantities of material resources required for the construction of the Scheme are presented in Table 14-13.

Table 14-13: Materials – Estimated Material Resources Required for the Scheme

Scheme Activity	Material Resources required for the Scheme	Estimated quantities of material resources required
Site remediation / preparation	No material resources would be required for site remediation and preparation	No applicable
Demolition	No material resources would be required for demolition	No applicable
Site construction	Granular fill for capping and drainage blanket	144,500m ³
	General fill (including embankments and false cutting (for noise and visual mitigation))	320,000m ³
	Asphalt	35,000m ³
	Sub base	16,500m ³
	Concrete	16,000m ³
	Steel (including structural steel, lighting columns and safety fence etc.)	200 tonnes

- 14.7.3 As shown in Table 14-13 the majority of the materials required for the construction of the Scheme comprise of aggregate (e.g. to construct embankment and false cuttings (for noise and visual mitigation)) and asphalt.
- 14.7.4 The earthworks for the Scheme have been balanced, as far as possible by reusing excavated materials from the Scheme. There would be 194,500m³ of excavated materials reused from the Scheme, of which 190,000m³ would be used for general fill and 4,500m³ for granular fill for capping and drainage blanket. The additional 140,000m³ for general fill would be imported to site from local sources and used for embankments and false cuttings (for noise and visual mitigation)). However, if the Contractor decides to use the borrowpits, only 70,000m³ would be required from local sources.
- 14.7.5 Structures that would need to be built as part of the Scheme include the Skippool Bridge and the Lodge Lane Bridge. As outlined in the construction strategy for the Scheme (contained in Chapter 2: Description of the Scheme (document reference TR010035/APP/6.2)) some elements of the bridges would be cast *in-situ* and some would be pre-cast.
- 14.7.6 Elements such as steel for structural steel, lighting columns and safety fence. Etc. would require importing to site.
- 14.7.7 The assessment of the residual effects on material resources is shown in Table 14-14.

Table 14-14: Materials – Assessment of Material Resources Use

Scheme Activity	Impacts Associated with Material Resources	Description of the Effects	Effect Category	Significance
Site remediation / preparation	No material resources would be required for site remediation and preparation	Not applicable	Not applicable	Not applicable
Demolition	No material resources would be required for demolition	Not Applicable	Not Applicable	Not Applicable
Site construction	Impacts on the availability and depletion of material resources.	<p>The implementation of mitigation measures as outlined in Section 0 would ensure the efficient use of material resources onsite. The majority of material resources required for construction comprise of aggregates, which is a primary material. Although 41% of the fill materials required for the earthworks can be provided from site-won material, aggregates would still be imported to the Scheme for the remaining 51% of fill material. However, the baseline has indicated adequate supply of aggregates within Lancashire and Greater Manchester, therefore where further supplies of aggregates are required the majority of these can be procured within Lancashire and Greater Manchester.</p> <p>In addition, the recycling target would still be higher than the England and North West targets outlined in Table 14-11. It is unlikely that any materials would be sourced internationally, therefore, as a worse case it is assumed that >50% of materials would need to be sourced nationally (with other primary materials sourced at a lower geographic scale).</p>	<p>Moderate</p> <p>Effects: direct, permanent and adverse.</p>	Not significant

Waste

14.7.8 Table 14-15 outlines the waste streams that are likely to be generated by the construction of the Scheme.

Table 14-15: Materials – Estimated Waste Arisings

Scheme Activity	Waste arisings from the Scheme	Estimated quantities of waste arisings	
Site remediation / preparation	Granular fill for capping and drainage blanket	4,500m ³	
	General fill	190,000m ³	
	Hazardous waste (e.g. contaminated soils and waste)	Quantities unknown – unlikely to be significant	
	Green waste	Quantities unknown – unlikely to be significant	
Demolition	Pavement excavation	3,772m ³	
	West Wynds - main house	Outer walls	75m ³
		Inner walls	13m ³
		Floor slab	27m ³
		Tiled roof	11m ³
	West Wynds – extension and garage	Outer walls	54m ³
		Inner walls	6m ³
		Floor slab	22m ³
		Tiled roof	13m ³
	Derelict Barn South of Mains Lane	Outer walls	32m ³
		Floor slab	15m ³
	The Beeches – main house	Outer walls	66m ³
		Inner walls	13m ³
		Floor slab	36m ³
		Tiled roof	14m ³
	The Beeches – outbuildings and extension	Outer walls	72m ³
		Inner walls	6m ³
		Floor slab	26m ³
		Tiled roof	16m ³
	Skippool Bridge	North parapet	7m ³
		South parapet	10m ³
Piers (4 No)		4m ³	
South facing wall		32m ³	
North facing wall		32m ³	
Buried wall		24m ³	
South cutwater		3m ³	

Scheme Activity	Waste arisings from the Scheme		Estimated quantities of waste arisings
		North cutwater	3m ³
		South arch	11m ³
		1.8 m barrel (2 No)	24m ³
		Concrete foundation	18m ³
		Concrete infill to barrels	90m ³
		North wing walls	12m ³
Site construction	Waste from material resources brought to site (e.g. off-cuts, surplus materials, etc.)		Quantities unknown – likely to be 10% of construction materials as worst case scenario

- 14.7.9 As outlined in paragraph 14.7.5 the design of the Scheme has ensured a balance in the earthworks as far as possible and 194,500m³ of excavated materials would be reused onsite for general fill and granular fill for capping and drainage blanket. Therefore, there would not be a surplus of excavated materials. An intrusive ground investigation has taken place across the Scheme to establish the ground conditions for construction of the new road (document reference TR010035/APP/7.6). This has included assessing the land quality in the areas investigated to determine the baseline and implications for the Scheme. Further intrusive investigations may be undertaken prior to construction in areas of concern highlighted by this and for detailed design of the Scheme, as described in Chapter 13: Geology and Contaminated Land (document reference TR010035/APP/6.13). If contaminated waste is encountered during the construction phase, the final SWMP would outline the correct procedures for handling and storing of hazardous waste to ensure cross-contamination does not occur.
- 14.7.10 The detailed assessment of the effects of the generation and management of waste can be seen in Table 14-15.

Table 14-15: Materials – Assessment of Arisings and Management of Waste

Scheme Activity	Impacts Associated with the arisings and management of waste	Description of the Effects	Effect Category	Significance
Site remediation / preparation, demolition and site construction	Inert waste arisings - leading to temporary reduction of waste management facilities capacity or permanent reduction to landfill capacity.	There would be a surplus of 194,500 m ³ of excavated material deemed suitable for reuse onsite for general or granular fill. Any inert waste from the pavement excavation and demolition from the West Wynds main house, extension and garage, derelict barn south of Mains Lane, the Beeches main house, outbuildings and extension and the Skippool bridge would also be reused onsite in the landscaping for the Scheme, when suitable. This waste would be dealt with in accordance with the waste hierarchy as stated in paragraph 14.6.3, which would ensure that reuse on other sites and recycling are prioritised. However, the worst-case scenario would be that this waste requires disposal to landfill, and the baseline has identified limited remaining capacity of inert landfill in Lancashire and Greater Manchester. This 35,288 m ³ of inert materials constitutes >1% (1.36%) of the remaining landfill capacity in Lancashire and Greater Manchester, which would result in a reduction or alteration in the capacity of the waste infrastructure. It is assumed 1-50% of this inert waste would require disposal outside of the region.	Moderate Effects: direct, temporary and adverse.	Not Significant
	Non-hazardous waste arisings - leading to temporary reduction of	Approximately 3,772 m ³ of non-hazardous waste would arise from existing highways infrastructure. In addition, 516 m ³ would arise from the demolition of	Slight Effects:	Not Significant

Scheme Activity	Impacts Associated with the arisings and management of waste	Description of the Effects	Effect Category	Significance
	waste management facilities capacity or permanent reduction of landfill capacity.	West Wynds main house, extension and garage, derelict barn south of Mains Lane, the Beeches main house, outbuildings and extension and the Skippool bridge. The implementation of measures outlined in section 0 would be likely to reduce the effects through the reuse and recycling of waste. However, the baseline has identified that the waste infrastructure has sufficient capacity to accommodate waste from the Scheme without compromising the integrity of the landfill sites within Lancashire and Greater Manchester, if disposal to landfill is required.	direct, permanent and adverse.	
	Hazardous waste arisings - leading to temporary occupation of waste management facilities capacity or permanent reduction of landfill capacity.	Unlikely that large volumes would be generated due to the nature of the Scheme, as described in Chapter 13: Geology and Soils. The baseline has identified that the landfill sites have sufficient capacity to accommodate waste from the Scheme without compromising the integrity of the receiving infrastructure within Lancashire and Greater Manchester, if disposal to landfill is required.	Slight Effects: direct, temporary and adverse.	Not Significant

14.8 Monitoring

- 14.8.1 The effects on material resources and waste are anticipated to be Not Significant. However, in accordance with best practice the following monitoring measures have been included within the Outline SWMP contained in Appendix L of the CEMP (document reference TR010036/APP/6.7).
- 14.8.2 The SWMP would also be used to measure and monitor the types and quantities of waste sent off-site, to ensure that the waste hierarchy is being implemented wherever possible. As outlined in the Outline MMP contained in Appendix M of the CEMP (document reference TR010036/APP/6.7), a verification report would be required to confirm that only the material identified suitable for use in the MMP was used and placed in accordance with that stated in the MMP.
- 14.8.3 In addition, the CEMP (document reference TR010036/APP/6.7), would include the frequency of inspection and maintenance of Advanced Direction Sign (ADS), road markings, non-motorised users (NMU) facilities such as footpaths and signs, vehicle restraint systems, lighter structures and foundation strengthening.

14.9 Summary

- 14.9.1 Material resources would be required for the construction of the Scheme. The key environmental effects resulting from the use of material resources is the impact on the availability of material resources, subsequent impacts on the demand for key construction materials, and the depletion material resources. The material resource that would be required in the largest quantity would be aggregates (e.g. to build up features such as embankments).
- 14.9.2 However, the Scheme would also involve substantial earthworks. Where fill material would be required, it has been designed as far as is practicable to come from within the same section of works (e.g. embankments, false cuttings, etc.). The remaining import would be sourced locally or obtained from the proposed borrowpits described in Section 4.5 of the Appendix 2.1: Construction Information (document reference TR010035/APP/6.2.1).
- 14.9.3 The Scheme would also generate other types of waste which would require appropriate management onsite. The key environmental effects resulting from the generation and management of waste is the temporary occupation of waste management facilities and the permanent reduction in landfill capacity.
- 14.9.4 Following the implementation of appropriate mitigation measures, as outlined within the assessment, it is concluded that there would be **No Significant effects** from the use of material resources and **No Significant effects** from the arisings and management of waste as a result of the construction of the Scheme.

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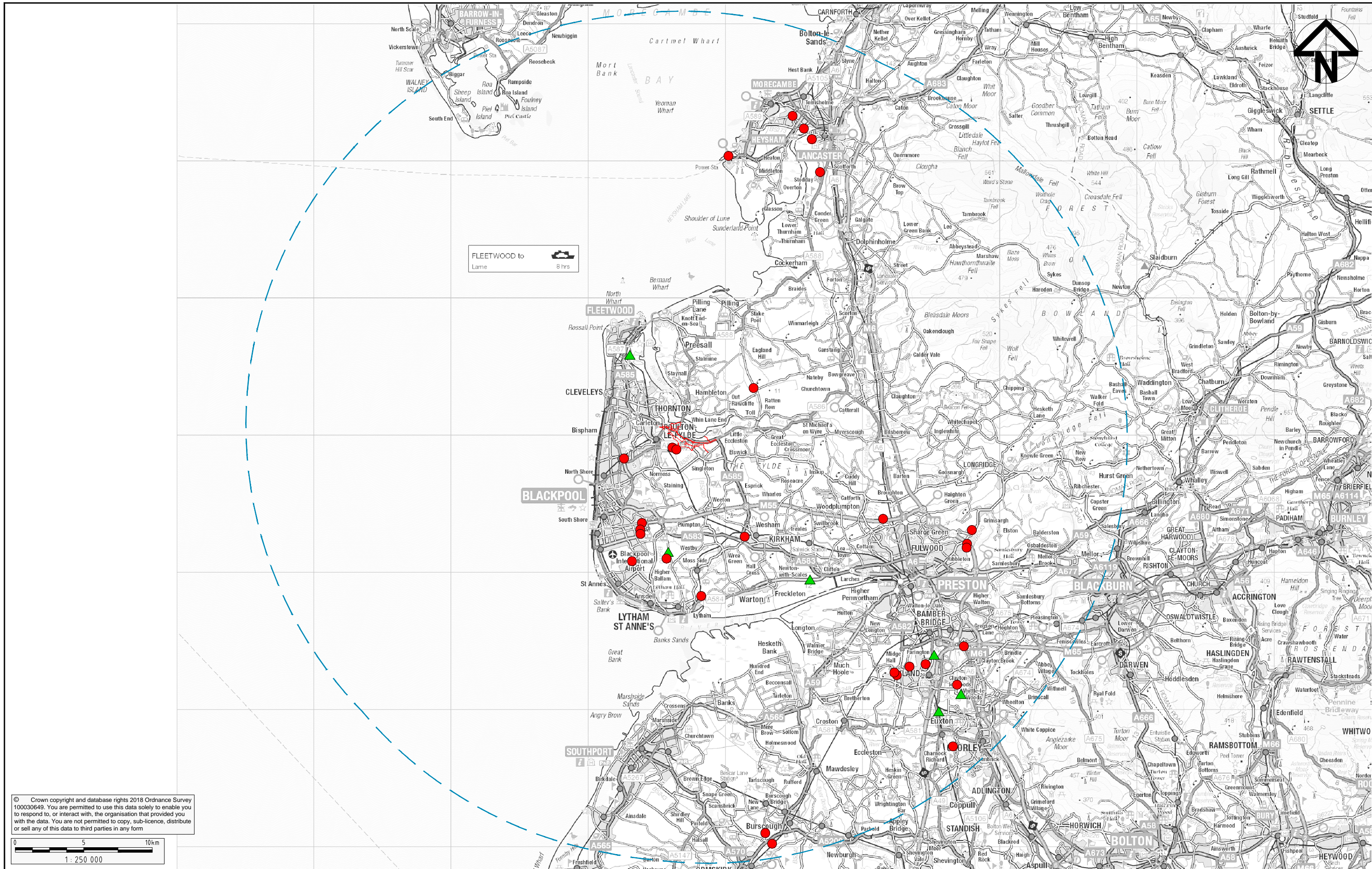
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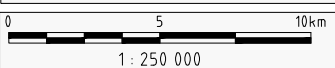
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14.11 **Figures**



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Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH

KEY:

	Draft Order Limits
	30km Study Area
	Waste Management Facilities
	Landfill Sites



Client	A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Project	S8 - DCO SUBMISSION
Revision	0
Scale	1:250 000 @ A3
Drawn By	J.NORMAN
Checked By	K.BURROWS
Approved By	N.HENDERSON
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Figure	FIGURE 14.1
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