

Riverside Energy Park

Preliminary Environmental Information Report

CHAPTER:

06

PLANNING INSPECTORATE REFERENCE NUMBER:

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TRANSPORT

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Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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6 Transport

6.1 Introduction

- 6.1.1 This Chapter presents the preliminary findings of the assessment of likely significant traffic and transport effects arising from the construction, operation, and decommissioning of the Proposed Development.
- 6.1.2 This Chapter describes the legislative and policy framework; assessment methodology; the study area; the baseline conditions; and in relation to the preliminary findings of the assessment, the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.
- 6.1.3 A Transport Assessment (TA) will also be prepared and appended to the Environmental Statement (ES). The scope of this TA continues to be refined through consultation with various stakeholders (see **Section 6.3**).
- 6.1.4 In accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the Infrastructure EIA Regulations 2017), a statement outlining the relevant expertise and qualifications of competent experts appointed to prepare this Preliminary Environmental Information Report (PEIR) is provided in **Appendix A.3**.

6.2 Policy Context, Legislation, Guidance and Standards

- 6.2.1 This Section provides a summary of the relevant legislation, guidance documents and standards which have been used to inform and guide the assessment.
- 6.2.2 As outlined in **Chapter 2**, the relevant National Policy Statements (NPS) provide the primary basis for decisions by the Secretary of State on nationally significant infrastructure projects.

National Planning Policy and Guidance

NPS EN-1

- 6.2.3 The appraisal of Sustainability for National Policy Statement NPS EN-1 sets out the need to speed up the UK's transition to a low carbon economy. This includes the transport network where NPS EN-1 states that major investment is required in new technologies in order to help reduce the UK's carbon emissions.

NPS EN-3

- 6.2.4 NPS EN-3 briefly references transport by setting out that, where possible, as many materials (fuel and residues) to/from biomass or Energy from Waste (EFW) plants are to be transferred by river or rail. In addition, any new biomass or waste combustion sites should be located within the vicinity of existing transport routes where possible.

National Planning Policy Framework (NPPF) (2012)

- 6.2.5 The NPPF sets out the Government's economic, environmental and social planning policies for England. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations. The NPPF recognises the importance transport policies have in facilitating development but also contributing to wider sustainability and health objectives. Paragraph 32 of the NPPF advocates that planning policies and decisions should consider whether:

- *“The opportunities for sustainable transport modes have been taken up depending upon the nature and location of the site, to reduce the need for major transport infrastructure;*
 - *Safe and suitable access to the site can be achieved for all people;*
 - *Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual impacts of development are severe.”*
- 6.2.6 At a more detailed level, paragraph 35 of the NPPF states that developments should be located and designed in order to:
- *“Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities*
 - *Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians.”*
- 6.2.7 The NPPF also stresses the importance of providing a Travel Plan for all developments that generate significant amounts of movement.

Planning Practice Guidance (online resource)

- 6.2.8 The supporting Planning Practice Guidance provides a section on ‘travel plans, transport assessments and statements in decision-taking’. This states that a TA can positively contribute to:
- *“encouraging sustainable travel;*
 - *lessening traffic generation and its detrimental impacts;*
 - *reducing carbon emissions and climate impacts;*
 - *creating accessible, connected, inclusive communities;*
 - *improving health outcomes and quality of life;*
 - *improving road safety; and*
 - *reducing the need for new development to increase existing road capacity or provide new roads.” (DCLG, 2014, Paragraph: 006 Reference ID: 42-006-20140306)*
- 6.2.9 The guidance also states that the TA should be:
- *“proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;*
 - *established at the earliest practicable possible stage of a development proposal;*
 - *be tailored to particular local circumstances (other locally-determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally); and*
 - *be brought forward through collaborative ongoing working between the local planning authority/transport authority. Engaging communities and local businesses in transport assessments and statements can be beneficial in positively supporting higher levels of walking and cycling (which in turn can encourage greater social inclusion, community*

cohesion and healthier communities).” (DCLG, 2014, Paragraph: 007 Reference ID: 42-007-20140306)

Emerging National Planning Policy

Draft National Planning Policy Framework (2018)

6.2.10 In March 2018, the Ministry of Housing, Communities and Local Government announced plans to revise and simplify the NPPF, which is now in its consultation stage. Further details are provided in **Appendix A.4**. Chapter 9: ‘Promoting Sustainable Transport’ proposes the following policy changes:

- New policy to recognise the importance of maintaining a national network of general aviation facilities (Paragraph 105).
- Amendments to policy on assessing the transport impacts of proposals which will now include highway safety as well as capacity and congestion. This will emphasise the importance of designs that prioritise pedestrian and cycle movements as well as access points to high quality public transport (Paragraph 108-110).

6.2.11 The purpose of these transport-associated works is to further promote sustainable modes of travel and reduce the need to travel by private car, which is consistent with the objectives of the NPPF as well as regional and local transport policy.

Regional Planning Policy and Guidance

London Plan 2016

6.2.12 The sixth objective of the plan, described in paragraph 6.1, states that London should be:

“A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all objectives of this Plan.”

6.2.13 Chapter 6 of the London Plan identifies policies to support integration of transport and development, connecting London and ensuring better streets. It also sets out car and cycle parking standards.

6.2.14 Policy 6.1 'Strategic Approach' sets out how the Mayor will work with key parties to encourage integrated transport systems through:

- Encouraging patterns and nodes of development that reduce the need to travel, especially by car
- Supporting development with a high trip generation at locations where there is good public transport accessibility and capacity
- Supporting measures that encourage shifts to more sustainable modes and appropriate demand management
- Promoting greater use of low-carbon technology to reduce carbon dioxide emissions and other global warming contributions
- Promoting walking by ensuring an improved public realm
- Facilitating the efficient distribution of freight whilst minimising its impacts on the transport network

- 6.2.15 Policy 6.3 'Assessing Transport Capacity' requires that development proposals ensure that the impacts of the transport capacity and the transport network are considered and that TAs will be required in accordance with Transport for London's (TfL) Transport Assessment Best Practice Guidance.
- 6.2.16 Policy 6.9 'Cycling' and Policy 6.10 'Walking' explain how the Mayor will seek to increase cycling and walking prevalence in London through ensuring development provides appropriate cycle parking, creating high quality pedestrian environments and simplified, decluttered streetscapes that provide access for all.
- 6.2.17 Policy 6.13 'Parking' presents the approach to parking provision for both cars and cycles, with maximum standards for the former, and minimum for the latter.
- 6.2.18 Policy 6.14 'Freight' states that the Mayor will work to improve freight distribution and promote movement of freight by rail and waterway in order to help relieve congestion within London. The policy encourages the increased use of the Blue Ribbon Network for freight transport and the uptake of construction logistics plans, delivery and servicing plans and more innovative freight solutions in order to minimise congestion and improve safety.

Mayor's Transport Strategy (MTS) 2018

- 6.2.19 The MTS was published in March 2018 and sets out the Mayor's policies and proposals to reshape transport in London over the next 25 years.
- 6.2.20 The MTS places an emphasis on healthy streets and promoting sustainable travel. Its three main themes comprise:
- Healthy streets and healthy people
 - A good public transport experience
 - New homes and jobs
- 6.2.21 'Healthy streets and healthy people' is about creating streets and routes that encourage walking, cycling and public transport use to reduce car dependency and the resultant adverse health effects it has. Streets and neighbourhoods should be designed to make them pleasant places, with walking and cycling prioritised. Road danger will be reduced to help make people feel safer and more comfortable when walking and cycling. A shift away from car use will be pursued to help London's streets work more efficiently and reduce congestion.
- 6.2.22 'A good public transport experience' ensures that public transport is the most efficient way for people to travel distances that are too long to walk or cycle, and enables a shift from private car which could reduce the number of vehicles on London's streets. The whole journey will be made more attractive, including the station experience and onward journeys.
- 6.2.23 'New homes and jobs' is about ensuring that the ever-increasing number of people living and working in London are well-connected. The growth must be 'good growth', which provides more opportunities, delivers affordable homes and improves the quality of life. People should be able to live in areas where many of the places they want to go to are within walking and cycling distance, and good public transport connections are available for longer trips.

Emerging Regional Policy and Guidance

Draft London Plan 2017

- 6.2.24 The Draft London Plan, published in December 2017, outlines the Mayor's environmental, economic, social and transport strategic policy framework which aims to improve London as a region over the next 20-25 years. Chapter 10 of the Draft London plan subsumes the following

transport policy areas. The most relevant policies included within this Chapter are outlined below:

- 6.2.25 Policy T1 'Strategic Approach to Transport' requires all Borough Development Plans to support the "strategic target of 80% of all trips in London to be made by foot, cycle or public transport by 2041". This should be sought through:
- Encouraging greater integration of land use and transport as well as further improvements to the public transport which creates greater connectivity
 - Reducing congestion by encouraging a modal shift from car use to public transport
 - Promoting consolidation of deliveries in order to minimise the delivery trips
 - Investing in high quality interchanges and rebalancing the public transport network to make active methods of travel more attractive
- 6.2.26 Policy T2 'Healthy Streets' is a key aspect of the Draft London Plan. It seeks to encourage Development Plans to facilitate more trips by walking and cycling through improving street environments.
- 6.2.27 Policy T3 'Transport Capacity, Connectivity and Safeguarding' aims to inform Development Plans and proposals to support the sustainable development of London's public transport network. This includes safeguarding existing buildings and land used for transport. This will enable expansion in the near future and includes a number of possible transport schemes across the short, medium and long-term.
- 6.2.28 Policy T4 'Assessing and Mitigating Transport Impacts' highlights the importance of an integrated approach to current and planned transport access, capacity and connectivity. Transport assessments should be submitted where development proposals may negatively and irreversibly impact the local transport network, with mitigation provided where necessary; particularly walking, cycling and public transport mitigation.
- 6.2.29 Policy T5 'Cycling' sets out the approach to removing barriers to cycling and creating environments in which people choose to cycle. It sets out the minimum cycle parking standards and the Mayor's aspirations for improvements to the strategic cycle network across London.
- 6.2.30 Policy T6 'Car Parking' encompasses residential, office, retail, hotel, leisure and disabled person parking standards; with differing standards applied to the Central Activities Zone, Inner London, Outer London and other parts.
- 6.2.31 Policy T7 'Freight and Servicing' aims to reduce the number of freight trips and emissions from freight across London through, for example; provision of electric vehicle charging points for freight vehicles, hydrogen refuelling stations and encouraging out-of-peak deliveries by operating 24-hour consolidation and distribution sites.

Draft London Environment Strategy (2017)

- 6.2.32 Policy 4.3.2 states that *"the Mayor will encourage the take up of ultra low and zero emission technologies to make sure London's entire transport system is zero emission by 2050 to further reduce levels of pollution and achieve WHO air quality guidelines"*.
- 6.2.33 This aspiration will be supported by the Healthy Streets Approach, discussed also in the Draft London Plan and Draft Mayor's Transport Strategy, which seeks to put human health and experience at the centre of planning; therefore, improving the environmental impacts which have significant health effects.

6.2.34 Chapter 4 'Air Quality' sets out that the sources of many primary pollutants across London are linked to transport, with high concentrations linked to key road corridors.

Local Planning Policy and Guidance

Bexley Core Strategy (2012)

6.2.35 Policy CS15 'Achieving an integrated and sustainable transport system' provides detail on the transport-specific actions that primarily seek to "achieve a comprehensive, high quality, safe, integrated and sustainable transport system" through the following actions which are of relevance to the proposed development:

- *"adopting a parking policy that addresses the need for appropriate controls to secure a sustainable environment within the Borough, whilst recognising the need to help viable development in town centres and major employment areas", and*
- *"encouraging walking and cycling within the borough through implementation of local and strategic walking and cycling programmes, school travel plans, local safety schemes and the provision of facilities within development proposals and environmental improvement projects."*

6.2.36 Paragraph 4.7.14 states that *"the Council's Parking Strategy seeks to contribute to the competitiveness, regeneration and environmental quality of the Borough through the appropriate amount, location and design of parking facilities."*

6.2.37 Appendix C of the Core Strategy sets out a table of all saved Unitary Development Plan (UDP) policies (2007) and states whether the policies have been replaced in full or in part by the Core Strategy and/or the London Plan (2011). Saved 2007 UDP Annex 1 regarding parking policy standards was identified to be replaced with London Plan (2011) standards.

Bexley Unitary Development Plan (2004) Saved Policies (2012)

6.2.38 The 2012 Addendum to the London Borough of Bexley's (LBB) 2004 Unitary Development Plan states that, in relation to parking, the main intent of Policy G23 of the Saved 2007 UDP remains, as well as objectives around the shared use of parking, the protection and enhancement of the local environment and amenity.

6.2.39 Policy T17 states that off-street parking spaces should be provided in new developments and located so as to discourage on-street parking and respect the amenity of nearby residents. The policy goes on to state that *"A balance has to be struck between providing adequate levels of parking to meet economic and regeneration objectives and encouraging people to walk, cycle or use public transport to avoid the environmentally damaging effects of traffic. Government policy encourages a reduction in the amount of parking in new development as part of a package of planning and transport measures to promote sustainable travel choices."*

Dartford Core Strategy (2011)

6.2.40 As part of CS16 'Transport Investment', the Council will seek an appropriate level of contributions from development, either financially or in kind, to fund the infrastructure required.

6.2.41 Off-site transport improvements relating directly to an individual development, including site access and local junction and road improvements will be required through S106 and S278 agreements in addition to any pooled payments towards the Strategic Transport Infrastructure programme.

Dartford Development Policies Plan and Policies Map (2017)

6.2.42 DP3 'transport impacts of development' states that development will only be permitted where it is appropriately located and makes suitable provision to minimise and manage the arising transport impacts.

6.2.43 Development will not be permitted where the localised residual impacts result in severe impacts on one or more of the following:

- Road traffic congestion and air quality
- Safety of pedestrians, cyclists and other road-users
- Excessive pressure for on-street parking

Kent Local Transport Plan 4: Delivering Growth without Gridlock 2016–2031

6.2.44 Kent County Council's Local Transport Plan brings together their proposed transport policies including local schemes and issues as well as those of countywide and national significance.

6.2.45 Though the REP site is located in LBB, it is anticipated that some vehicles travelling to and from the REP site will do so via the A206, a strategic traffic route within DBC, and the A282/Junction 1a of the M25 at the Dartford Crossing. Additionally, the Electrical Connection route runs between the REP site and the Littlebrook substation, Dartford.

6.2.46 The plan identifies Dartford Borough Council (DBC) as an area in need of improvements to its local transport network, stating the main problems within the area, which are summarised as:

- The M25, A2 and A282 (Dartford Crossing) suffer from congestion at peak times and when there are traffic incidents which leads to reduced performance of the highway network within the town centre and its surrounds.
- Congestion from rat-running through the town centre directly affects pedestrians, cyclist and public transport provision. Impacts on these users are exacerbated by the presence of the ring road around the town centre.
- Parts of the local road network are reaching capacity due to the scale of development in surrounding the area, and significant modal shift is necessary to accommodate further growth.

6.2.47 A number of improvements are suggested within the Plan in order to alleviate these main problems. Possible solutions include improvements or a new bridge at A282 Junction 1a and other unnamed measures to address the impacts of the Dartford Crossing on Dartford town centre.

The Bexley Growth Strategy

6.2.48 The Bexley Growth Strategy sets out key transport improvements for the Borough, including potential Crossrail extensions. The strategy is focused around the vision that growth will be achieved by focusing development on a series of well-connected public transport nodes at Abbey Wood, Belvedere and Slade Green.

Kent Minerals and Waste Local Plan 2013-2030 (2016)

6.2.49 Policy CSM12 Sustainable Transport of Minerals refers directly to a strategic objective to encourage the use of sustainable modes of transport to move waste and minerals. This includes reducing the number of road miles for moving minerals, particularly over longer distances.

Emerging Local Planning Policy and Guidance

Draft Bexley Local Plan

6.2.50 No draft documentation has yet been produced for the new LBB Local Plan and the timetable is such that relevant draft policies are unlikely to be adopted by the time of the Riverside Energy Park (REP) Development Consent Order (DCO) examination.

Draft Dartford Borough Council Local Plan

6.2.51 No draft documentation has yet been produced for the new DBC Local Plan and the timetable is such that relevant draft policies are unlikely to be adopted by the time of the REP DCO examination.

Guidance

6.2.52 Guidance for preparing an assessment of transport issues within an EIA is provided within the following documents:

- Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment (IEMA), 2004)
- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (now IEMA), 1993) (the 'IEMA Guidelines')
- Volume 11 of the Design Manual for Roads and Bridges (DMRB) – Environmental Assessment (Highways Agency et al.)
- Planning Practice Guidance (PPG) - Travel Plans, Transport Assessments and Statements (Department for Communities and Local Government (DCLG), 2014)
- PPG - Transport evidence bases in plan making and decision taking (DCLG, 2014)

6.2.53 The IEMA Guidelines refer to the Manual of Environment Appraisal published by the then Department for Transport (DfT) in 1983 which has been superseded and reference has therefore been made to the relevant sections of the DMRB, specifically, Volume 11 entitled 'Environmental Assessment'.

6.2.54 DfT provide advice in an advisory letter to the Planning Inspectorate highlighting the importance of Highways England's 'Water preferred policy guidelines for the movement of abnormal indivisible loads' (2016) for NSIPs. This guidance has been considered through the evolution of the project design since the scoping stage. However, as set out in **Chapter 5**, use of the river would require temporary works in the river. These were removed since, on balance, the ability to avoid works in the river and any direct potential impacts on the marine environment fell strongly in favour of delivering the limited number of abnormal loads by road from the nearby Strategic Road Network.

6.3 Consultation

6.3.1 Chapter 7 of EIA Scoping Report outlines the proposed assessment methodology for the assessment of environmental effects in relation to Transport. A number of comments were received from various consultation bodies formally consulted by PINS.

6.3.2 Subsequently, meetings were held with DBC, KCC and LBB in February 2018 which guided the formation of the TA Scoping Report. The TA Scoping Report sets out the proposed approach to assessment and contents of the TA and reflects the discussions undertaken.

- 6.3.3 The TA Scoping Report was then issued to DBC, KCC, LBB, TfL, RBG and Highways England (HighE) in March 2018 and further comments were received. A meeting was also held with TfL in May 2018.
- 6.3.4 This consultation continues to guide the formation of the TA and this assessment, and is summarised in **Table 6.1**.

Table 6.1: Consultation Summary

Reference	Comment	Response
SoS Scoping Opinion		
Section 4.1 – ID 1	The Applicant proposes to exclude the 'Dust and Dirt' criterion (from the IEA guidelines) from the Transport assessment as dust will be covered in the Air Quality Chapter of the ES. The Inspectorate is content with this approach.	Noted.
Section 4.1 – ID 2	The Scoping Report states that impacts from the electrical connection will be considered where appropriate. The Inspectorate considers that the ES should assess the impacts during construction of the electrical connection, particularly if any road closures are required.	Impacts associated with the construction of the Electrical Connection route have been considered and will be considered in both the TA and ES. It is prudent to note that no complete road closures are expected (subject to final detailed engineering design of the installation). It is expected that there could be single lane closures on dual-carriageway roads and signalised working on single-carriageway roads, subject to available widths.
Section 4.1 – ID 3	The Scoping Report has identified the potential for impacts on the level of service and level of safety for vessels on the River Thames during both construction and operation. No information has been provided as to how these impacts will be assessed, although it is noted that a Navigational Risk Assessment will be appended to the ES. The ES should set out the methodology used to undertake this assessment and to identify significant effects.	A Navigational Risk Assessment (NRA) is being undertaken and an assessment of the potential for impacts on service and safety for vessels on the River Thames during construction and operation will be presented as part of the ES. As a result of design evolution, temporary works within the marine environment during construction are no longer required.

Reference	Comment	Response
Section 4.1 – ID 4	<p>Any permanent closures/diversions of PRowS should be identified within the ES for both the main REP site and the electrical connection. The potential effects of such closures/diversions should be assessed with appropriate cross referencing to other relevant aspect assessments such as those for noise, air quality and visual impacts.</p>	<p>There will be no permanent closures or diversions of Public Rights of Way (PRow) for the main REP site or the Electrical Connection.</p> <p>Any closures or diversions would be temporary in nature but, at this stage, the requirement and location of these are not known. It is expected that construction of the Electrical Connection route may require closure and subsequent diversions of PRow for approximately one week in most cases at a given location. It is not considered that this would generate a significant impact on users with diversions being put in place.</p> <p>An assessment of temporary closures to PRow will be provided within the ES as required once further details on potential closures are known.</p>
Section 4.1 – ID 5	<p>The Applicant's attention is drawn to the comments of Kent County Council regarding the proposed England Coast Path which is scheduled for completion by 2020. Any anticipated impacts to the national walking route should be assessed within the ES.</p>	<p>The exact route of the England Coast Path is to be confirmed but, as stated in our response to Section 4.1 – ID 4, any impacts on this would be temporary in nature.</p> <p>As above, the requirement for any temporary path closures or diversions is not yet known. However, appropriate diversions would be agreed with the local authorities and put in place to ensure impacts on users are not significant. Furthermore, it is expected that these would be in place for approximately a week in most cases.</p> <p>An assessment of temporary closures to PRow will be provided within the ES as required once further details on potential closures are known.</p>

Reference	Comment	Response
Section 4.1 – ID 6	The Scoping Report explains that both IEA and DMRB guidance will be used to inform the assessment methodology for onshore transportation. It should be clear within the ES precisely how this guidance is utilised for the assessment.	This has been outlined in Section 6.2 of this Chapter and, where relevant, is referenced throughout.
Section 4.1 – ID 7	The ES should confirm and justify whether the study areas for the construction and operational phase are the same. The study area for non-motorised users should also be identified and justified.	<p>The study areas for the construction and operational phases are the same.</p> <p>These study areas incorporate non-motorised users (NMUs) throughout, given that there are a number of PRoW and other NMU routes across the study area that could be affected by REP.</p>
Section 4.1 – ID 8	The ES should set out and justify the assumptions made in calculating trip generation and distribution data for both vehicle and river trips. The Inspectorate notes that although a modal split of at least 75% of waste being delivered by river is the ambition for the Proposed Development, the ES will assess a worst case of 100% of waste being delivered by road in the operational phase. The Inspectorate considers this to be a sensible approach to the assessment. The Inspectorate also expects the ES to adopt a worst case scenario for the assessment of the construction phase.	As with the operational phase, a reasonable worst-case assessment has been carried out for the construction phase for the PEIR and will be completed for the ES.
Section 4.1 – ID 9	The Scoping Report states that solid digestate from the anaerobic digestion process would be used as a fuel within the ERF or would be transferred off-site for use in the agricultural sector as fertiliser. The Inspectorate notes that the solution for addressing the digestate could have implications on the transport assessment; a	The solid digestate will ordinarily be transferred off-site for use in the agricultural sector as fertiliser. This has been outlined as the preferred approach by the Environment Agency and has been accounted for in this PEIR as part of the 'reasonable worst case scenario' for road impacts. The ability to preserve

Reference	Comment	Response
	<p>worst case scenario should therefore be described, justified and assessed in this regard.</p>	<p>thermal treatment for the digestate would be included in the ES but does not represent a worst case.</p>
<p>Section 4.1 – ID 10</p>	<p>The Scoping Report does not make reference to any mitigation for potential traffic impacts. The Applicant is advised to consider whether construction/operational traffic management plans would be appropriate. If such plans are relied upon to mitigate significant effects, the Inspectorate would expect draft versions of the plans to be provided with the application.</p>	<p>Given the stage of the assessment process, it is not possible to identify mitigation for potential traffic impacts at this time.</p> <p>A draft Construction Traffic Management Plan (CTMP) will be submitted as part of the ES. However, it is not expected that there would be sufficient detail as part of the REP DCO; therefore, it is anticipated that the draft CTMP would be finalised as part of a requirement attached to the DCO for agreement prior to commencement of construction.</p>
<p>Section 4.1 – ID 11</p>	<p>The response from Dartford Borough Council identifies ongoing improvements to A282 Junction 1A. These works should be taken into account within the cumulative effects assessment.</p> <p>Similarly, Kent County Council state that there is a significant amount of planned development within Dartford Borough Council administrative area. The Inspectorate recommends that the Applicant consults with both authorities to agree a list of projects and/or plans to be considered within the assessment.</p>	<p>As was agreed with DBC and KCC officers during a pre-application meeting and set out in the TA Scoping Report, the expected traffic flows generated by the Proposed Development do not require assessment of the A282 Junction 1A, and this junction has therefore not formed part of the assessment. This approach is being discussed with HighE.</p> <p>Both local authorities have been consulted as suggested. No other highways improvements have been mentioned by the local authorities during consultation.</p> <p>A request has been made to DBC for information on relevant committed and allocated developments to incorporate into the assessment for the ES and TA.</p>
<p>Kent County Council</p>		

Reference	Comment	Response
KCC (December 2017) response to EIA Scoping Request	Concern over the possible impacts on the A206 Bob Dunn Way and Junction 1A of the A282, even with a modest increase in traffic (particularly HGVs).	See below for responses to these comments following a pre-application meeting with KCC and DBC, and submission of the TA Scoping Report.
	KCC requests that the applicant considers the impacts on the links through Kent's road network to Junction 1A of the M25.	
	Concern over the use of TEMPro to determine future traffic growth and accommodate committed/planned development in Dartford.	
	KCC (March 2018) response to PBA TA Scoping Report	Concern over the impacts from both the construction and operational phases of the

Reference	Comment	Response
	<p>development on the A206 Bob Dunn Way and Junction 1A of the A282, primarily during peak periods and when there are delays induced by incidents.</p>	<p>and a percentage impact assessment on the traffic flow along this link in the future will be made as part of the TA.</p> <p>ATCs have been put in place for two weeks in order to capture the effects of incidents on traffic routing through the area. A qualitative assessment of how this may be affected by REP will be made in the TA.</p> <p>As discussed above, it has been agreed with DBC and KCC officers during a pre-application meeting that the expected traffic flows generated by the Proposed Development do not require assessment of the A282 Junction 1A, and this junction has therefore not formed part of the assessment. This approach is being discussed with HighE.</p>
	<p>The policy review should refer to Kent Local Transport Plan 4: Delivering Growth without Gridlock (2016 – 2031).</p>	<p>This has been reviewed as part of this Chapter and will also be for the TA.</p>
	<p>Further detail on the information used within the impact calculations is requested as part of the TA.</p>	<p>This was also requested by HighE and was presented within PBA Technical Note 3 to consultees on 2nd May 2018. This is summarised in Section 6.8 of this Chapter.</p>
	<p>TEMPro often underestimates traffic growth rates in Dartford when compared against the high levels of development that have taken place and are anticipated to continue to do so in the future. Therefore, forecast traffic from committed and allocated developments should be considered individually in addition to applying TEMPro growth factors for journeys through Dartford.</p>	<p>A request has been made to DBC for information on relevant committed and allocated developments to incorporate into the assessment for the ES and TA.</p> <p>PBA has agreed with KCC that a technical note will be produced setting out the proposed approach to future traffic growth which includes specific individual committed and allocated development and TEMPro growth factors,</p>

Reference	Comment	Response
		without significant double-counting.
Dartford Borough Council		
DBC (December 2017) response to EIA Scoping Request	Concerned as to whether impacts will extend to Dartford Borough.	<p>This was discussed in a meeting held with DBC and KCC officers on 22nd February 2018.</p> <p>The detail was presented in the TA Scoping Report and subsequently this was presented within PBA Technical Note 3 to consultees on 2nd May 2018.</p>
	Although the proposal indicates that much of the waste comes from London the Council would like to understand the potential traffic impacts of any waste that does not come from west of the site but comes from the east or uses the Dartford Crossing.	Waste that would come to the facility from outside of London would arrive via the Port of Tilbury. The split between Tilbury and London that is being assessed is based on a likely scenario. The scenario is based on the Applicant's previous experience, location of existing WTS and given the nature of the commercial agreements that are in place currently or which may be in place in the future.
	Other transport impacts that should be addressed include the social impact of increased traffic in an already congested area which appear to be considered through the assessment criteria for the TA outlined on pgs 29-30 but the Council would request that the study area includes Dartford Borough.	<p>The assessment criteria for this Chapter includes, amongst others: severance, pedestrian delay and amenity, fear and intimidation, and accidents and road safety. These cover a number of social impacts associated with increases in road traffic on relevant roads.</p> <p>Chapter 7 'Air Quality' and Chapter 8 'Noise and Vibration' assess effects on the residential properties adjacent to the roads on which REP would generate greater traffic flows.</p> <p>The A206, which connects the REP site and runs through Dartford Borough, has been incorporated into the study area as requested by KCC and DBC.</p>

Reference	Comment	Response
	<p>Concern regarding the impact of the construction of the Electrical Connection route on Dartford's local road network, particularly if the undergrounding of cables involves road closures. This will particularly affect local traffic from the Bridge site, for which there is only one access point off Bob Dunn Way and any re-routing of vehicles through Dartford town centre.</p>	<p>As was explained during the meeting held with DBC and KCC officers on 22nd February 2018, the construction of the Electrical Connection would be undertaken, where possible, in the verge or footway, however it is likely that a single lane closure would be required to facilitate a safe working area or localised footway diversion. However, the scale of works in the highway, verge or footway would be of a similar scale to works undertaken by telecommunications companies for installation of internet and telephone cabling, which are minor and temporary.</p> <p>A temporary single lane closure over a length up to approximately 200m would likely be necessary.</p> <p>It has since been agreed with KCC and DBC that impacts from possible re-routing of vehicles during incidents elsewhere on the network would be covered qualitatively in the TA.</p>
<p>DBC (April 2018) response to PBA TA Scoping Report</p>	<p>Concur with the comments made by KCC.</p>	<p>Noted.</p>
	<p>The policy review should include Dartford Core Strategy 2011 and Dartford Development Policies Plan 2017.</p>	<p>This has been reviewed as part of this Chapter and will also be for the TA.</p>
<p>Highways England</p>		
<p>HighE (December 2017) response to EIA Scoping Request</p>	<p>Queries relating to possible impacts on the M25 and Junction 1A in particular.</p>	<p>The impacts on M25 and Junction 1A was presented in the TA Scoping Report and subsequently this was presented within PBA Technical Note 3 to consultees on 2nd May 2018.</p>
<p>HighE response to PBA TA Scoping Report (March 2018)</p>	<p>Additional information is required on how lorry</p>	<p>This was presented within PBA Technical Note 3 to consultees on 2nd May 2018.</p>

Reference	Comment	Response
	movements associated with the site have been calculated.	This is summarised in Section 6.8 of this Chapter. Any further comments made by HighE prior to submission of the DCO will be reflected in the ES and TA.
London Borough of Bexley		
LBB response to PBA TA Scoping Report (April 2018)	Points were made over the collection of traffic data and ensuring the correct peaks were collected including a potential new junction.	The collected traffic data will be assessed to determine the relevant local network peak periods. Analysis will then be undertaken for these periods only and presented within the TA.
	The composition of vehicle types used to transport operational materials needs to be justified, including why no part loads have been assumed.	The composition of vehicles for movement of material is reflective of how RRRF currently operates and how REP is expected to operate. Additionally, the assessment also reflects a reasonable worst-case scenario with the majority of waste being transported by 7t refuse collection vehicles. Whilst this is typical for local municipal waste, commercial and industrial waste would normally be transported in 20t articulated vehicles. For this reason, the impact assessment is very robust. Part-loads represent a significant inefficient means of transportation which the Applicant would not pursue.
	There are no details of the duration of the construction phase or detailed breakdown of vehicle movements.	Further details on the construction phase will be included in the TA to ensure the full impacts of the construction movements are assessed. This will also be covered in a Construction and Logistics Plan. Details of the construction phase are also outlined in Section 6.4 of this Chapter.
	A review is requested as to whether it would be possible	The view of the Applicant, as discussed at the TfL pre-

Reference	Comment	Response
	to enable a right-turn entry from Picardy Manorway into Norman Road.	application meeting on 1 st May 2018, is that this is not required for the development and will therefore not be explored within the TA.
	An Operational Delivery and Transport Management Plan will be required.	An outline Delivery and Servicing Plan (DSP) will be submitted as part of the ES and would incorporate both the movement of waste and also standard delivery and servicing trips for the Proposed Development. Therefore, a standalone 'Operational Delivery and Transport Management Plan' will not be produced.
Transport for London		
TfL response to PBA TA Scoping Report (April 2018)	Two additional junctions were requested for local junction modelling.	The two additional junctions were added to the survey brief and data collected in April 2018.
TfL Pre-Application Meeting (May 2018)	A formal response from TfL is awaited following a pre-application meeting on 1 st May 2018; however, the comments broadly reflected the earlier comments made via email (discussed above).	Any further comments made by TfL prior to submission of the DCO will be reflected in the ES and TA.
Royal Borough of Greenwich		
RBG (December 2017) response to EIA Scoping Request	Confirmation of whether the abatement product is weekly, monthly or yearly.	The Air Pollution Control Residue (APCR) equates to an output of 3% relative to all waste input to the Energy Recovery Facility (ERF). The total maximum throughput is 805,000 tpa for the purposes of the reasonable worst-case assessment. 3% of this is 24,150 tpa and would most likely continue to be transported in 20t tankers by road to Brandon, Suffolk four times per day.
RBG response to PBA TA Scoping Report (March 2018)	Query the likelihood of 24-hour deliveries to the ERF and 30% of input for the Anaerobic Digestion facility.	The existing RRRF currently operates with 24-hour deliveries and it is expected that REP would also. The commercial waste supply market is set up such that this is possible and potentially

Reference	Comment	Response
		could be more time efficient for some customers too.
	Suggest that there will be fluctuations in daily flow and analysis should be undertaken of peak hour movements.	As part of the TA, local junction capacity modelling will be undertaken during the morning and evening peak periods, with percentage link impact assessments carried out for both peak and daily flows.
	Query the suitability of the jetty in accommodating the expected volumes of material.	The jetty can accommodate the expected volumes of materials.

6.4 Parameters Used for Assessment

- 6.4.1 The existing RRRF typically operates with a minimum of 75% of waste input delivered by river and it is expected that REP would normally operate with a similar ratio of 75% by river and 25% by road. River waste input to the ERF would be transported in containers on barges from riparian WTS along the River Thames in Central London. Road-based waste input would be transported in refuse collection vehicles (RCVs) or articulated lorries from the local area including LBB, RBG and DBC. This scenario (75% by river / 25% by road) is referred to as the 'nominal' scenario, but is 'worst case', within that scenario, on the basis that only RCVs are considered which are smaller than articulated vehicles.
- 6.4.2 However, in addition to the nominal scenario, a reasonable worst case assessment for the operational phase has been conducted which incorporates the assumptions set out in paragraphs 6.4.13 – 6.4.23.
- 6.4.3 Food and green waste delivered to the Anaerobic Digestion facility would be via road in both the 'nominal' and 'reasonable worst case' scenarios, as discussed in paragraphs 6.4.24 – 6.4.27.

Construction Phase Reasonable Worst Case Scenario

REP

- 6.4.4 A breakdown of expected construction vehicle trips by each month of the construction programme for REP and Main Temporary Construction Compounds for the movement of materials has been estimated. Detail has also been derived on the likely number of construction workers on-site by month.
- 6.4.5 Construction materials would be transported by both river and road. All abnormal loads would be delivered by road.
- 6.4.6 For those construction materials transported by road, given the stage of the planning process, a vehicle distribution of 50% west to Eastern Way and 50% east to Bronze Age Way and onto the M25 has been applied for the origins and destinations of construction material. Should this distribution for assessment alter, it would be set out within the TA.
- 6.4.7 It is envisaged that the peak month for vehicle trip generation would be Month 6 during which there are the most construction materials expected on-site (171 one-way trips).

- 6.4.8 The combined peak period for both workers and materials is expected to be Month 13 where 1,097 workers will be on-site and 22 construction material one-way trips would be generated. The travel pattern of these workers is, however, not yet known and therefore these journeys have not been included within the assessment at this stage, but will be accounted for within the ES and TA.
- 6.4.9 It is expected that many of the construction workers would be specialists in their particular trade and may stay nearby in hotels where it would be possible to car share. Furthermore, there will be limited capacity for worker car parking which will encourage access by non-car modes. Illegal parking on the public highway would be monitored and controlled. The scale of car parking will be determined prior to the submission of the DCO, and will be included in the ES and TA.
- 6.4.10 Given the stage of the planning process, the origins and destinations of construction materials are unknown and so an even distribution has been applied of 50% west to Eastern Way and 50% east to Bronze Age Way and onto the M25. A full breakdown of construction vehicle trip generation would be provided in the draft CTMP which will be appended to the ES.

The Electrical Connection

- 6.4.11 The Electrical Connection route will provide a link between the REP site and the Littlebrook substation. This will generate temporary impacts on the highway network during the construction phase when it is anticipated that the cables will generally be laid at approximately 900 mm below the ground surface except where there is potential for directional drill, or localised deeper trench to be required to pass below a specific constraint.
- 6.4.12 It is anticipated that, regardless of whether the cable is installed in the highway, verge or footway, that a single lane closure would normally be required. A review of the preferred route options is currently being undertaken by the Applicant and UKPN to assess the most appropriate route and further details of how this may impact the highway network will be included in the TA.

Operational Phase Reasonable Worst Case Scenario

- 6.4.13 Three scenarios are assessed as part of the operational assessment. These are summarised in **Table 6.2** and broadly reflect differing modal split assumptions. The nominal scenario is a broad split that represents how REP will likely operate day-to-day.
- 6.4.14 The reasonable worst case scenarios ensure that REP has flexibility to operate with the majority of waste input transported by river, or by road should this be necessary, therefore the assessment is considered very robust. These scenarios were presented within the TA Scoping Report and have been agreed with all relevant consultees.

Table 6.2: Assessment Scenario Summary

Scenario	RRRF	REP ERF	REP Anaerobic Digestion Facility
Nominal	Based on downloaded DfT traffic data for the links described in Section 6.5.5	<p>75% of waste input transported by river from riparian WTS at Smugglers Way, Cringle Dock, Walbrook Wharf and Northumberland Wharf.</p> <p>25% of waste input transported by road in refuse collection vehicles (RCVs) from local area including LBB, RBG and DBC.</p> <p>Consumables transported by road from various locations.</p> <p>By-product Incinerator Bottom Ash (IBA) transported by river to Tilbury, Essex.</p> <p>By-product APCR transported by road to Brandon, Suffolk.</p>	<p>70% of green/food waste input transported by road in LBB RCVs from across the borough.</p> <p>30% of green/food waste input transported by road in articulated vehicles from Central London and M25.</p> <p>By-product compost transported by road to various locations.</p> <p>By-product liquid digestate transported by road to various locations.</p>
Reasonable Worst Case - road	As per REP ERF 'Reasonable Worst Case' scenario but within limits determined by existing planning conditions (LBB planning ref.: 16/02167/FUL).	<p>100% of waste input transported by road with 65% from Central London (Wandsworth, City of London, Tower Hamlets) and 35% from Tilbury.</p> <p>By-products transported as per REP ERF 'Nominal' scenario by river (IBA) and road (APCR).</p>	As per REP Anaerobic Digestion facility 'Nominal' scenario.
Reasonable Worst Case - river	As per REP ERF 'Reasonable Worst Case' scenario but within limits determined by existing planning conditions (LBB planning ref.: 16/02167/FUL).	<p>100% of waste input transported by river from riparian WTS at Smugglers Way, Cringle Dock, Walbrook Wharf and Northumberland Wharf.</p> <p>By-products transported as per REP ERF 'Nominal' Scenario</p>	As per REP Anaerobic Digestion facility 'Nominal' scenario.

6.4.15 The principal assumptions associated with the REP site operational trip generation, are set out below.

- The solar photovoltaic installation and battery storage would not generate any regular trips whilst operational, with the exception of maintenance, and will therefore not be incorporated into the trip generation assessment.
- The ERF operates year-round, 24 hours a day with inputs and by-products transported 24 hours a day, 7 days a week.
- The Anaerobic Digestion facility operates year-round, 24 hours a day.
 - LBB RCVs transporting 70% of the total waste input would occur only during working days (assumed 260 days per year excluding weekends and bank holidays) between 06:00 and 18:00.
 - Articulated vehicles transporting 30% of the total waste input would occur 24 hours a day, 7 days a week.
- The routing of vehicles delivering waste will be based on the likely expected origins of waste, appreciating that this may change depending on a number of circumstances such as contract agreements.
- Vehicle routing to/from the REP site would adhere to the London Lorry Control Scheme.

6.4.16 The operational reasonable worst case scenario assessed incorporates the following assumptions for the two main trip-generating components of REP; the ERF and Anaerobic Digestion facility.

ERF Assumptions

- 100% of waste input transported by road
 - 65% from Central London (Wandsworth, City of London, Tower Hamlets) in 7t RCVs
 - 35% from Tilbury in 7t RCVs
- Consumables (fuel oil, PAC, lime, ammonia) transported by road from various locations
- By-product IBA transported by river to Tilbury, Essex
- By-product APCR transported by road to Brandon, Suffolk

Anaerobic Digestion Facility Assumptions

- 100% of green/food waste input transported by road
 - 70% from across LBB via 7t RCVs
 - 30% of waste from other locations (assuming 50% Central London and 50% via the M25 at J1a) in 20t articulated vehicles
- By-product compost transported by road to various locations
- By-product liquid digestate transported by road to various locations

6.4.17 For the purposes of this assessment, the existing RRRF, which is operated by the Applicant, is assumed to operate as per REP ERF but within limits determined by its existing planning conditions and subsequent amendments.

Energy Recovery Facility

- 6.4.18 The process for determining the trip generation for the 100% road scenario associated with the ERF is identified in **Plate 6.1**. The REP ERF would normally receive commercial and industrial waste which is transported in 20t articulated vehicles. However, to assess a reasonable worst case, the 100% by road scenario assumes that all waste is delivered in specialised RCVs which are used for municipal waste and transport less waste than articulated vehicles, requiring more trips.
- 6.4.19 The split between Tilbury and Central London is based on a likely arrangement, based on the Applicant's previous experience, the location of existing WTS and taking into account the nature of the commercial agreements that are in place currently or which may be in place in the future.
- 6.4.20 There is a difference in distribution and hence the assignment of trips between the nominal 25% road and worst case 100% road scenarios. The difference occurs as there could be a requirement to get waste from nearer locations and hence have flexibility in routing. By having control over where the waste originates and selecting sites close to REP, the length of trips being made can be reduced. As a result of this difference, the details included within **Plate 6.1** and **Plate 6.2** indicate a difference in the origins of traffic.
- 6.4.21 Across all scenarios, the APCR would be transported in 20t tankers to Brandon, Suffolk. Based on DEFRA guidance, discussed further at **Section 6.5**, this is considered to be a hazardous load. It is expected that there would be a maximum of four vehicles departing per day with APCR as a load.

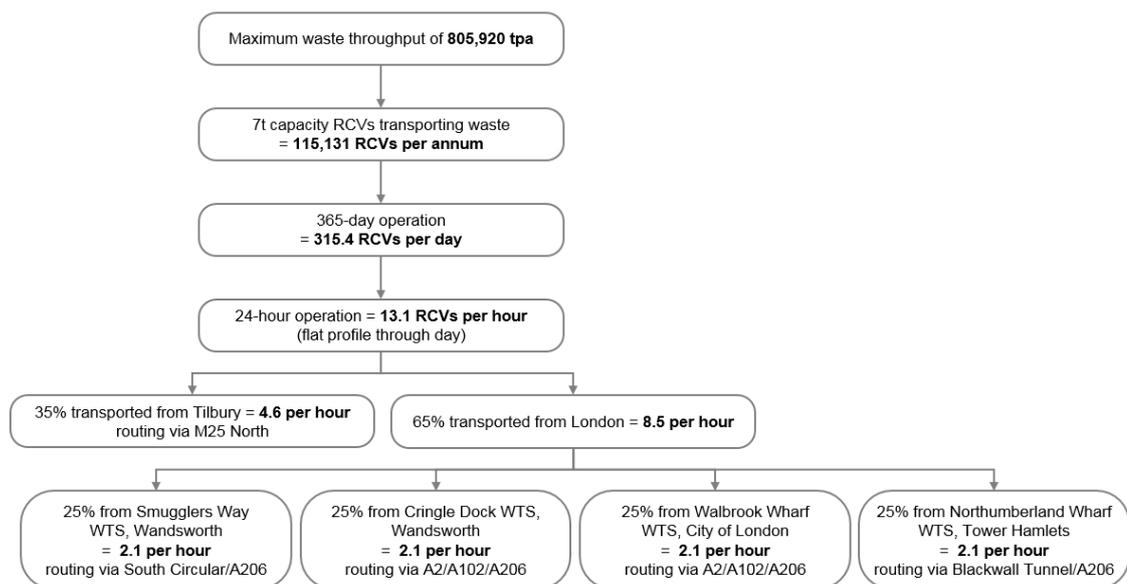


Plate 6.1: ERF 100% Road Scenario Trip Generation Methodology

- 6.4.22 The process for determining the trip generation for the nominal scenario, which would see 25% of the waste transported by road and 75% by river, is identified in **Plate 6.2**. As with the 100% road scenario, the proportions from the local area and south east are based on a likely arrangement given the nature of the commercial agreements that are in place currently or may be in place in the future.

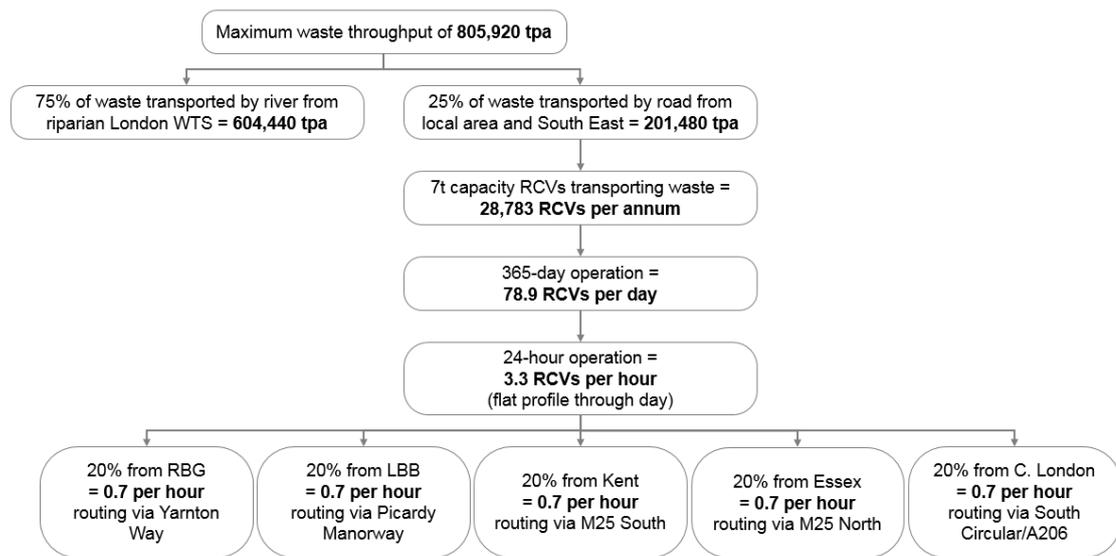


Plate 6.2: ERF 25% Road Scenario Trip Generation Methodology

6.4.23 As identified in **Table 6.2** above, the ES will consider a scenario whereby 100% of waste is transported to the REP site by river. This would involve the transport of waste from various WTS along the River Thames to the REP site, and IBA from the REP site to Tilbury. The ES and the Navigational Risk Assessment (to be prepared and appended to the ES) will provide further information on the details and assumptions upon which this reasonable worst case assessment scenario will be based.

Anaerobic Digestion Facility

6.4.24 The trip generation for the Anaerobic Digestion facility is the same in both the reasonable worst case and nominal scenarios.

6.4.25 For the purpose of this reasonable worst case assessment by road, RCVs would transport the majority (70%) of the waste from within Bexley, whilst 20t articulated vehicles would transport the remaining 30% of waste from elsewhere in London and the south east.

6.4.26 The number of vehicle trips is lower than those associated with both scenarios for the ERF.

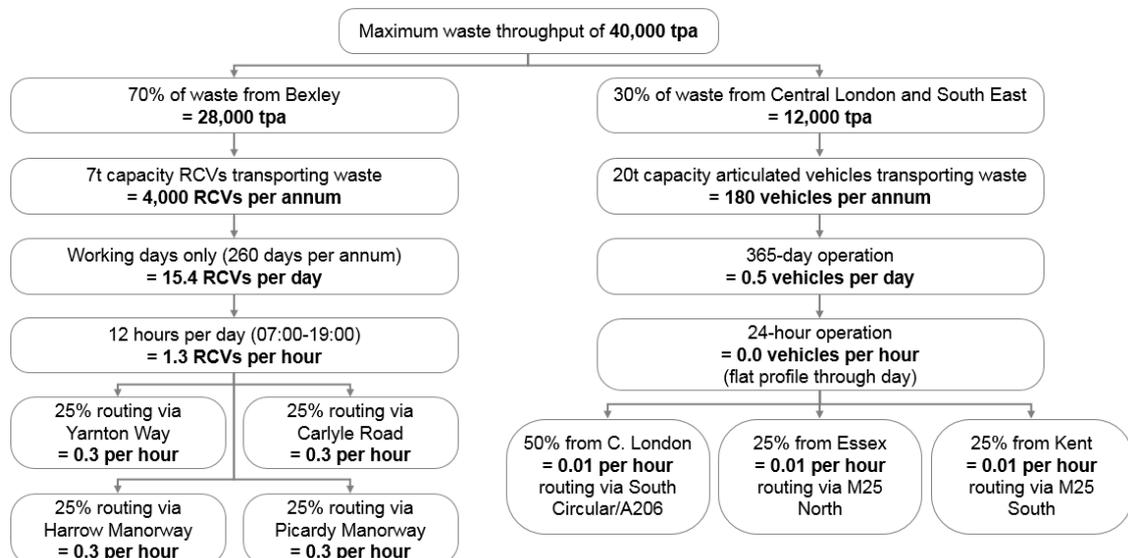


Plate 6.3: Anaerobic Digestion Facility Trip Generation Methodology

6.4.27 The operational trip generation is split between the transport of materials to and from the REP site, in addition to the expected travel patterns of staff at REP. These are discussed in turn below.

Operational Materials

6.4.28 Based on the above assumptions and the expectation of operation, the following peak hour vehicle flows have been determined.

Table 6.3: Expected 'Nominal Scenario' REP Traffic Generation

Route	AM (08:00-09:00) Peak			PM (17:00-18:00) Peak			Daily (00:00-00:00)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
M25 North	1	1	2	1	1	2	24	24	48
Yarnton Way	1	1	2	1	1	2	20	20	39
Carlyle Road	0	0	1	0	0	1	4	4	8
Harrow Manorway	0	0	1	0	0	1	4	4	8
Picardy Manorway	1	1	2	1	1	2	20	20	39
South Circular	1	1	1	1	1	1	16	16	32
Blackwall Tunnel	0	0	0	0	0	0	0	0	0
M25 South	1	1	2	1	1	2	19	19	37
Total	5	5	10	5	5	10	105	105	211

Table 6.4: Expected '100% Road Scenario' REP Traffic Generation

Route	AM (08:00-09:00) Peak			PM (17:00-18:00) Peak			Daily (00:00-00:00)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
M25 North	5	5	10	5	5	10	118	118	237
Yarnton Way	0	0	1	0	0	1	4	4	8
Carlyle Road	0	0	1	0	0	1	4	4	8
Harrow Manorway	0	0	1	0	0	1	4	4	8
Picardy Manorway	0	0	1	0	0	1	4	4	8
South Circular	4	4	9	4	4	9	103	103	205
Blackwall Tunnel	4	4	9	4	4	9	103	103	205
M25 South	0	0	0	0	0	0	3	3	6
Total	15	15	30	15	15	30	342	342	684

Operational Staff

6.4.29 It is anticipated that c. 83 staff would be based at the REP site (during a peak day); their mode share is assumed to reflect the 2011 Census method of travel to work for workplaces in the Bexley 003 middle layer super output area (MSOA), presented in **Table 6.5**. As discussed

below, REP staff would operate in shifts which are to be confirmed. The shift timings would affect mode choice (e.g. if public transport was not available) which would be incorporated into the ES.

6.4.30 The number of staff and mode share does not change between the two assessment scenarios.

Table 6.5: Bexley 003 MSOA Method of Travel to Work (2011 Census)

Mode	Mode Share
Driving a Car or Van	63%
Bus	12%
On Foot	9%
Passenger in a Car or Van	5%
Train	5%
Motorcycle	2%
Bicycle	2%
Underground	1%
Taxi	0%
Other	0%
Total	100%

6.4.31 As with determining multi-modal trip generation discussed above, 2011 Census data has been used to determine car driver distribution for MSOAs generating 10 or more trips to a workplace in Bexley 003 MSOA. The resultant distribution onto the local highway network is indicated in **Table 6.6**, which has been applied to the car driver trip generation.

Table 6.6: Staff Vehicle Trip Distribution

Link	Distribution (%)
Yarnton Way	10%
Picardy Manorway	37%
Bronze Age Way	47%
Eastern Way	6%

6.4.32 The operational staff person trip generation would incorporate the shift-working nature of the Proposed Development. It is assumed that the shift changeover would occur during the AM and PM peak periods as a reasonable worst case assessment. This would be confirmed within the TA.

Table 6.7: Operational Staff Person Trip Generation (based on two-shift pattern)

AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			Daily (00:00-00:00)		
Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
41	41	83	41	41	83	83	83	165

6.4.33 Combining **Table 6.4** and **Table 6.6** results in a full multi-modal trip generation for REP staff, as presented in **Table.6.8**. It is important to note that the Census method of travel to work data captures the mode by furthest distance travelled, rather than the final access mode, which is why the 'Underground' mode is expected to be used by some operational staff.

Table.6.8: Operational Staff Trip Generation by Mode

Mode	AM (08:00-09:00)			PM (17:00-18:00)			Daily (00:00-00:00)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Driving a car or van	26	26	52	26	26	52	52	52	104
Bus, minibus or coach	5	5	10	5	5	10	10	10	21
On foot	4	4	7	4	4	7	7	7	15
Passenger in a car or van	2	2	5	2	2	5	5	5	9
Train	2	2	4	2	2	4	4	4	8
Motorcycle	1	1	1	1	1	1	1	1	3
Bicycle	1	1	1	1	1	1	1	1	3
Underground	1	1	1	1	1	1	1	1	2
Taxi	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
Total	41	41	83	41	41	83	83	83	165

Delivery and Servicing Trips

6.4.34 It is expected that a small number of delivery and servicing trips would occur, including postal deliveries and intermittent maintenance associated with the various elements of REP. The former have already been incorporated into the assessment as part of traffic surveys of RRRF and the latter would be so infrequent so as not to have a material effect on the assessment, and so are incorporated.

Operational Trip Generation and Distribution Summary

6.4.35 The level of impact associated with REP during its operational phase is not considered to generate any significant effects on the capacity or safety of the local highway network. However, in order to inform this, local junction capacity modelling has been undertaken.

Decommissioning Phase Reasonable Worst Case Scenario

- 6.4.36 At the end of its operational life, it is currently anticipated that the ducting for the Electrical Connection will be left in situ, such that there will be no decommissioning works and therefore no effects.
- 6.4.37 The assessment of a decommissioning phase from a transport perspective is challenging. Typical, standard traffic growth models do not forecast beyond 2051 and these incorporate a significant amount of uncertainty.
- 6.4.38 For this reason, it is considered that the most robust and accurate means of assessing the decommissioning phase is a qualitative assessment based on the assessment of the construction phase.

6.5 Assessment Methodology and Significance Criteria

Study Area

- 6.5.1 The IEMA Guidelines suggest two broad rules to identify the appropriate extent of the assessment area, as follows:
- links with all vehicle or HDVs (comprising public service vehicles and heavy goods vehicles) traffic flow increases in any assessment year of more than 30%; and
 - links with medium or high sensitivity receptors with traffic flow increases greater than 10%.
- 6.5.2 The baseline data collection exercise has recently been completed; however, the data was not available to inform the preliminary findings of the assessment presented here. Once the data has been processed and analysed to determine levels of flow increase it would be used to confirm the study area. This assessment uses a study area which incorporates the links identified in paragraph 6.5.4, for which it is considered that there is the potential for increase in traffic flows that could generate significant effects.
- 6.5.3 The ES will identify the study area used for the assessment of effects to transport from the increase in vessel movements.

Baseline Data Collection

- 6.5.4 The preliminary findings of the assessment are based on data which has been collected from existing sources of information using the DfT's traffic count database. This provides traffic counts across certain links on the Strategic Road Network (SRN) with the most recent data being for 2016. The following locations have been obtained and assessed:
- A2016 between A2041 and Yarnton Way
 - A2041 between A2016 and Yarnton Way
 - A206 north of Peareswood Road
 - A2000 LBB Boundary
 - A282 south of the A206
 - A282 north of the A206
 - A206 west of Central Road

- A206 west of junction with A2026
- 6.5.5 The traffic data for Norman Road has been taken from the TA submitted by the Applicant to accompany amendments to the planning condition 27 for the existing RRRF (LBB planning ref.: 16/02167/FUL). This data was collected between Monday 9th May and Thursday 12th May 2016.
- 6.5.6 The following traffic data has been collected in liaison with the statutory stakeholders: 14-day automatic traffic counters (ATCs) and single weekday manual classified counts (MCCs) undertaken between 06:00-10:00 and 16:00-19:00 were in place as listed below.

Automatic Traffic Counters

- i. Norman Road (north)
- ii. Norman Road (central)
- iii. Norman Road (south)
- iv. A2016 Eastern Way
- v. Yarnton Way
- vi. A2016 Picardy Manorway (west of Norman Road)
- vii. A2016 Picardy Manorway (east of Norman Road)
- viii. B253 Picardy Manorway
- ix. A2016 Bronze Age Way
- x. A206 Northend Road
- xi. A2000 Perry Street
- xii. A206 Thames Road (between Howbury Lane and Crayford Way)
- xiii. A206 Thames Road (between Crayford Way and Burnham Road)
- xiv. A2026 Burnham Road
- xv. A206 Bob Dunn Way (between Burnham Road and Central Road)
- xvi. A206 Bob Dunn Way (between Marsh Street North and M25 J1a)

Manual Classified Counts (MCCs)

- i. A2016 Picardy Manorway/ Clydesdale Way/ Yarnton Way/ A2016 Eastern Way
- ii. A2016 Picardy Manorway/ Norman Road
- iii. A2016 Picardy Manorway/ Anderson Way/ A2016 Bronze Age Way/ B253 Picardy Manorway
- iv. A2016 Bronze Age Way/ A206 Queens Road / A206 Bexley Road/ Bexley Road/ Walnut Tree Road
- v. A206 Queens Road/ James Watt Way

vi. A206 South Road/ Boundary Road/ A206 Northend Road/ Larner Road

6.5.7 These ATC surveys were carried out for two weeks between 15th and 29th April 2018, with the MCCs carried out on Thursday 19th April 2018.

6.5.8 The ES will identify how, and for where, baseline data collection will take place to inform the consideration of increased vessel movements.

Assessment

6.5.9 The IEMA Guidelines identify that the main transport impacts that could arise from new developments relate to the following:

- Severance
- Driver delay
- Pedestrian delay and amenity
- Pedestrian fear and intimidation
- Accidents and road safety
- Dust and dirt
- Hazardous loads

6.5.10 These impacts could arise during the construction, operational and decommissioning phases. Further details of the approach to the assessment are provided below.

6.5.11 The 'dust and dirt' criterion is not considered further within this Chapter as it is covered within **Chapter 7 'Air Quality'**, as agreed by the Secretary of State in response to the EIA Scoping Report.

6.5.12 The 'hazardous loads' criterion is also not considered in this assessment, as it is deemed unlikely that the construction, operation or decommissioning of REP will require the transportation of hazardous loads that would have the potential for a significant effect on receptors.

Severance

6.5.13 The IEMA Guidelines state that "*severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.*" Furthermore, "*changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*". However, the IEMA Guidelines acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance needs to pay full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.

6.5.14 Volume 11, Section 3, Part 8, Chapter 6 of the Design Manual for Roads and Bridges entitled 'Pedestrians and Others and Community Effects' provides further guidance on the aspect of New Severance within a community in terms of the two-way Annual Average Daily Traffic (AADT) flow on a link. It states that new severance should be described in terms of "Slight", "Moderate" or "Severe" and that these categories "... should be coupled with an estimate of the numbers of people affected, their location and the community facilities from which they are severed."

6.5.15 The potential for severance effects are based on an assessment of the magnitude of traffic flow impact, which takes into account the thresholds within the IEMA Guidelines. **Table.6.9** summarises these thresholds.

Table.6.9: Severance – Magnitude of Impact

Magnitude of Impact	Traffic Flow (AADT) Increase
Large	>90%
Moderate	60 – 90%
Small	30 – 60%
Negligible	<30%

Driver Delay

6.5.16 Delay to drivers can be estimated through capacity assessments at key points on the local highway network. The addition of new development-generated traffic could result in an increase in the number of vehicles using key routes and junctions. This may lead to additional delays depending on the existing operation, levels of background traffic and development-generated traffic.

6.5.17 Assessment of junction capacity and delay is undertaken through the use of standard practice analytical tools and junction analysis programs. Driver delay is only likely to be an issue requiring mitigation where junctions are operating beyond capacity.

6.5.18 **Table 6.10** shows the magnitude of impact scale applied to the category of ‘driver delay’ at junctions and along road corridors. Agreement to this scale, based on professional judgement, will be sought from the highways authorities.

Table 6.10: Driver Delay – Magnitude of Impact

Magnitude of Impact	Definition
Driver Delay at Junctions	
Large	Average vehicle delay increases of more than 3 minutes as a result of the Proposed Development during the peak hours
Moderate	Average vehicle delay increases are between 1 and 3 minutes as a result of the Proposed Development during the peak hours
Small	Average vehicle delay increases are between 30 seconds and 1 minute as a result of the Proposed Development during the peak hours
Negligible	Average vehicle delay increases are less than 30 seconds as a result of the Proposed Development during the peak hours
Driver Delay along Road Corridors	
Large	Average vehicle delay increases of more than 10 minutes as a result of the Proposed Development during the peak hours
Moderate	Average vehicle delay increases are between 5 to 10 minutes as a result of the Proposed Development during the peak hours
Small	Average vehicle delay increases are between 1 and 5 minutes as a result of the Proposed Development during the peak hours

Magnitude of Impact	Definition
Negligible	Average vehicle delay increases are less than 1 minute as a result of the Proposed Development during the peak hours

Pedestrian Delay and Amenity

- 6.5.19 Pedestrian delay for a particular walking journey can be increased by changes to traffic flows and can affect the ability of pedestrians to cross roads. This, therefore, will affect an individual's desire to make a particular walking journey. Changes in the volume, speed or composition of traffic are most likely to affect pedestrian delay, with the level of severity dependent on the general level of pedestrian activity and the physical condition of crossing points. Guidelines for the calculation of pedestrian delay are identified in DMRB Volume 11, Section 3.
- 6.5.20 It is important to note that qualitative aspects such as the quality of the pedestrian environment, and the trip generators served by these environments, also influence the propensity for individuals to walk. The sense of personal security and safety, gradient, permeability, legibility and maintenance of these infrastructures aid in encouraging their use and discouraging the use of the private car. These, in addition to the quantitative aspects of assessment such as changing traffic flows, are therefore an important consideration for a number of the criteria.
- 6.5.21 The determination of what constitutes a material impact on pedestrian delay is generally left to the judgement of the assessor and knowledge of local factors and conditions. However, the IEMA Guidelines suggest "a lower threshold of 10 seconds delay and an upper threshold of 40 seconds delay, for a link with no crossing facilities". It further advises that the lower threshold equates to a two-way flow of approximately 1,400 vehicles per hour.
- 6.5.22 **Table 6.11** shows the magnitude of impact categories applied to the assessment of pedestrian delay.

Table 6.11: Pedestrian Delay – Magnitude of Impact

Magnitude of Impact	Two-Way Traffic Flow Increase
Large	5,600+ vehicles per hour
Moderate	3,500-5,600 vehicles per hour
Small	1,400-3,500 vehicles per hour
Negligible	1,400 vehicles per hour

- 6.5.23 Pedestrian amenity is broadly defined as the relative pleasantness of a journey, which is affected by traffic flow, traffic composition and footway width/separation from traffic. The IEMA Guidelines suggest a "tentative threshold for judging the significance of changes in pedestrian amenity of where traffic flow (or its lorry component) is halved or doubled". The magnitude of impact is a matter of professional opinion.

Pedestrian Fear and Intimidation

- 6.5.24 A further effect of traffic flows on pedestrian movements is the element of fear and intimidation individual travellers will experience with respect to vehicular movements. The impact of this factor is dependent on the volume of traffic, the HDV content, the width of footway and its proximity to the carriageway edge. As is the case with pedestrian delay and amenity, there are no commonly agreed thresholds for determining the magnitude of this impact, with appraisal being based on the judgement of the assessor.

6.5.25 Nevertheless, the IEMA Guidelines do suggest some thresholds, based on previous research, which can be used and these are shown in **Table 6.12**.

Table 6.12: Suggested Threshold Guidelines for Pedestrian Fear and Intimidation

Degree of Hazard	Change in Average Traffic Flow over 18 Hour day (vehicles/hour)	Average 18-Hour HDV Flow (vehicles)	Change in Average Speed over 18 Hours (mph)
Extreme	1,800+	3,000+	20+
Moderate	1,200-1,800	2,000-3,000	15-20
Slight	600-1,200	1,000-2,000	10-15

6.5.26 Notwithstanding the thresholds set out above, the IEMA Guidelines suggest that they should be approached with a certain level of caution as the individual factors could be weighted by local circumstances to decide the overall value of intimidation. For example, a road may show higher speeds but lower flows; making crossing easier, or high flows but congested and constant traffic, therefore reducing total fear of passing vehicles but increasing crossing difficulties.

6.5.27 As outlined in the above sections on severance and pedestrian delay and amenity, the primary pedestrian routes on the local highway surrounding the Proposed Development provide pedestrian facilities, including signalised pedestrian crossings.

6.5.28 **Table 6.13** shows the magnitude-scale applied to pedestrian fear and intimidation.

Table 6.13: Pedestrian Fear and Intimidation – Magnitude of Impact

Magnitude of Impact	Definition
Large	Increase in average traffic flow over 18 hours of 1,800+ vehicles/hr An average 18-hour HDV flow of 3,000+
Moderate	Increase in average traffic flow over 18 hours of 1,200-1,800 vehicles/hr An average 18-hour HDV flow of 2,000-3,000
Small	Increase in average traffic flow over 18 hours of 600-1,200 vehicles/hr An average 18-hour HDV flow of 1,000-2,000
Negligible	Increase in average traffic flow over 18 hours of less than 600 vehicles/hr An average 18-hour HDV flow of less than 1,000

Accidents and Road Safety

6.5.29 The assessment of accident risk and highway safety is based upon existing accident rates and specific local circumstances to identify accident clusters. For example, should a particular link or junction be found to have a high existing accident rate, the addition of substantial traffic volumes generally would be expected to have an adverse effect on highway safety due to further increased opportunities for conflict. Mitigation measures may therefore be required.

6.5.30 A further assessment of highway safety may also include the comparison of accident rates at those locations identified for highway improvements related to capacity issues. An assessment

of expected accident rates for a new junction design compared to the existing layout will identify future accident risk related to development-generated traffic.

- 6.5.31 The IEMA Guidelines state that “*professional judgement will be needed to assess the implications of local circumstances, or factors, which may elevate or lessen risks of accidents, e.g. junction conflicts*”.
- 6.5.32 As noted above, a review of accidents occurring over the most recent three-year period within the area surrounding the site will be undertaken in order to identify existing accident clusters, where 10 or more accidents occurred over the three-year period.
- 6.5.33 **Table 6.14** shows the magnitude of impact categories applied to accidents and road safety.

Table 6.14: Accidents and Road Safety – Magnitude of Impact

Magnitude of Impact	Definition
Large	Expected increase in accident risk of 15+% at the location of existing accident cluster
Moderate	Expected increase in accident risk of 10%-15% at the location of existing accident cluster
Small	Expected increase in accident risk of 5%-10% at the location of existing accident cluster
Negligible	Expected increase in accident risk of less than 5% at the location of existing accident cluster

Sensitivity of Receptors

- 6.5.34 The IEMA Guidelines identify groups and special interests which should be considered in the assessment. Categories of receptor sensitivity have been defined from the principles set out in the IEMA Guidelines and these have been used, to outline in broad terms, the sensitivity of receptors to traffic for the categories of effect. However, it is acknowledged that each receptor will have a different sensitivity to each specific effect. Typical sensitive receptors and their sensitivity to traffic are shown in **Table 6.15**.

Table 6.15: Receptor Sensitivity

High Sensitivity	Medium Sensitivity	Low Sensitivity
<ul style="list-style-type: none"> schools, colleges and other educational institutions (nurseries have been assumed to be included in this category) retirement / care homes for the elderly or infirm roads used by pedestrians with no footways road safety black-spots 	<ul style="list-style-type: none"> hospitals, surgeries and clinics parks and recreation areas shopping areas roads used by pedestrians with narrow footways 	<ul style="list-style-type: none"> open space tourist / visitor attractions historical buildings churches other roads with active frontages and dwellings

- 6.5.35 Based on these criteria, the selected relevant sensitive receptors are specified in **Table 6.17**.

Effect Nature, Scale and Significance

6.5.36 The scale of traffic and transport effects has been determined based on the magnitude of impact, receptor sensitivity and professional judgement. This is shown in **Table 6.16**.

6.5.37 In terms of the nature of effects, these can either be beneficial or adverse.

Table 6.16: Transport Significance Matrix

		Sensitivity of Receptor		
		High	Medium	Low
Magnitude of Impact	Large	Substantial	Major	Moderate
	Moderate	Major	Moderate	Minor
	Small	Moderate	Minor	Minor
	Negligible	Negligible	Negligible	Negligible

6.5.38 Substantial, major and moderate effects are deemed to be significant in EIA terms, whilst minor and negligible effects are considered to be not significant.

Limitations

6.5.39 A number of assumptions have been made, based on best practice guidance and professional judgement. Where assumptions are made, it is clearly stated within the text. Some key assumptions are listed below:

- DfT data has been used in addition to third party data which informed the planning application to amend the RRRF planning conditions (LBB planning ref: 16/02167/FUL). This data is from 2016 and not wholly representative of current conditions on the local highway network. As part of the ES and TA, 2018 data will be used in line with a scope agreed with consultees.
- A number of assumptions have been outlined in paragraph 6.4.17, in order to establish REP's expected traffic flows during the construction, operational and decommissioning phases, including: the capacity and load of vehicles, routing of vehicles on the highway network, arrival and departure profiles of vehicles, and use of 2011 Census data to determine staff mode choice and route assignment.

6.6 Baseline Conditions and Receptors

Site Location and Description

6.6.1 The REP site includes the existing jetty in the River Thames which is currently used for delivery of waste and despatch of some by-products at the RRRF. The jetty will be used for the same purpose for the operation of REP.

6.6.2 The REP site is accessed from Norman Road which extends southwards to the A2016 Eastern Way which forms part of the SRN and runs in an east/west orientation.

6.6.3 To the to the east of the REP site lies the RRRF, an ERF with a maximum consented residual waste throughput of 785,000 tpa generating up to 72 MWe. RRRF operates 24 hours a day and seven days per week throughout the year.

Highway Network

- 6.6.4 Norman Road is approximately 650 m in length; providing vehicular access to the REP site and is aligned north-south between the REP site and the A2016 Picardy Manorway. It is subject to a 30 mph speed limit and has streetlights on the eastern side. The junction of Norman Road and Picardy Manorway is a left-in left-out signalised junction.
- 6.6.5 Picardy Manorway is a dual-carriageway aligned east-west with a 50 mph speed limit. It connects with the A2016 Eastern Way/Clydesdale Way/Yarnton Way 100 m to the south-west and with Anderson Way/A2016 Bronze Age Way/Picardy Manorway 330 m to the south-east; both in the form of large priority roundabouts.
- 6.6.6 The A2016 forms part of the SRN and connects to the A206 South Circular at the Woolwich Ferry and the A102 Blackwall Tunnel to the west. Both of these roads form part of the TfL Road Network (TLRN) and the latter is approximately 11.5 km from the REP site.
- 6.6.7 To the east, the A2016 passes through Erith and Dartford connecting to the A282 at the Dartford Crossing approximately 10.5 km to the south-east of REP.
- 6.6.8 London Lorry Control Scheme restrictions are in place on the A2016 Eastern Way to the west of Picardy Manorway. These require that vehicles over 18 t are only permitted to use the road at the following times:
- Weekdays 07:00-21:00
 - Saturdays 07:00-13:00
- 6.6.9 Therefore, all vehicles over 18 t accessing RRRF and the REP site outside of these times must route from the east via the A206 at Slade Green in accordance with these restrictions.

Personal Injury Collision Review

- 6.6.10 A Personal Injury Collision (PIC) review will be conducted as part of the TA which will assess collisions involving pedestrians, cyclists and other vulnerable road users within the local highway network. The extent has been agreed with LBB and data acquired through TfL for the most recent three-year period.

River Thames Network

- 6.6.11 The Effects to Air Quality and Noise from vessel movements are addressed within **Chapters 7** and **8**. A Navigational Risk Assessment (NRA) will be appended to the ES. This will address and assess issues regarding level of service and level of safety for vessels on the River Thames. The outcomes of the NRA will be presented within the ES. It is not proposed any assessment of transport impacts from vessel movements, beyond those mentioned above, will be undertaken.

Public Transport Network

- 6.6.12 According to TfL's online WebCAT toolkit, the REP site has a Public Transport Accessibility Level (PTAL) of 0, which equates to 'very poor' provision. However, this is a result of the bus stops on Picardy Manorway being situated approximately 100 m beyond the 640 m maximum walking distance threshold. In reality, there is some level of public transport provision for the REP site which is not captured in the PTAL assessment.
- 6.6.13 There are two bus services (180 and 401) which operate on Picardy Manorway from which Norman Road, the primary access into the REP site, routes north. Both routes offer frequent services to local residential areas and a viable alternative to the private car for employees at

RRRF and the REP site. The eastbound bus stop is on the northern side of Picardy Manorway approximately 130 m east of Norman Road and the westbound bus stop is on the southern side of Picardy Manorway.

- 6.6.14 Belvedere Rail Station is located approximately 1.3 km to the south of the REP site, a 17 minute walk, serving London Cannon Street, Dartford, Gravesend and Gillingham. The 401 bus has a 3-minute journey time to Belvedere station. The station has several peak hour services to/from London Charing Cross and a number of off-peak services.
- 6.6.15 Abbey Wood Rail Station is approximately 11 minutes on the 180 bus service or one stop west on the same line as Belvedere station. Elizabeth line services will commence from Abbey Wood in December 2018 and the station also benefits from 2tph to London Charing Cross via Lewisham, 2tph in each direction between the Medway Towns and Luton via central London on Thameslink.

Public Rights of Way (PRoW)

- 6.6.16 A network of PRoW surround the REP site and the Main Temporary Construction Compounds, linking Norman Road with the Thames Path to the north. A PRoW originates at the junction of Norman Road and the A2016, which extends west then northwest through the Crossness Nature Reserve to its border with the Thames Water Crossness STW. From here this PRoW extends north to the Thames Path, and south to the A2016.
- 6.6.17 The England Coast Path, a new National Trail around England's coast, in the vicinity of the Proposed Development, is to be confirmed but is expected to follow the route of the Thames Path and is scheduled for completion by 2020.
- 6.6.18 Norman Road has a footway on its eastern side which runs between the RRRF in the north and Picardy Manorway to the south. A three-stage toucan crossing of Norman Road and Picardy Manorway provides connection with the southern footway of Picardy Manorway including the eastbound bus stop.
- 6.6.19 Norman Road has a mixture of advisory cycle lanes and shared use paths providing a cycle route to the cycle path on the north side of Picardy Manorway and the three-stage toucan crossing of Norman Road and Picardy Manorway. There are various elements of cycle infrastructure providing a route to Belvedere Rail Station.
- 6.6.20 The Thames Path, which forms part of Route 1 of the National Cycle Network, provides a good traffic-free route between the REP site, Thamesmead to the west and Erith to the east.

Electrical Connection Route

- 6.6.21 The final Electrical Connection route would either cross or be adjacent to a number of PRoW. The affected PRoW are to be confirmed once the route is finalised. The route options are currently being assessed by the Applicant and UKPN and cover options from the REP site to the Littlebrook substation. Further detail on these will be provided in the TA, to be appended to the ES, and management of potential impacts on PRoW during construction would be set out, in liaison with the relevant local authority.
- 6.6.22 As the Electrical Connection route is underground, any potential impacts on PRoW would only be associated with the temporary construction phase. There would be no operational impacts to PRoW from the Electrical Connection.

Receptors

- 6.6.23 Based on the sensitive receptors to traffic, defined by the IEMA Guidelines, **Table 6.17** outlines the identified sensitivity receptors for this assessment together with their sensitivity rating and description.

- 6.6.24 It should be recognised that most of the criteria apply to 'link' receptors, with the exception of driver delay, which is only relevant for 'junction' receptors. Therefore, 'link' receptors are assessed in terms of severance, pedestrian delay and amenity, and pedestrian fear and intimidation; whilst 'junction' receptors are assessed against driver delay criteria. For accidents and road safety, both types of receptors are relevant, since what matters is the existence of accident clusters.
- 6.6.25 Given that the routing of vehicles from the REP site is primarily on a dual-carriageway part of the SRN with limited active frontage, there are relatively few sensitive receptors which would be affected by the Proposed Development.

Table 6.17: Transport Sensitive Receptors

Sensitivity	Receptor	Definition
Severance / Pedestrian Delay and Amenity / Pedestrian Fear and Intimidation		
High	Yarnton Way	Link comprises access to school and open space.
Low	Norman Road	Link provides pedestrian access to the REP site and between the REP site and bus stops on Picardy Manorway.
Medium	Thames Path	Footpath to recreation space that may be impacted by the construction phase of the development.
Low	FP4	Footpath to Open Space that could be impacted by REP.
Low	FP2	Footpath to Open Space that could be impacted by the Electrical Connection route construction process.
Medium	FP201	Link provides access to the recreation ground and could be affected by the Electrical Connection route construction process.
Medium	FP30	Link towards a primary school that could be affected by the Electrical Connection route construction process.
Low	BY105	Link provides access to open space and could be affected by the Electrical Connection route construction process.
Low	BY104	Link provides access to open space and could be affected by the Electrical Connection route construction process.
Low	DB5	A footway leading to open space that could be affected by the Electrical Connection route construction process.

Sensitivity	Receptor	Definition
Low	DB1	A footway leading to open space that could be affected by the Electrical Connection route construction process.
Low	DB3	A restricted byway that could be affected by the Electrical Connection route construction process.
Low	DB8	A restricted byway that could be affected by the Electrical Connection route construction process.
Driver Delay		
Medium	A2016 Picardy Manorway/ Clydesdale Way/ Yarnton Way/ A2016 Eastern Way	Key junctions on the SRN providing access to the national motorway network and Central London.
	A2016 Picardy Manorway/ Norman Road	
	A2016 Picardy Manorway/ Anderson Way/ A2016 Bronze Age Way/ B253 Picardy Manorway	
	A206/A2016/Bexley Road	
Low	Norman Road	Link provides vehicular access to the REP site.
Accidents and Road Safety		
Medium	A2016 Picardy Manorway/ Anderson Way/ A2016 Bronze Age Way/ B253 Picardy Manorway	Key junction on the SRN providing access to the national motorway network and Central London with a cluster of 5 collisions recorded.

Baseline Evolution

- 6.6.26 In order to determine how the baseline identified could change between now and the assessment year in relation to transport, traffic growth will be factored into future year assessments. In line with DfT's Transport Assessment Guidance 'Unit M4 Forecasting and Uncertainty' (July 2017), National Trip End Model data will be combined with growth factors from the National Transport Model to provide traffic growth factors depending on region, road type and area type (urban or rural).
- 6.6.27 This is the standard approach when using TEMPro in the absence of a formal transport model and ensures that population, employment and household growth are factored into the assessment for the relevant years.
- 6.6.28 Growth factors will be determined for the study area at the level of an MSOA.

6.6.29 The above approach will be updated as part of the ES and TA in accordance with the request from KCC and DBC to ensure that committed development in Dartford is correctly accounted for. This is to be agreed and discussed with KCC and DBC through ongoing consultation.

6.7 Embedded Mitigation

6.7.1 The Proposed Development comprises a number of elements of embedded mitigation, as follows:

- Presence and use of the existing jetty ensuring that transport by river of waste inputs, consumables and by-products is maximised.
- Car and cycle parking provided to levels prescribed within the Draft London Plan which have been formulated to manage London's road network taking into account the REP site's public transport accessibility and land use, as well as to encourage access by non-car modes.
- As part of any closures of PRoWs associated with the construction of the Electrical Connection, there would be appropriate diversions put in place to be agreed with the relevant highway authorities prior to the commencement of construction.

6.8 Assessment of Likely Effects

6.8.1 The assessment of likely effects takes each component of the Proposed Development and assesses these individually. The components assessed comprise the REP Site and Main Temporary Construction Compounds, and the Electrical Connection and Cable Route Temporary Construction Compounds. Details of the assessment of these components are presented below and reflect the process which has been set out within the TA Scoping Report.

6.8.2 Whilst DfT data has been collected and assessed, at this preliminary stage the assessment covers Norman Road only as this has offered a robust means of assessing the other receptors which would have been accounted for through the DfT data. Norman Road is where the most concentrated impact of development traffic is anticipated and has the lowest flows of all links within the study area. As a result, this is considered to be the location where effects are at their highest. For reference, Norman Road (South) relates to the section of Norman Road south of the 'Asda' junction, whilst Norman Road (North) is to the north of this junction and therefore only including RRRF traffic at present.

6.8.3 There is outline planning permission for a Data Centre on Norman Road (LBB planning ref.: 15/02926/OUTM); however, 2018 traffic data has been used as a baseline within the impact assessment as this represents a robust approach given that the percentage impact of REP's construction and operational phases is higher when using 2018 traffic flows.

6.8.4 Whilst background growth would be anticipated on the network, as Norman Road acts as an access road only, limited background growth would be anticipated on this link, with the exception of the committed development of the Data Centre.

6.8.5 Throughout the assessment for all components of the Proposed Development, driver delay has been omitted as, at this stage, junction capacity assessments have not been undertaken pending receipt of traffic survey data. This information will be provided within the ES and TA.

The REP Site and Main Temporary Construction Compounds

Construction Phase

Table 6.18: Assessment of Construction Traffic Flows

Receptor	2018 AADT	Construction Trips	% Increase	Severance	Pedestrian Delay	Fear and Intimidation	Accidents and Road Safety
Norman Road (North)	534	171	32%	Negligible	Negligible	Negligible	Negligible
Norman Road (South)	3,146	171	5%	Negligible	Negligible	Negligible	Negligible

- 6.8.6 **Table 6.18** indicates that, based on the increase associated with the REP site construction traffic flow, there is a **Negligible** impact on all criteria. The rationale for this conclusion is set out below.
- 6.8.7 Based on the quantified approach set out within the IEMA Guidelines, the impact on severance is small; however, this only exceeds the negligible threshold by 2%. Furthermore, there is only a footway on the eastern side of Norman Road which means the impact on severance is considered to be **Negligible**, and therefore insignificant, as there is no need to cross the carriageway.
- 6.8.8 In any case, as traffic is distributed further across the network and reaches Norman Road (South), the increase in traffic is reduced to 5%, which is a **Negligible** impact and so not significant.
- 6.8.9 As background traffic flows ('2018 AADT' column) only increase across the network, it is considered that the impact of severance on any other receptors, would only decrease based on the assessment criteria.
- 6.8.10 With respect to pedestrian delay and fear and intimidation, the increase in flow is well below the threshold for both criteria. The principle of background traffic flows being higher than those on Norman Road elsewhere on the network means that impacts would be **Negligible** across all other receptors for these two criteria.
- 6.8.11 In respect of the accident and road safety criterion; based on professional judgement, the construction traffic flow is not anticipated to increase the likelihood of collisions by over 5% so there is therefore also a **Negligible** impact on accident and road safety. This view holds across the other sensitive receptors, which primarily represent major roads.
- 6.8.12 The impacts on the Norman Road (South) receptor are deemed to be **Negligible** and not significant, as impacts will only reduce further from the development due to the higher background traffic flows elsewhere on the network. The same effects would be relevant for all other receptors.

Operational Phase

Table 6.19: Assessment of Operational Traffic Flows

Scenario	Receptor	2018 AADT	Operational Trip Generation	% Increase	Severance	Pedestrian Delay	Fear and Intimidation	Accidents and Road Safety
Nominal	Norman Road (North)	534	91	17%	Neg.	Neg.	Neg.	Neg.
	Norman Road (South)	3,146	91	3%	Neg.	Neg.	Neg.	Neg.
Reasonable Worst Case - road	Norman Road (North)	534	321	60%	Neg.	Neg.	Neg.	Neg.
	Norman Road (South)	3,146	321	10%	Neg.	Neg.	Neg.	Neg.

6.8.13 **Table 6.19** indicates the impacts generated during the operational phase. The results indicate **Negligible** (and not significant) effects in the reasonable worst case scenario (road) for both receptors on Norman Road.

6.8.14 As with the impact on Norman Road (North) in the construction phase, based on the quantified approach set out within the IEMA Guidelines, the impact on severance is moderate; however, the presence of a footway on the eastern side only means the impact on severance is considered to be **Negligible**, and therefore insignificant, as there is no need to cross the carriageway.

6.8.15 As with the approach carried out for the assessment of the construction phase above, with respect to the other receptors, the flows on other links across the network are much higher than on Norman Road (North) and Norman Road (South); therefore, the impact is greatly reduced across all other sensitive receptors and the effects would be **Negligible** across all.

6.8.16 A reasonable worst case scenario where 100% of waste is delivered to the REP site by river, will be considered within the NRA which will be appended to the Transport Chapter of the ES.

Decommissioning Phase

6.8.17 The assessment of a decommissioning phase from a transport perspective is challenging. Typically, standard traffic growth models do not forecast beyond 2051 and these incorporate a significant amount of uncertainty.

6.8.18 For this reason, it is considered that the most robust and accurate means for assessing the decommissioning phase is a qualitative assessment based on the assessment of the construction phase. Based on professional judgement, taking into account the level of uncertainty and effects associated with both the construction and operational phases, it is considered that effects generated by the decommissioning phase would be **Negligible** across all sensitive receptors. Further details of this assessment will be provided within the ES.

The Electrical Connection and the Cable Route Temporary Construction Compounds

Construction Phase

- 6.8.19 For the construction phase of the Electrical Connection, two potential primary installation programmes are under consideration. The first would be over a 24-month programme and would involve eight construction personnel on the Application Site. The second would be carried out over a compressed 15-month programme assuming 16 workers. Such a scenario would achieve more rapid progress through working at two locations on the Electrical Connection route concurrently.
- 6.8.20 These workers are anticipated to arrive using personal vehicles or company vans. An element of car/van share is also anticipated. Delivery trips would also be generated over the maximum 24-month programme and there are anticipated to be 30 vehicles per day. In the 15-month programme there are 60 movements anticipated per day.
- 6.8.21 Based on the level of daily and peak hour anticipated vehicle trip generation associated with workers and deliveries for the two potential installation programmes, the impacts are expected to be Negligible across all sensitive receptors and all effects would be Negligible and not significant.
- 6.8.22 As part of the construction of the Electrical Connection, it is prudent to note that no complete road closures are expected (subject to final detailed engineering design of the installation). It is expected that there could be single lane closures on dual-carriageway roads and signalised working on single-carriageway roads, subject to available widths.
- 6.8.23 Core hours for construction works within the Control of Pollution Act 1974 are 08:00 to 18:00 Mondays to Fridays, 08:00 to 13:00 on Saturdays with no works on Sundays/Public Holidays. Works outside of these hours may be proposed and therefore would be agreed with the relevant highway authority and consideration given to environmental factors such as noise impacts.
- 6.8.24 Based on professional judgement and the assessment criteria for driver delay set out in **Table 6.10**, it is considered that temporary lane closures could generate moderate adverse effects along links and at junctions subject to such closures on the A2016 and A206, which would be significant. This is because increases in driver delay may be up to 3 minutes at some junctions and up to 10 minutes along certain links, due to the scale of traffic flows along these corridors. There could also be some negligible adverse impacts on pedestrian delay and amenity where diversions are put in place.
- 6.8.25 The above primarily relates to Electrical Connection Route 1 which routes along the A2016 and A206. However, Routes 2A and 2B follow principally residential or industrial access streets with a number of vehicular crossovers to driveways/yards and on-street parking. The effects on driver delay of Electrical Connection Routes 2A and 2B are expected to be minor given the status of the affected roads and the lower level of traffic flows along these corridors which mean the increases in delay would not be significant. There could also be some minor adverse impacts on pedestrian delay and amenity where residential accesses are temporarily affected and diversions are put in place.
- 6.8.26 There could be some disruption to on-street parking, bus infrastructure (e.g. KCC's Fastrack, other lanes, stops, stands) and access to driveways or yards. These aspects will be further considered in the TA and ES, and necessary mitigation will be included within a draft CTMP.
- 6.8.27 As part of the compressed 15-month programme there could be two temporary lane closures in place along the Electrical Connection route; however, these would be situated such that there are no interactions between the two.

- 6.8.28 A number of PRow were also identified as receptors within the assessment. These receptors may only be temporarily affected and are included in the assessment as a result of the potential temporary closures or diversions necessary to accommodate the Electrical Connection route construction.
- 6.8.29 Any closures and subsequent diversions of PRow would be temporary in nature but, at this stage, the requirement and location of these are not yet known. It is expected that any closure and subsequent diversions of PRow could last for approximately one week at a given location. It is not considered that this would generate a significant impact on users through embedded mitigation of diversions in place.
- 6.8.30 All road and PRow closures and/or diversions would be agreed with the relevant highway authority prior to construction.

Operational Phase

- 6.8.31 The operation of the Electrical Connection is not anticipated to give rise to significant adverse effects on the transport network since it will be underground and not require regular maintenance. Therefore, impacts are associated with the construction phase only.

Decommissioning Phase

- 6.8.32 At the end of its operational life, it is currently anticipated that the ducting for the Electrical Connection will be left in situ, such that there will be no decommissioning works and therefore no effects.

Summary of Assessment

Construction Phase

- 6.8.33 In summary, of the construction impacts, the REP site and the Main Temporary Construction Compounds are assessed as having a **Negligible** effect at all sensitive receptors.
- 6.8.34 The Electrical Connection and Cable Route Temporary Construction Compounds are expected to have a moderate adverse effect along the A2016 and A206 throughout the construction phase. However, these effects would be temporary and inherently mitigated as part of the process with temporary diversions at affected PRow. These temporary diversions of PRow and any lane closures within the carriageway would be prioritised to minimise adverse effects on the operation of the local highway network and PRow users, and will be agreed with the highway authorities prior to commencement.
- 6.8.35 Further assessment of this would be carried out as part of the ES and TA.

Operational Phase

- 6.8.36 The operational phase of REP, as assessed by both the nominal scenario and reasonable worst case (road) scenario, generates Negligible effects across all sensitive receptors and assessment criteria.
- 6.8.37 The ES will consider the increase in vessel movements within the Noise and Air Quality Chapters and through the NRA.
- 6.8.38 The operation of the Electrical Connection is not anticipated to give rise to significant adverse effects on the environment.

Decommissioning Phase

- 6.8.39 The decommissioning phase of the REP site and the Main Temporary Construction compounds is presumed to have the same impact as the construction phase, which has been indicated as **Negligible**.

6.9 Cumulative Assessment

- 6.9.1 The method for the assessment of cumulative effects is described in **Chapter 4**. Cumulative effects from transport are not intended to be assessed separately as they are inherently included within the growth factors applied to the TA.

6.10 Further Mitigation and Enhancement

Construction Phase

- 6.10.1 To mitigate the effects of construction traffic, further mitigation is proposed in the form of a draft CTMP which would be produced to manage and control the delivery of materials and the routing of these vehicles to the Application Site. This would include movements by both road and river, with a focus on maximising the use of the river without causing adverse effects to the existing RRRF operation.
- 6.10.2 The draft CTMP would comprise the elements of an outline Construction Logistics Plan but would also incorporate the available information relating to how non-construction traffic could be managed at each stage of construction, including temporary lane closures and diversions of PRow.
- 6.10.3 It would be a requirement attached to the DCO that the draft CTMP would be finalised prior to the commencement of the construction phase.
- 6.10.4 A Construction Staff Travel Plan would also be incorporated into the draft CTMP, which would encourage the use of non-car modes of travel including public transport, walking and cycling. The Travel Plan would also encourage car/van share for those requiring to travel by private vehicle. This, coupled with minimal parking provided for construction staff, would help to reduce any impacts of construction workers travelling to the site. Monitoring would also help to ensure that progress is continuous over time.

Operational Phase

- 6.10.5 For the operational phase of the development, an operational Travel Plan would be produced for workers at REP. Within the Travel Plan there would be measures to encourage the use of sustainable travel, while car and cycle parking provision to London Plan standards would help to discourage the use of private cars and encourage cycling.
- 6.10.6 Route plans and logistics plans would also be in place to control deliveries to the REP site. This would determine the routes used for vehicles travelling to the REP site and would also control the number of movements made using the River Thames. This would aim to distribute the trips generated by REP onto the highway network and would prevent adverse effects on roads and routes not suitable for waste delivery vehicles.
- 6.10.7 An outline DSP would also be produced which will incorporate the principles and management of the movement of operational waste, consumable and by-products in addition to the typical delivery and servicing trips such as post and refuse.
- 6.10.8 Such plans are anticipated to be implemented and monitored by the Applicant as the operator of REP to ensure that measures put forward to reduce adverse effects are carried out.

6.11 Residual Effects and Monitoring

Construction Phase

6.11.1 It has been concluded that there would be moderate adverse effects on driver delay associated with the construction of the Electrical Connection. Embedded mitigation such as diversions of PRoW, which would be incorporated into the CTMP, would be in place but residual effects on driver delay are expected to remain as moderate adverse at some links and junctions. Further assessment of this would be carried out as part of the ES and TA.

Operational Phase

6.11.2 As per the construction phase, the operational phase for the Proposed Development is indicated to be Negligible on all receptors. The proposed mitigation is then anticipated to reduce the impacts even further resulting in smaller impacts on all receptors.

Decommissioning Phase

6.11.3 Before due consideration is given to mitigation, it has been concluded that the impacts of the decommissioning phase were Negligible. Mitigation is designed to reduce this impact further and it is therefore concluded that the residual effects are also Negligible.

6.12 Summary of Residual Effects

Table 6.20: Summary of Residual Effects

Phase	Receptor name and description	Potential mitigation	Preliminary Assessment of Residual Effects
Construction	Highway Links	CTMP	Moderate adverse effects on driver delay where lane closures necessary of A2016 and A206 associated with Electrical Connection Route 1. Minor adverse effects on driver delay where lane closures necessary along Electrical Connection Routes 2A and 2B.
	Highway Junctions	CTMP	Moderate adverse effects on driver delay where lane closures necessary of A2016 and A206 associated with Electrical Connection Route 1.

Phase	Receptor name and description	Potential mitigation	Preliminary Assessment of Residual Effects
			Minor adverse effects on driver delay where lane closures necessary along Electrical Connection Routes 2A and 2B.
	PRoW	CTMP	Effects are not anticipated to be significant. Minor adverse effects on pedestrian delay and amenity at PRoW and footways along Electrical Connection Routes 2A and 2B.
Operational	Highway Links	TP, DSP	Effects are not anticipated to be significant.
	Highway Junctions	TP, DSP	
	PRoW	TP, DSP	
Decommissioning	Highway Links	CTMP	Effects are not anticipated to be significant.
	Highway Junctions	CTMP	
	PRoW	CTMP	

6.13 Preliminary Conclusion and Further Assessment

6.13.1 This assessment has considered the environmental impacts of the increased level of traffic generated by the Proposed Development during its construction, operation and decommissioning. The assessment has used existing traffic flows taken from DfT's traffic count database, and considers the impact of additional flow and IEMA guidelines to determine the severity of these impacts.

- 6.13.2 The preliminary findings of this assessment indicate that the impacts generated by the Proposed Development are Negligible across both the nominal scenario and reasonable worst case scenario (road) for the operational phase and for the decommissioning phase.
- 6.13.3 Construction of the Electrical Connection is expected to generate some moderate adverse effects on driver delay along some highway links and at some junctions along the A2016 and A206. Further assessment of this would be carried out as part of the ES and TA.
- 6.13.4 Construction of REP is not expected to generate any significant effects.
- 6.13.5 The proposed mitigation comprising the draft CTMP, outline DSP and TP will all contribute further to controlling the number of construction and maintenance vehicles on-site at any point and reducing the reliance on private vehicles for construction workers and REP staff.
- 6.13.6 The TA and ES will provide a more detailed assessment, including an assessment of driver delay, based on recently collected traffic data.
- 6.13.7 As preliminary findings develop through ongoing assessment work, it is anticipated that further preliminary results will be shared with Highways Authorities.
- 6.13.8 As required, the ES will assess impacts to PRoWs once further details of potential closures are known.
- 6.13.9 A reasonable worst case scenario where 100% of waste is delivered to the REP site by river, will be considered within the NRA.