

## 6 Traffic and Transport

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### 6.1 Introduction

6.1.1 This chapter summarises the assessment of traffic and transport effects associated with the proposed 3Rs facility. The assessment covers potential effects associated with the construction and operation of the project. The assessment was undertaken in accordance with the Institute of Environmental Assessment (IEA, now IEMA) guidance document 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic' (IEMA, 1993, hereafter referred to as 'the IEMA guidelines').

#### Scope of Study

6.1.2 This chapter considers the following topics:

- Road safety;
- Visual impact;
- Severance;
- Driver Delay;
- Pedestrian Delay; and
- Pedestrian Amenity.

6.1.3 The proposed 3Rs facility is accessed from the A264 via Langhurstwood Road. The location of the site in the context of the local highway network is shown on Figure 6.1.

#### Study Area

6.1.4 The study area has been determined by the road traffic associated with the construction and operational phases of the facility and the effects on the access route from the A264 along Langhurstwood Road.

### 6.2 Policy Context

6.2.1 This section summarises the relevant policy context that is relevant to traffic and transport issues.

#### National Policy

##### Overarching National Policy Statement for Energy EN-1 (2011)

6.2.2 Whilst the National Policy Statements are at the heart of the planning regime for Nationally Significant Infrastructure Projects, they are also recognised as a material consideration in decisions on planning applications. Therefore, relevant policies are considered here. NPS EN-1 (DECC, 2011) states in chapter 5.13 that:

*"If a project is likely to have significant transport implications, the applicant's ES (see Section 4.2) should include a transport assessment, using the NATA/WebTAG139 methodology stipulated in Department for Transport guidance140, or any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation.*

*Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts."*

### The National Planning Policy Framework (NPPF)

- 6.2.3 The NPPF (DCLG, 2012) sets out the Government's planning policies for England and how these are expected to be applied (para. 1) and is therefore a material consideration.
- 6.2.4 Central to the NPPF is the presumption in favour of sustainable development and the need for the planning system to support economic growth. Para. 14 sets out the presumption in favour of sustainable development and the application of the policy for decision making, it states that:
- "At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking".*
- 6.2.5 Section 4 specifically relates to the promotion of sustainable transport, requiring all developments that generate significant amounts of movements to be supported by a Transport Statement or Assessment (para. 32). Development decisions should take account of whether safe and suitable access to the site can be achieved for all people.

### National Planning Policy for Waste

- 6.2.6 The National Planning Policy for Waste (DCLG, 2014a) specifically refers to traffic and access in the criteria for selecting a suitable site for a waste facility (Appendix B, f). It states that:
- "Considerations will include the suitability of the road network and the extent to which access would require reliance on local roads, the rail network and transport links to ports."*

### **Local Policy**

- 6.2.7 The relevant Development Plan documents that provide a context for this assessment are set out below:

#### West Sussex Waste Local Plan (2014)

- 6.2.8 The West Sussex Waste Local Plan (West Sussex County Council and the South Downs National Park Authority, 2014) sets out a number of Strategic Objectives. Strategic Objective 7 outlines that:
- "The use of road transport will be minimised and new sites or facilities will be located as close as possible to the Lorry Route Network to minimise the impact of road transport on local communities and rural areas."*
- 6.2.9 SO7 is then expanded on through Policy W18, which outlines that proposals will be permitted if:
- "Materials are capable of being transported using the Lorry Route Network with minimal use of local roads;*
- Vehicle movements associated with the development will not have an unacceptable impact on the capacity of the highway network;*
- There is safe and adequate means of access to the highway network and vehicle movements associated with the development will not have an adverse impact on the safety of all road users;*
- Satisfactory provision is made for vehicle turning and parking, manoeuvring, loading, and, where appropriate, wheel cleaning facilities; and*
- Vehicle movements are minimised by the optimal use of the vehicle fleet."*
- 6.2.10 The Plan includes an assessment of the site (referred to as Brookhurst Wood within the document) as a potential waste processing site. Policy W10 outlines a series of conditions that are required to be fulfilled to allow development. The following conditions are considered to be relevant to the consideration of traffic and transport:
- Assessment of impact (e.g. traffic, noise, odour) on the amenity of nearby dwellings and businesses and possible mitigation required;
  - Assessment of the possible use of rail for the movement of waste; and

- Assessment of impact of additional HGV (Heavy Goods Vehicle) movements on highway capacity and road safety, including at the Langhurstwood Road/A264 junction and on the A264, A24, A23/M23, and possible mitigation required.

#### Horsham District Planning Framework (2015)

- 6.2.11 The Horsham District Planning Framework (Horsham District Council, 2015) states that "*West Sussex County Council is responsible for preparing statutory land use plans for minerals and waste. Proposals for development should have regard to the defined County Minerals Safeguarding Area and Minerals Consultations Area guidance and policy produced by West Sussex County Council. Preparation of site plans will require liaison with West Sussex County Council at an early stage to ensure that any potential minerals and waste interests are fully considered in planning development.*"
- 6.2.12 Policy 1, which sets out its strategic policy for sustainable development states:
- "When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work pro-actively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.*
- Planning applications that accord with the policies in this Local Plan (and, where relevant, with policies in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise."*
- 6.2.13 Policy 2 which sets out its strategic policy for strategic development states:
- "To maintain the district's unique rural character whilst ensuring that the needs of the community are met through sustainable growth and suitable access to services and local employment, the spatial strategy to 2031 is to:*
- 8. Encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value.*
- 9. Identify existing sites of important employment use, and to safeguard their function through flexible policies and designation of Key Employment Areas, together with supporting the rural economy, to allow people the opportunity to work close to where they live."*
- 6.2.14 Policy 33 which sets out development principles states:
- "In order to conserve and enhance the natural and built environment developments shall be required to:*
- 1. Make efficient use of land, and prioritise the use of previously developed land and buildings whilst respecting any constraints that exist;*
- 2. Ensure that it is designed to avoid unacceptable harm to the amenity of occupiers/users of nearby property and land, for example through overlooking or noise, whilst having regard to the sensitivities of surrounding development;"*
- 6.2.15 Policy 35, a strategic policy on climate change states:
- "Development will be supported where it makes a clear contribution to mitigating and adapting to the impacts of climate change and to meeting the district's carbon reduction targets as set out in the Council's Acting Together on Climate Change Strategy, 2009.*
- Measures which should be used to mitigate the effects of climate change include;*
- 4. The use of patterns of development which reduce the need to travel, encourage walking and cycling and include good accessibility to public transport and other forms of sustainable transport; and*
- 5. Measures which reduce the amount of biodegradable waste sent to landfill."*

## 6.3 Assessment Methodology

### Relevant Guidance

6.3.1 The assessment methodology has been informed by guidance contained within the following document:

- Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic (IEMA, 1993, hereafter referred to as 'the IEMA guidelines')

### Consultation

6.3.2 In carrying out the assessment consultation has included:

- A formal ES scoping request to West Sussex County Council (WSSC); and
- A formal transport scoping request to WSSC Highways.

6.3.3 The issues raised through the consultation outlined above that are relevant to the assessment are summarised in Table 6.1 below.

6.3.4 The Scoping Opinion is contained in Appendix 4.1. A copy of the Formal Transport Scoping Request and WSSC Highways associated response is included at Appendix 6.1.

**Table 6.1: Consultation Responses Relevant to Traffic and Transport**

Date/Source	Consultee and Issues Raised	How/ Where Addressed
January 2017 / West Sussex Highways response to previous planning application (Ref:WSSC/062/16/NH)	<p>Ian Gledhill</p> <p>The permitted waste use already has permission for and the potential to generate up to 284 two way HGV movements per day, with 140 two way movements on a Saturday. The proposed use does not seek to vary from these already permitted numbers. Given that the A264 forms part of the advisory lorry network, providing all HGVs arrive and depart via Langhurstwood Road to the south then no further controls beyond this would be necessary.</p> <p>The NPPF states that development should only be prevented or refused on transport grounds where the residual cumulative impacts of the development are severe. In light of the permitted uses on the site, the LHA are satisfied that this proposal would not result in any severe highway safety or capacity impacts. No highway objection would be raised.</p> <p>In the event that this application is approved the number of HGV movements should be suitably controlled. A construction management plan would also be required.</p>	N/A
September 2016 / West Sussex Highways response to Transport	<p>Ian Gledhill</p> <p>Needs to be further discussion with planning authority over how all waste</p>	The scope of the EIA has been prepared in accordance with the ES

Date/Source	Consultee and Issues Raised	How/ Where Addressed
Scoping Note	<p>inputs being sourced from the on-site Waste Transfer Facility would be secured.</p> <p>Need to clarify if there is any chance of two waste uses being independent of each other.</p> <p>Agreed that no Transport Assessment (TA) is needed. However, there needs to be a means of linking the two uses together. Refer to local planning authority to investigate and agree means of linking the two uses together.</p> <p>Scope of EIA should be agreed with local planning authority.</p> <p>Need to agree extent of cumulative assessment with local planning authority.</p>	<p>Scoping Report, the transport elements of which received no specific comments.</p> <p>As the proposed development is located within the same footprint as the approved Waste Transfer Station (and would involve demolition of the existing Waste Transfer Station building to enable its construction) the two developments could not be developed simultaneously.</p> <p>The cumulative assessment has been updated since scoping to reflect changes in status of the applications under consideration. Details of the projects considered are provided in Appendix 4.4.</p>
November 2015 / West Sussex response to EIA scoping request	<p>Jane Moseley / James Neave</p> <p>The impact of the development in terms of HGV movements, compared against the baseline will need to be made clear.</p> <p>Scope of the transport assessment should be agreed with WSCC Highways.</p> <p>Consideration will need to be given to North Horsham.</p> <p>The number, type and routeing of HGVs and other vehicles should be detailed as accurately as possible to ensure that the subsequent analysis is accurate.</p> <p>The outcome of the TA/TS should feed into the Traffic and Transportation chapter of the ES.</p>	<p>Agreed with WSCC Highways that no TA is needed.</p> <p>Section 6.7 sets out that the proposed 3Rs facility will not generate any HGV movements over and above the existing consent.</p> <p>Proposed development at North Horsham is considered in Section 6.9.</p>

### Baseline Surveys

- 6.3.5 In order to obtain the baseline traffic conditions, traffic surveys were undertaken by a specialist third party. A manual classified count (MCC) was undertaken at the site access junction with Langhurstwood Road, as well as automatic traffic counts (ATCs) on the Langhurstwood Road and the A264 East at the Langhurstwood Road / A264 junction.
- 6.3.6 The Trip End Model Presentation Programme v6.2 (TEMPRO) has been used to update observed traffic data obtained from 2013 to predict the likely level of traffic which will be using the road network in 2018, which is the anticipated construction year for the facility.
- 6.3.7 TEMPRO is produced by the Department for Transport (DfT) and uses a wide range of data so that accurate localised traffic growth projections can be predicted. As such, the use of TEMPRO for predicting the growth

in existing traffic flows for future baseline traffic assessment years for the proposed substation is considered to provide the most accurate prediction of baseline traffic flows for the construction year.

- 6.3.8 The 2013 – 2018 growth rate calculated by TEMPRO for principal urban roads in the Horsham area is 1.05141 for the average weekday and 1.05293 for a Saturday. These growth rates have been applied to the ATC at the A264 east of the junction with Langhurstwood Road.
- 6.3.9 The 2013 – 2018 growth rate calculated by TEMPRO for minor rural roads in the Horsham area is 1.05529 for the average weekday and 1.05682 for a Saturday. These growth rates have been applied to the ATC on Langhurstwood Road just north of the junction with the A264.
- 6.3.10 Traffic flows were calculated from the ATCs on Langhurstwood Road and the A264 East to provide data on the A264 West, as well as the site access MCC and the ATC on Langhurstwood Road to provide data on Langhurstwood Road between the site access and the junction with Mercer Road.

### **Assessment Criteria and Assignment of Significance**

#### Methodology

- 6.3.11 The assessment methods used within this chapter follow the principles and approaches detailed in Chapter 4, with further chapter specific assessment parameters detailed below.

#### Relevant Guidance

- 6.3.12 As a matter of best practice, this assessment has been undertaken based on current relevant guidance for assessing the environmental effects of traffic. This is set out within The Institute of Environmental Assessment (IEA) (now the IEMA) publication 'Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic', 1993.

#### Magnitude of Impact

- 6.3.13 The IEMA guidelines recommend two rules to be considered when assessing the impact of development traffic on a road link:
- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
  - Rule 2: Include any other specifically sensitive areas where total traffic flows have increased by 10% or more.
- 6.3.14 The above guidance is based upon knowledge and experience of environmental effects of traffic. The 30% threshold is based upon research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected changes in total traffic flow of less than 10% create no discernible environmental effect, hence the second threshold as set out in Rule 2.
- 6.3.15 In cases where the thresholds are exceeded, Column 3 in Table 2.1 of the IEMA guidelines set out a list of environmental impacts which should be assessed for their magnitude of change.
- 6.3.16 Definitions of each of the potential impacts identified in the IEMA guidelines are summarised below along with explanatory text relating to assessment criteria to determine the magnitude of impact. It is on this basis that the assessment in this chapter has been undertaken.
- 6.3.17 It is acknowledged at paragraph 2.4 of the IEMA guidelines that not all the effects listed in Column 3 of Table 2.1 would be applicable to every development. A detailed inspection of the surrounding road network incorporating the current geometric layout of the road, traffic management and regulation orders and general observations of existing road user movements has been undertaken to assist with the assessments.

### Noise and Vibration

- 6.3.18 The potential effects relating to noise and vibration as a result of traffic are set out in Chapter 8 of this ES.

### Visual Effects

- 6.3.19 The visual effect of traffic is complex and subjective and includes both visual obstruction and visual intrusion. The IEMA guidelines state that obstruction refers to the blocking of views, by structures for example, and intrusion refers to the more subjective impact by traffic on an area of scenic beauty or of historical or conservation interest.
- 6.3.20 It goes on to state that increases in the number of large or high-sided vehicles may have an intrusive impact in areas of scenic beauty and in historic or conservation areas and acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect.
- 6.3.21 Where relevant, the visual effects of traffic are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document. The visual effects of the proposed facility as a whole are considered in Chapter 5 of this ES.

### Severance

- 6.3.22 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road (IEMA, 1993).
- 6.3.23 The guidance indicates that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively.
- 6.3.24 Where relevant, impacts on severance are considered within this chapter.

### Driver Delay

- 6.3.25 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays. Some roads are typically at or near capacity during the weekday AM (08:00 to 09:00) and PM (17:00 to 18:00) peak hours. Other sources of delay for non-development traffic can include:
- At the proposed site access where there would be additional turning movements;
  - On the roads passing the site where there is likely to be additional traffic;
  - At other key intersections along the road which might be affected by increased traffic; and
  - At junctions where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.
- 6.3.26 Where relevant, the impacts on driver delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

### Pedestrian Delay

- 6.3.27 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. Studies have shown that pedestrian delay is perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities. A 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour (IEMA, 1993).
- 6.3.28 Where relevant, the impacts on pedestrian delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

### Pedestrian Amenity

- 6.3.29 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic.
- 6.3.30 There is no commonly agreed guidance for determining the magnitude of change for pedestrian amenity. However, guidance refers to the Manual of Environmental Assessment which suggests that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled.
- 6.3.31 Pedestrian amenity encompasses the overall relationship between pedestrians and traffic, including fear and intimidation which is the most emotive and difficult impact to quantify and assess. There are no commonly agreed thresholds for quantifying the changes in pedestrian amenity, although the IEMA guidelines refer to a useful study which could be referenced when considering any impact. These thresholds are replicated in Table 6.2.

**Table 6.2: Example of Fear and Intimidation Criteria**

Degree of Hazard	Average Traffic Flow over 18 hour day (veh/hour)	Total 18 hour heavy goods vehicle flow	Average Speed over 18 hour day (mile/hour)
Extreme	1,800 +	3,000 +	20 +
Great	1,200–1,800	2,000–3,000	15-20
Moderate	600–1,200	1,000–2,000	10-15

- 6.3.32 Where relevant, the impacts on pedestrian amenity are considered within this chapter and the magnitude of impact identified using the above example of fear and intimidation.

### Accidents and Safety

- 6.3.33 It is possible to estimate the impacts of increased traffic on accidents and safety from existing accident records, national statistics, the type and quantity of traffic generated, journey lengths and the characteristics of the routes in question.
- 6.3.34 Where relevant, the impacts on accidents and safety are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the IEMA guidance document.

### Hazardous Loads

- 6.3.35 Some developments may involve transporting hazardous loads by road such as special wastes, toxic materials and chemicals. Where appropriate, the risks associated with accidents on such movements are identified or quantified within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the IEMA guidance document.

### Dust and Dirt

- 6.3.36 Certain types of development, particularly construction sites, can give rise to deposition of dust and dirt on surrounding roads. The overall impact of this phenomenon normally depends to a large extent on the management practices adopted at the site in question, such as vehicle sheeting and wheel washing.
- 6.3.37 Problems with dust and dirt are unlikely to occur at distances greater than 50 metres from the road (IEMA, 1993).
- 6.3.38 Where relevant, the effects relating to dust and dirt are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the IEMA guidance document.

### Consideration of Receptors

- 6.3.39 Paragraph 2.5 of the IEMA guidelines explains that locations that may be sensitive to changes in traffic conditions could be:



- People at home;
  - People in work places;
  - Sensitive groups such as children, the elderly or the disabled;
  - Sensitive locations such as hospitals, churches, schools or historical buildings;
  - People walking or cycling;
  - Open spaces;
  - Recreational sites;
  - Shopping areas;
  - Sites of ecological/nature conservation value; and
  - Sites of tourist/visitor attraction.
- 6.3.40 As a general guide, the determination of receptor sensitivity is based on the criteria of value, adaptability and tolerance. In terms of transport, receptors include people that are living in and using facilities, and using transport networks, in the area.
- 6.3.41 Given that all persons are deemed to be of equal value, sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. Table 6.3 summarises the broad criteria for identifying receptor sensitivity

**Table 6.3: Definitions of Sensitivity or Value**

Sensitivity	Typical Descriptors
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians.
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycleways, community centres, parks, recreation facilities.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

- 6.3.42 Road links with descriptions of high or medium sensitivity have been considered against the Rule 2 threshold described above. Other links with descriptions of low or negligible sensitivity have been considered against the Rule 1 threshold. Where necessary, professional judgement has been applied in identifying the relevant category for each link.

#### Assessment of Significance

- 6.3.43 The approach to the assessment of significance of effects follows the general principles set out in Chapter 4 and is summarised in Table 6.4 and Table 6.5 below, adapted from the Design Manual for Roads and Bridges (DMRB) HA 205/08 (Highways Agency *et al.*, 2008).
- 6.3.44 This takes into account the duration, magnitude, direction and location of each impact as well as the sensitivity of the receptor. Where there are any specific criteria available to determine impacts on specific aspects of traffic and transport, these have been taken into account assessed in conjunction with Table 6.4 to establish the impact magnitude.

Table 6.4: Definitions of Impact Magnitude

Magnitude	Typical Descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Medium	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Substantial delays to travellers (Adverse).
	Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (Beneficial).
Low	Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of highway safety. Some measurable increase in delays to travellers (Adverse).
	Some measurable increase in the capability for movement along and across transport corridors, some measurable increase in access to key facilities and some measurable increase in highway safety. Reduced risk of negative impacts occurring (Beneficial).
Negligible	Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of highway safety. Very minor increase in delays to travellers (Adverse).
	Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in highway safety. Very minor decreases in delays to travellers (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Table 6.5: Assessment Matrix

Sensitivity	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major

6.3.45 The broad definitions of the terms used to determine significance criteria are as follows:

- Major: These beneficial or adverse effects are likely to be very important considerations at a local or district scale and, if adverse, are potential concerns to the scheme and may become material in the decision making process.
- Moderate: These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.

- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

6.3.46 In accordance with the IEMA guidance, the assessments are based upon the relative change between the baseline conditions and the baseline with construction / development conditions. For the purposes of this assessment, effects described as major are considered to be significant in terms of the EIA Regulations.

## 6.4 Baseline Conditions

### Highway Network

#### Primary Road Network

6.4.1 The A264 is a high standard dual carriageway forming part of the county's Strategic Lorry Route and links Horsham to the M23 and Crawley. The A264 is subject to a derestricted national speed limit. It is a dual carriageway from the M23 east of the site access to the junction with the A24 west of the site access. There are no footways and it is bound by grass verges / embankments and fields.

#### Local Road Network

6.4.2 The site access is located approximately 800 metres north of the A264 on Langhurstwood Road, approximately 3.5 kilometres north of Horsham. The site access road is subject to a 10 mph speed limit and is generally 6.7 metres wide. It forms the minor arm of a simple priority junction with the western side of Langhurstwood Road, which is subject to a 40 mph restricted speed limit and is a rural single carriageway road. There is no street lighting along Langhurstwood Road and there are no footways. At its southern end, Langhurstwood Road forms a junction with the eastbound carriageway of the A264 via a left-in / left-out arrangement with associated acceleration and deceleration tapers.

6.4.3 There are no facilities provided for right turn movements into and out of Langhurstwood Road on the A264 and so u-turns must be made at junctions to the east and west to accommodate these.

### Access to the Site via Sustainable Modes

6.4.4 The access to the site is from Langhurstwood Road, approximately 350 metres north of the simple priority junction with Mercer Road and approximately 800 metres north of the A264. The site is situated in a rural setting with few dwellings and amenities situated within a 1 kilometre radius of the site. The roads surrounding the site are not supported by formal pedestrian infrastructure as there is a negligible demand for pedestrian trips in this vicinity. There are no public rights of way in the immediate vicinity of the site.

6.4.5 Langhurstwood Road is aligned by soft grass verges and maintains good sightlines for vehicular traffic and pedestrians for the majority of the road. There is no formal cycling infrastructure in the vicinity of the site. There are no bus stops in the vicinity of the site.

6.4.6 Mercer Road links the site to Warnham Railway Station, with both platforms accessible via pedestrian level crossing. Mercer Road is a cul-de-sac with vehicles no longer able to cross the railway, and is thus sparsely trafficked. Warnham station is managed by Southern Rail and offers an hourly service toward Horsham and an hourly service to London Victoria via Hackbridge. It is approximately a 700 metre walk from the station to the site access.

### Baseline Traffic Flows

6.4.7 The data observed during the traffic counts have been analysed and are summarised in Tables 6.6 and 6.7.

Table 6.6: Summary of Observed ATCs Traffic Flows

Count Location	Year of Count	12 Hour Annual Average Weekday Traffic (AAWT)		24 Hour AAWT		24 Hour Annual Average Daily Traffic Flow (AADT)		12 Hour Saturday	
		Total	HGV	Total	HGV	Total	HGV	Total	HGV
Langhurstwood Road (just north of A264)	2013	2,877	172	3,320	498	2,567	367	590	54
A264 (just east of junction with Langhurstwood Road)	2013	28,312	3,848	34,955	4,504	31,597	3,611	19,735	1,374

Table 6.7: Summary of Observed MCCs Traffic Flows

Movement	Year of Count	AM Peak		PM Peak	
		Total	HGV	Total	HGV
Site Access to Langhurstwood Road North	2013	0	0	2	0
Site Access to Langhurstwood Road South	2013	16	13	31	5
Langhurstwood Road South to Site Access	2013	30	7	8	2
Langhurstwood Road South to Langhurstwood Road North	2013	339	4	29	1
Langhurstwood Road North to Site Access	2013	6	1	0	0
Langhurstwood Road North to Langhurstwood Road South	2013	30	5	320	0

6.4.8 The growth rates have been applied to the above base traffic flows and the resultant 2018 baseline traffic flows are set out in Table 6.8 below.

Table 6.8: 2018 Baseline Traffic Flows

Count Location	12 Hour AAWT		24 Hour AAWT		24 Hour AADT		12 Hour Saturday	
	Total	HGV	Total	HGV	Total	HGV	Total	HGV
Langhurstwood Road (just north of A264)	3,036	497	3,503	523	2,707	383	621	55
Langhurstwood Road (between Site Access and Mercer Road)	2,726	353	3,146	372	2,434	277	556	43
A264 (just east of the junction with Langhurstwood Road)	29,770	4,045	36,754	4,734	33,228	3,798	20,752	1,447

Count Location	12 Hour AAWT		24 Hour AAWT		24 Hour AADT		12 Hour Saturday	
	Total	HGV	Total	HGV	Total	HGV	Total	HGV
A264 (just west of the junction with Langhurstwood Road)	29,677	4,034	36,696	4,725	33,178	3,792	20,672	1,442

- 6.4.9 It is noted that a mechanical biological treatment (MBT) facility has permission within the wider site. Consent (WSCC/055/09/NH) was granted in 2010.
- 6.4.10 At the time of the traffic surveys in December 2013, the MBT was being commissioned, but the MBT accepts residual waste and that which was not going to the MBT was going to the landfill site. Therefore, the waste vehicle movements associated with the consented MBT are within the above observed traffic flows and no further adjustments are required.

#### Sensitivity of Receptors

- 6.4.11 Receptors to be considered within the assessment were selected based upon the access route to be taken by vehicles generated by the site and the assessment methodology set out above.
- 6.4.12 Table 6.9 highlights the qualification of the sensitivity assessment of each receptor group for the proposals.

**Table 6.9: Sensitivity of Road Links**

Receptor	Sensitivity	Qualification
Langhurstwood Road (south of site access)	Medium / High	Road link contains a very small number of residential properties that are set back from the carriageway and although there is no footway provision there is limited demand for pedestrian activity.
A264 East	Negligible	Road link does not contain any sensitive receptors as advised by the above guidance document.
A264 West	Negligible	Road link does not contain any sensitive receptors as advised by the above guidance document.

- 6.4.13 On the basis of the above, Langhurstwood Road has been assessed against the Rule 2 threshold described above and the A264 has been assessed against the Rule 1 threshold.

#### Future Baseline Conditions

- 6.4.14 The above describes the existing baseline conditions, as well as current traffic flows. This section considers the potential future changes in baseline conditions due to foreseeable changes, including those arising as a result of climate change. It provides a description on how climate change might change the baseline in the future.
- 6.4.15 In traffic and transport terms and in specific relation to this chapter, this relates to how climate change may affect movement (for example traffic flows, pedestrian movement or cyclist movement) and how it may alter the sensitivity of receptors.
- 6.4.16 In terms of sensitivity, receptors that are sensitive to changes in traffic flows should not be altered by climate change and neither would their assessment of sensitivity (i.e. negligible, low, medium or high) i.e. the receptors identified within Table 6.3 would remain relevant.
- 6.4.17 People could be considered able to adapt to the effects of climate change in the sense that if a movement is needed by a particular mode of transport, then it is reasonable to assume that movement would still occur regardless of climate change (e.g. a person would still walk to a local shop or a person would still drive to and from work). It is perhaps not climate change that would affect such movement in the future but rather technological advances, which are difficult to predict over the lifetime of the project.

- 6.4.18 On this basis, it is considered that climate change is unlikely to affect future baseline conditions to such an extent that it would affect the conclusions reached in this chapter.
- 6.4.19 A review of proposed or possible future third party projects that may result in future changes to baseline conditions has been undertaken and used to inform this assessment. The projects identified are set out in Appendix 4.4 of this ES.
- 6.4.20 The review is detailed in Section 6.9 of this chapter and concludes that none of the proposed development would result in any significant change to the transport network in the immediate vicinity of the site or would affect the conclusions reached within this chapter.

#### **Data Limitations/Limitations of the Assessment**

- 6.4.21 The above data cover the proposed access route and have been obtained from traffic surveys undertaken specially for the project. The data are considered to be representative and reflective of baseline conditions.
- 6.4.22 It is therefore considered that there are no 'information gaps' in the baseline data or information available.

## **6.5 Incorporated Enhancement and Mitigation**

### **Construction Phase**

- 6.5.1 A Construction Traffic Management Plan (CTMP) will be prepared and agreed with the local highway authority as an enhancement measure prior to construction. The applicant is fully committed to the preparation of the CTMP and will accept a planning condition for its preparation, once a contractor has been appointed and prior to the construction phase commencing.
- 6.5.2 It is not envisaged that the CTMP would be a mitigation measure as such; rather, it will ensure good working practices throughout the construction period. The CTMP will provide the following information:
- Approved access routes and any necessary restrictions;
  - Temporary signage in the vicinity of the site warning of construction traffic;
  - Arrangements for road maintenance and cleaning; and
  - Wheel cleaning arrangements and regular road sweeping runs (to ensure dust and dirt is not transported onto the public roads etc).

## **6.6 Assessment of Construction Effects**

- 6.6.1 The construction traffic predicted to be generated by the 3Rs facility has been estimated, with calculations setting out each stage of the construction process, the number of working days for each, the number of daily construction staff on site for each and the total number of HGV movements generated by each.
- 6.6.2 To estimate the daily HGV movements for each stage, the total number generated has been divided by the number of working days for each. This then allows for the total number of daily vehicle movements and daily HGV movements to be calculated for each stage of the construction process.
- 6.6.3 It is expected that construction of the facility would take place over a 31 month period and that during that time the average number of workers on site would be 50. The level of work is anticipated to fluctuate over the 31 months relative to the construction programme. The peak level of workers on site is likely to be in months 7-9 and would peak at 182 people.
- 6.6.4 Car sharing would be encouraged, but this is unlikely to exceed 1.5 persons per car on average, for which the peak level of movements translates to 122 car trips to and from the site per weekday and an average of 34 car trips to and from the site per weekday.

- 6.6.5 Normal hours of working during construction would be Monday to Friday 07.30 to 19.00 hours and Saturday 0800 to 1600 hours. The profile of worker arrivals would be linked closely to the construction hours with some 70% of workers expected to arrive between 07.00 and 07.30, then 10% arriving between 07.30 and 08.00 hours, with the remaining 20% arriving between 08.00 and 09.00 hours.
- 6.6.6 It is likely that workers would leave the site between 16.00 and 19.00 hours. The departure profile is likely to be less peaked than in the morning period with 50% likely to leave between 16.00 and 17.00, 40% leaving between 17.00 and 18.00 hours and the remaining 10% leaving between 18.00 and 19.00 hours. The estimated car movements for the peak levels and for the average level are shown in Table 6.10.

**Table 6.10: Construction Worker Car Movements**

Time Period	Peak Construction Month Car Movements	Average Construction Month Car Movements
07.00 – 08.00	98	27
08.00 – 09.00	24	7
16.00 – 17.00	61	17
17.00 – 18.00	49	14
18.00 – 19.00	12	3

- 6.6.7 The construction profile for the import and export of materials to the site has been considered in relation to the construction build programme and the numbers of loads determined. Three scenarios were devised from this as follows:
- Average daily construction traffic over the 31 month period;
  - Peak daily HGV construction traffic (where the HGV construction traffic is greatest); and
  - Peak net construction traffic (where the net construction traffic is greatest).
- 6.6.8 A typical profile of HGV movements over the 31 month construction period for daily HGV movements has been estimated. To calculate the daily HGV traffic levels it has been assumed that site work would be carried out over 22 working days on average per month. The construction HGV traffic levels would be likely to peak around month 6 with approximately 36 daily HGV arrivals at the site during the month. This equates to 72 two-way HGV movements per day. The hours of operation are projected to be between 07.30 and 19.00. However, it is anticipated that the majority of HGV movements would occur between 09.00 and 17.00, giving approximately up to 4 two-way HGV movements per hour in/out of the site. At the peak net construction traffic, there would be 18 HGV arrivals or 36 two-way HGV movements a day. Over the 31 month period of construction, there would likely be an average of 11 HGV deliveries per day (22 two-way HGV movements per day).
- 6.6.9 The daily construction traffic flows throughout the 31 month construction period are set out in Table 6.11.

**Table 6.11: Daily Construction Flows Month By Month**

Month	Personnel Daily	HGV Daily	Combined
1	13	8	21
2	13	16	29
3	28	16	44
4	35	19	54
5	41	30	71
6	80	36	116
7	113	23	136
8	122	18	140
9	113	18	131
10	79	17	96
11	67	17	84
12	63	23	86

Month	Personnel Daily	HGV Daily	Combined
13	47	9	56
14	27	2	29
15	20	4	24
16	20	3	23
17	20	3	23
18	20	3	23
19	20	6	26
20	23	6	29
21	23	6	29
22	27	6	33
23	27	5	32
24	20	4	24
25	20	7	27
26	13	7	20
27	13	3	16
28	13	3	16
29	13	3	16
30	13	3	16
31	13	3	16

6.6.10 The above peak and average construction traffic flows have been assessed against the 2018 baseline traffic flows in accordance with the IEMA guidance document in order to determine their impact, as set out below.

#### Average Construction Traffic Impact

6.6.11 The average percentage impact of the facility is shown below in Tables 6.12, 6.13, 6.14 and 6.15.

**Table 6.12: Average Construction Traffic Percentage Impact on Langhurstwood Road (between Site Access and Mercer Road)**

Langhurstwood Road (between Site Access and Mercer Road)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	16	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	11	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	13	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	111	3	0	0	0%	0%	63	1	0	0	0%	0%
0600	82	7	0	0	0%	0%	41	3	0	0	0%	0%
0700	210	28	29	2	14%	7%	39	5	0	0	0%	0%
0800	438	31	7	0	2%	0%	31	5	29	2	95%	40%
0900	238	38	1	1	0%	3%	60	12	9	2	14%	17%
1000	154	49	2	2	1%	4%	56	4	2	2	4%	50%
1100	111	38	2	2	2%	5%	61	4	2	2	3%	50%
1200	180	28	2	2	1%	7%	46	5	2	2	4%	40%
1300	247	39	2	2	1%	5%	41	1	2	2	5%	200%
1400	226	39	2	2	1%	5%	71	3	19	2	27%	67%



Langhurstwood Road (between Site Access and Mercer Road)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
1500	130	33	2	2	2%	6%	48	1	19	2	40%	200%
1600	187	17	19	2	10%	12%	33	2	0	0	0%	0%
1700	409	8	14	0	3%	0%	36	1	0	0	0%	0%
1800	196	5	4	1	2%	20%	34	0	0	0	0%	0%
1900	57	3	0	0	0%	0%	20	0	0	0	0%	0%
2000	23	1	0	0	0%	0%	10	0	0	0	0%	0%
2100	17	1	0	0	0%	0%	27	2	0	0	0%	0%
2200	74	1	0	0	0%	0%	3	0	0	0	0%	0%
2300	7	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	2726	353	86	18	3%	5%	556	43	84	16	15%	37%
06-24	2986	366	86	18	3%	5%	663	49	84	16	13%	33%
00-24	3146	372	86	18	3%	5%	743	51	84	16	11%	31%

Table 6.13: Average Construction Traffic Percentage Impact on Langhurstwood Road (between Mercer Road and A264)

Langhurstwood Road (between Mercer Road and A264)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	18	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	12	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	15	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	123	5	0	0	0%	0%	69	1	0	0	0%	0%
0600	90	9	0	0	0%	0%	45	3	0	0	0%	0%
0700	220	35	29	2	13%	6%	43	6	0	0	0%	0%
0800	441	46	7	0	2%	0%	35	6	29	2	84%	33%
0900	288	57	1	1	0%	2%	67	17	9	2	13%	12%
1000	170	55	2	2	1%	4%	62	5	2	2	3%	40%
1100	139	53	2	2	1%	4%	68	5	2	2	3%	40%
1200	203	47	2	2	1%	4%	52	7	2	2	4%	29%
1300	309	52	2	2	1%	4%	46	1	2	2	4%	200%
1400	274	52	2	2	1%	4%	80	3	19	2	24%	67%
1500	152	44	2	2	1%	5%	53	1	19	2	36%	200%
1600	232	34	19	2	8%	6%	37	3	0	0	0%	0%
1700	429	14	14	0	3%	0%	40	1	0	0	0%	0%
1800	179	8	4	1	2%	13%	38	0	0	0	0%	0%
1900	65	4	0	0	0%	0%	22	0	0	0	0%	0%
2000	25	2	0	0	0%	0%	10	0	0	0	0%	0%
2100	18	1	0	0	0%	0%	30	2	0	0	0%	0%

Langhurstwood Road (between Mercer Road and A264)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
2200	83	2	0	0	0%	0%	3	0	0	0	0%	0%
2300	9	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	3036	497	86	18	3%	4%	621	55	84	16	14%	29%
06-24	3326	515	86	18	3%	3%	737	61	84	16	11%	26%
00-24	3503	523	86	18	2%	3%	823	63	84	16	10%	25%

Table 6.14: Average Construction Traffic Percentage Impact on A264 East

A264 East												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	171	24	0	0	0%	0%	380	23	0	0	0%	0%
0100	93	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	17	0	0	0%	0%	141	22	0	0	0%	0%
0300	103	19	0	0	0%	0%	94	25	0	0	0%	0%
0400	211	39	0	0	0%	0%	160	26	0	0	0%	0%
0500	650	99	0	0	0%	0%	377	57	0	0	0%	0%
0600	1554	229	0	0	0%	0%	628	94	0	0	0%	0%
0700	2904	344	16	2	1%	1%	913	150	0	0	0%	0%
0800	3259	391	3	0	0%	0%	1481	175	16	2	1%	1%
0900	2430	400	2	2	0%	0%	1688	156	5	2	0%	1%
1000	1890	351	2	2	0%	1%	1923	116	2	2	0%	2%
1100	1870	335	2	2	0%	1%	2187	138	2	2	0%	1%
1200	1918	310	2	2	0%	1%	2074	132	2	2	0%	2%
1300	1985	332	2	2	0%	1%	1880	110	2	2	0%	2%
1400	2202	353	2	2	0%	1%	1874	113	28	2	1%	2%
1500	2419	384	2	2	0%	1%	1785	103	28	2	2%	2%
1600	2915	365	28	2	1%	1%	1813	102	0	0	0%	0%
1700	3373	308	21	0	1%	0%	1695	101	0	0	0%	0%
1800	2605	172	5	1	0%	0%	1439	51	0	0	0%	0%
1900	1534	98	0	0	0%	0%	1059	47	0	0	0%	0%
2000	885	50	0	0	0%	0%	627	25	0	0	0%	0%
2100	673	43	0	0	0%	0%	525	24	0	0	0%	0%
2200	654	34	0	0	0%	0%	530	22	0	0	0%	0%
2300	395	22	0	0	0%	0%	524	16	0	0	0%	0%
07-19	29770	4045	86	18	0%	0%	20752	1447	84	16	0%	1%
06-24	35465	4521	86	18	0%	0%	24645	1675	84	16	0%	1%
00-24	36754	4734	86	18	0%	0%	25987	1840	84	16	0%	1%

Table 6.15: Average Construction Traffic Percentage Impact on A264 West

Time Begin	A264 West											
	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	170	24	0	0	0%	0%	381	23	0	0	0%	0%
0100	77	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	18	0	0	0%	0%	138	22	0	0	0%	0%
0300	108	19	0	0	0%	0%	95	25	0	0	0%	0%
0400	221	39	0	0	0%	0%	164	27	0	0	0%	0%
0500	749	101	0	0	0%	0%	429	58	0	0	0%	0%
0600	1605	231	0	0	0%	0%	640	95	0	0	0%	0%
0700	3055	353	43	2	1%	1%	926	155	0	0	0%	0%
0800	3570	393	10	0	0%	0%	1492	173	43	2	3%	1%
0900	2572	408	1	1	0%	0%	1691	160	12	2	1%	1%
1000	1913	350	2	2	0%	1%	1916	115	2	2	0%	2%
1100	1863	332	2	2	0%	1%	2175	134	2	2	0%	1%
1200	1877	303	2	2	0%	1%	2048	126	2	2	0%	2%
1300	2070	335	2	2	0%	1%	1872	111	2	2	0%	2%
1400	2088	341	2	2	0%	1%	1832	114	11	2	1%	2%
1500	2379	377	2	2	0%	1%	1788	102	11	2	1%	2%
1600	2779	363	11	2	0%	1%	1806	101	0	0	0%	0%
1700	3035	307	7	0	0%	0%	1695	100	0	0	0%	0%
1800	2476	172	3	2	0%	1%	1431	51	0	0	0%	0%
1900	1503	97	0	0	0%	0%	1049	47	0	0	0%	0%
2000	874	49	0	0	0%	0%	625	25	0	0	0%	0%
2100	670	42	0	0	0%	0%	507	24	0	0	0%	0%
2200	588	33	0	0	0%	0%	526	22	0	0	0%	0%
2300	393	23	0	0	0%	0%	528	17	0	0	0%	0%
07-19	29677	4034	86	18	0%	0%	20672	1442	84	16	0%	1%
06-24	35310	4509	86	18	0%	0%	24547	1672	84	16	0%	1%
00-24	36696	4725	86	18	0%	0%	25944	1839	84	16	0%	1%

#### Peak (HGV) Construction Traffic Impact

6.6.12 The peak HGV construction traffic percentage impact of the facility is shown below in Tables 6.16, 6.17, 6.18 and 6.19.

Table 6.16: Peak HGV Construction Traffic Percentage Impact on Langhurstwood Road (between Site Access and Mercer Road)

Langhurstwood Road (between Site Access and Mercer Road)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	16	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	11	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	13	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	111	3	0	0	0%	0%	63	1	0	0	0%	0%
0600	82	7	0	0	0%	0%	41	3	0	0	0%	0%
0700	210	28	68	4	33%	14%	39	5	0	0	0%	0%
0800	438	31	16	0	4%	0%	31	5	72	8	233%	160%
0900	238	38	7	7	3%	18%	60	12	24	8	40%	67%
1000	154	49	7	7	5%	14%	56	4	8	8	14%	200%
1100	111	38	8	8	7%	21%	61	4	8	8	13%	200%
1200	180	28	8	8	4%	29%	46	5	8	8	17%	160%
1300	247	39	8	8	3%	21%	41	1	8	8	20%	800%
1400	226	39	8	8	4%	21%	71	3	48	8	68%	267%
1500	130	33	8	8	6%	24%	48	1	48	8	100%	800%
1600	187	17	47	7	25%	41%	33	2	0	0	0%	0%
1700	409	8	32	0	8%	0%	36	1	0	0	0%	0%
1800	196	5	15	7	8%	140%	34	0	0	0	0%	0%
1900	57	3	0	0	0%	0%	20	0	0	0	0%	0%
2000	23	1	0	0	0%	0%	10	0	0	0	0%	0%
2100	17	1	0	0	0%	0%	27	2	0	0	0%	0%
2200	74	1	0	0	0%	0%	3	0	0	0	0%	0%
2300	7	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	2726	353	232	72	9%	20%	556	43	224	64	40%	149%
06-24	2986	366	232	72	8%	20%	663	49	224	64	34%	131%
00-24	3146	372	232	72	7%	19%	743	51	224	64	30%	125%

Table 6.17: Peak HGV Construction Traffic Percentage Impact on Langhurstwood Road (between Mercer Road and A264)

Langhurstwood Road (between Mercer Road and A264)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	18	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	12	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	15	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	123	5	0	0	0%	0%	69	1	0	0	0%	0%
0600	90	9	0	0	0%	0%	45	3	0	0	0%	0%
0700	220	35	68	4	31%	11%	43	6	0	0	0%	0%
0800	441	46	16	0	4%	0%	35	6	72	8	206%	133%
0900	288	57	7	7	2%	12%	67	17	24	8	35%	47%
1000	170	55	7	7	4%	13%	62	5	8	8	13%	160%
1100	139	53	8	8	6%	15%	68	5	8	8	12%	160%
1200	203	47	8	8	4%	17%	52	7	8	8	15%	114%
1300	309	52	8	8	3%	15%	46	1	8	8	17%	800%
1400	274	52	8	8	3%	15%	80	3	48	8	60%	267%
1500	152	44	8	8	5%	18%	53	1	48	8	91%	800%
1600	232	34	47	7	20%	21%	37	3	0	0	0%	0%
1700	429	14	32	0	7%	0%	40	1	0	0	0%	0%
1800	179	8	15	7	8%	88%	38	0	0	0	0%	0%
1900	65	4	0	0	0%	0%	22	0	0	0	0%	0%
2000	25	2	0	0	0%	0%	10	0	0	0	0%	0%
2100	18	1	0	0	0%	0%	30	2	0	0	0%	0%
2200	83	2	0	0	0%	0%	3	0	0	0	0%	0%
2300	9	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	3036	497	232	72	8%	14%	621	55	224	64	36%	116%
06-24	3326	515	232	72	7%	14%	737	61	224	64	30%	105%
00-24	3503	523	232	72	7%	14%	823	63	224	64	27%	102%

Table 6.18: Peak HGV Construction Traffic Percentage Impact on A264 East

A264 East												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	171	24	0	0	0%	0%	380	23	0	0	0%	0%
0100	93	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	17	0	0	0%	0%	141	22	0	0	0%	0%
0300	103	19	0	0	0%	0%	94	25	0	0	0%	0%
0400	211	39	0	0	0%	0%	160	26	0	0	0%	0%
0500	650	99	0	0	0%	0%	377	57	0	0	0%	0%
0600	1554	229	0	0	0%	0%	628	94	0	0	0%	0%
0700	2904	344	36	4	1%	1%	913	150	0	0	0%	0%
0800	3259	391	8	0	0%	0%	1481	175	40	8	3%	5%
0900	2430	400	8	8	0%	2%	1688	156	16	8	1%	5%
1000	1890	351	7	7	0%	2%	1923	116	8	8	0%	7%
1100	1870	335	8	8	0%	2%	2187	138	8	8	0%	6%
1200	1918	310	8	8	0%	3%	2074	132	8	8	0%	6%
1300	1985	332	8	8	0%	2%	1880	110	8	8	0%	7%
1400	2202	353	8	8	0%	2%	1874	113	68	8	4%	7%
1500	2419	384	8	8	0%	2%	1785	103	68	8	4%	8%
1600	2915	365	68	8	2%	2%	1813	102	0	0	0%	0%
1700	3373	308	48	0	1%	0%	1695	101	0	0	0%	0%
1800	2605	172	18	7	1%	4%	1439	51	0	0	0%	0%
1900	1534	98	0	0	0%	0%	1059	47	0	0	0%	0%
2000	885	50	0	0	0%	0%	627	25	0	0	0%	0%
2100	673	43	0	0	0%	0%	525	24	0	0	0%	0%
2200	654	34	0	0	0%	0%	530	22	0	0	0%	0%
2300	395	22	0	0	0%	0%	524	16	0	0	0%	0%
07-19	29770	4045	232	72	1%	2%	20752	1447	224	64	1%	4%
06-24	35465	4521	232	72	1%	2%	24645	1675	224	64	1%	4%
00-24	36754	4734	232	72	1%	2%	25987	1840	224	64	1%	3%

Table 6.19: Peak HGV Construction Traffic Percentage Impact on A264 West

A264 West												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	170	24	0	0	0%	0%	381	23	0	0	0%	0%
0100	77	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	18	0	0	0%	0%	138	22	0	0	0%	0%
0300	108	19	0	0	0%	0%	95	25	0	0	0%	0%
0400	221	39	0	0	0%	0%	164	27	0	0	0%	0%
0500	749	101	0	0	0%	0%	429	58	0	0	0%	0%
0600	1605	231	0	0	0%	0%	640	95	0	0	0%	0%
0700	3055	353	100	4	3%	1%	926	155	0	0	0%	0%
0800	3570	393	24	0	1%	0%	1492	173	104	8	7%	5%
0900	2572	408	7	7	0%	2%	1691	160	32	8	2%	5%
1000	1913	350	8	8	0%	2%	1916	115	8	8	0%	7%
1100	1863	332	8	8	0%	2%	2175	134	8	8	0%	6%
1200	1877	303	8	8	0%	3%	2048	126	8	8	0%	6%
1300	2070	335	8	8	0%	2%	1872	111	8	8	0%	7%
1400	2088	341	8	8	0%	2%	1832	114	28	8	2%	7%
1500	2379	377	8	8	0%	2%	1788	102	28	8	2%	8%
1600	2779	363	27	7	1%	2%	1806	101	0	0	0%	0%
1700	3035	307	16	0	1%	0%	1695	100	0	0	0%	0%
1800	2476	172	11	8	0%	4%	1431	51	0	0	0%	0%
1900	1503	97	0	0	0%	0%	1049	47	0	0	0%	0%
2000	874	49	0	0	0%	0%	625	25	0	0	0%	0%
2100	670	42	0	0	0%	0%	507	24	0	0	0%	0%
2200	588	33	0	0	0%	0%	526	22	0	0	0%	0%
2300	393	23	0	0	0%	0%	528	17	0	0	0%	0%
07-19	29677	4034	232	72	1%	2%	20672	1442	224	64	1%	4%
06-24	35310	4509	232	72	1%	2%	24547	1672	224	64	1%	4%
00-24	36696	4725	232	72	1%	2%	25944	1839	224	64	1%	3%

#### Peak Construction Traffic Percentage Impact

6.6.13 The peak construction traffic percentage impact of the facility is shown below in Tables 6.20, 6.21, 6.22 and 6.23.

Table 6.20: Peak Construction Traffic Percentage Impact on Langhurstwood Road (between Site Access and Mercer Road)

Langhurstwood Road (between Site Access and Mercer Road)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	16	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	11	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	13	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	111	3	0	0	0%	0%	63	1	0	0	0%	0%
0600	82	7	0	0	0%	0%	41	3	0	0	0%	0%
0700	210	28	100	2	48%	7%	39	5	0	0	0%	0%
0800	438	31	24	0	5%	0%	31	5	102	4	329%	80%
0900	238	38	4	4	2%	11%	60	12	28	4	47%	33%
1000	154	49	4	4	3%	8%	56	4	4	4	7%	100%
1100	111	38	4	4	4%	11%	61	4	4	4	7%	100%
1200	180	28	4	4	2%	14%	46	5	4	4	9%	80%
1300	247	39	4	4	2%	10%	41	1	4	4	10%	400%
1400	226	39	4	4	2%	10%	71	3	65	4	92%	133%
1500	130	33	4	4	3%	12%	48	1	65	4	135%	400%
1600	187	17	65	4	35%	24%	33	2	0	0	0%	0%
1700	409	8	49	0	12%	0%	36	1	0	0	0%	0%
1800	196	5	14	2	7%	40%	34	0	0	0	0%	0%
1900	57	3	0	0	0%	0%	20	0	0	0	0%	0%
2000	23	1	0	0	0%	0%	10	0	0	0	0%	0%
2100	17	1	0	0	0%	0%	27	2	0	0	0%	0%
2200	74	1	0	0	0%	0%	3	0	0	0	0%	0%
2300	7	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	2726	353	280	36	10%	10%	556	43	276	32	50%	74%
06-24	2986	366	280	36	9%	10%	663	49	276	32	42%	65%
00-24	3146	372	280	36	9%	10%	743	51	276	32	37%	63%



Table 6.21: Peak Construction Traffic Percentage Impact on Langhurstwood Road (between Mercer Road and A264)

Langhurstwood Road (between Mercer Road and A264)												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	5	0	0	0	0%	0%	5	0	0	0	0%	0%
0100	18	0	0	0	0%	0%	2	0	0	0	0%	0%
0200	4	0	0	0	0%	0%	3	0	0	0	0%	0%
0300	12	2	0	0	0%	0%	1	0	0	0	0%	0%
0400	15	1	0	0	0%	0%	6	1	0	0	0%	0%
0500	123	5	0	0	0%	0%	69	1	0	0	0%	0%
0600	90	9	0	0	0%	0%	45	3	0	0	0%	0%
0700	220	35	100	2	45%	6%	43	6	0	0	0%	0%
0800	441	46	24	0	5%	0%	35	6	102	4	291%	67%
0900	288	57	4	4	1%	7%	67	17	28	4	42%	24%
1000	170	55	4	4	2%	7%	62	5	4	4	6%	80%
1100	139	53	4	4	3%	8%	68	5	4	4	6%	80%
1200	203	47	4	4	2%	9%	52	7	4	4	8%	57%
1300	309	52	4	4	1%	8%	46	1	4	4	9%	400%
1400	274	52	4	4	1%	8%	80	3	65	4	81%	133%
1500	152	44	4	4	3%	9%	53	1	65	4	123%	400%
1600	232	34	65	4	28%	12%	37	3	0	0	0%	0%
1700	429	14	49	0	11%	0%	40	1	0	0	0%	0%
1800	179	8	14	2	8%	25%	38	0	0	0	0%	0%
1900	65	4	0	0	0%	0%	22	0	0	0	0%	0%
2000	25	2	0	0	0%	0%	10	0	0	0	0%	0%
2100	18	1	0	0	0%	0%	30	2	0	0	0%	0%
2200	83	2	0	0	0%	0%	3	0	0	0	0%	0%
2300	9	0	0	0	0%	0%	6	1	0	0	0%	0%
07-19	3036	497	280	36	9%	7%	621	55	276	32	44%	58%
06-24	3326	515	280	36	8%	7%	737	61	276	32	37%	52%
00-24	3503	523	280	36	8%	7%	823	63	276	32	34%	51%

Table 6.22: Peak Construction Traffic Percentage Impact on A264 East

A264 East												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	171	24	0	0	0%	0%	380	23	0	0	0%	0%
0100	93	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	17	0	0	0%	0%	141	22	0	0	0%	0%
0300	103	19	0	0	0%	0%	94	25	0	0	0%	0%
0400	211	39	0	0	0%	0%	160	26	0	0	0%	0%
0500	650	99	0	0	0%	0%	377	57	0	0	0%	0%
0600	1554	229	0	0	0%	0%	628	94	0	0	0%	0%
0700	2904	344	51	2	2%	1%	913	150	0	0	0%	0%
0800	3259	391	12	0	0%	0%	1481	175	53	4	4%	2%
0900	2430	400	4	4	0%	1%	1688	156	16	4	1%	3%
1000	1890	351	4	4	0%	1%	1923	116	4	4	0%	3%
1100	1870	335	4	4	0%	1%	2187	138	4	4	0%	3%
1200	1918	310	4	4	0%	1%	2074	132	4	4	0%	3%
1300	1985	332	4	4	0%	1%	1880	110	4	4	0%	4%
1400	2202	353	4	4	0%	1%	1874	113	96	4	5%	4%
1500	2419	384	4	4	0%	1%	1785	103	96	4	5%	4%
1600	2915	365	96	4	3%	1%	1813	102	0	0	0%	0%
1700	3373	308	74	0	2%	0%	1695	101	0	0	0%	0%
1800	2605	172	20	2	1%	1%	1439	51	0	0	0%	0%
1900	1534	98	0	0	0%	0%	1059	47	0	0	0%	0%
2000	885	50	0	0	0%	0%	627	25	0	0	0%	0%
2100	673	43	0	0	0%	0%	525	24	0	0	0%	0%
2200	654	34	0	0	0%	0%	530	22	0	0	0%	0%
2300	395	22	0	0	0%	0%	524	16	0	0	0%	0%
07-19	29770	4045	280	36	1%	1%	20752	1447	276	32	1%	2%
06-24	35465	4521	280	36	1%	1%	24645	1675	276	32	1%	2%
00-24	36754	4734	280	36	1%	1%	25987	1840	276	32	1%	2%

Table 6.23: Peak Construction Traffic Percentage Impact on A264 West

A264 West												
Time Begin	Weekday						Saturday					
	2018 Base		Construction		% Impact		2018 Base		Construction		% Impact	
	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs	Total	HGVs
0000	170	24	0	0	0%	0%	381	23	0	0	0%	0%
0100	77	15	0	0	0%	0%	190	12	0	0	0%	0%
0200	61	18	0	0	0%	0%	138	22	0	0	0%	0%
0300	108	19	0	0	0%	0%	95	25	0	0	0%	0%
0400	221	39	0	0	0%	0%	164	27	0	0	0%	0%
0500	749	101	0	0	0%	0%	429	58	0	0	0%	0%
0600	1605	231	0	0	0%	0%	640	95	0	0	0%	0%
0700	3055	353	149	2	5%	1%	926	155	0	0	0%	0%
0800	3570	393	36	0	1%	0%	1492	173	151	4	10%	2%
0900	2572	408	4	4	0%	1%	1691	160	40	4	2%	3%
1000	1913	350	4	4	0%	1%	1916	115	4	4	0%	3%
1100	1863	332	4	4	0%	1%	2175	134	4	4	0%	3%
1200	1877	303	4	4	0%	1%	2048	126	4	4	0%	3%
1300	2070	335	4	4	0%	1%	1872	111	4	4	0%	4%
1400	2088	341	4	4	0%	1%	1832	114	35	4	2%	4%
1500	2379	377	4	4	0%	1%	1788	102	35	4	2%	4%
1600	2779	363	35	4	1%	1%	1806	101	0	0	0%	0%
1700	3035	307	25	0	1%	0%	1695	100	0	0	0%	0%
1800	2476	172	8	2	0%	1%	1431	51	0	0	0%	0%
1900	1503	97	0	0	0%	0%	1049	47	0	0	0%	0%
2000	874	49	0	0	0%	0%	625	25	0	0	0%	0%
2100	670	42	0	0	0%	0%	507	24	0	0	0%	0%
2200	588	33	0	0	0%	0%	526	22	0	0	0%	0%
2300	393	23	0	0	0%	0%	528	17	0	0	0%	0%
07-19	29677	4034	280	36	1%	1%	20672	1442	276	32	1%	2%
06-24	35310	4509	280	36	1%	1%	24547	1672	276	32	1%	2%
00-24	36696	4725	280	36	1%	1%	25944	1839	276	32	1%	2%

- 6.6.14 As set out in Table 6.9, the sensitivity of the A264 is considered to be negligible. Therefore, the Rule 1 threshold (of a 30% change in total traffic flows or HGV traffic flows) set out in the IEMA guidelines is applicable to this link. As can be seen above, the percentage increases in total traffic flows and HGV traffic flows on along the A264 are all below the Rule 1 threshold. During the peak construction traffic period the maximum percentage increase in total traffic flows is estimated to be 5% over a weekday and 10% on a Saturday. During the peak HGV construction period the maximum percentage increase in HGV flows on the A264 is 4% on a weekday and 8% on a Saturday.
- 6.6.15 Taking into account that the predicted changes in traffic flow are below the relevant IEMA threshold (below which impacts are considered to be imperceptible) and the factors set out in Table 6.4, the magnitude of impact during construction along the A264 would be negligible. Therefore, the significance of effect arising from any increase in traffic flows along the A264 as a result of construction traffic would therefore be negligible. The effect would not be significant in terms of the EIA Regulations.

- 6.6.16 As set out in Table 6.9, the sensitivity of Langhurstwood Road is considered to be medium/high. Therefore, the Rule 2 threshold (of a 10% change in total traffic flows) set out in the IEMA guidelines is applicable to this link. As can be seen above, the percentage increases in total traffic flows and HGV traffic flows along Langhurstwood Road would exceed the Rule 2 threshold. During the peak construction traffic period the maximum percentage increase in total traffic flows is estimated to be 48% over a weekday and 329% on a Saturday. During the peak HGV construction period the maximum percentage increase in HGV flows on Langhurstwood Road is 140% on a weekday and 800% on a Saturday. Whilst there are large percentage increases, especially on Saturdays, this is a result of the low existing baseline traffic flow on this link. Therefore, an increase of only a small number of HGVs can result in large percentage increases (the number of additional HGVs for that give rise to the 800% increase is only 8 HGVs).
- 6.6.17 Nevertheless, as the threshold is predicted to be exceeded, an assessment of the environmental effects of this change is undertaken below.

#### Visual Effects

- 6.6.18 The construction traffic would travel via existing roads that already carry existing traffic and, therefore, the additional traffic flows are unlikely to result in any additional visual obstruction effects. Any effects would relate to visual intrusion from the increases in HGV movement along Langhurstwood Road.
- 6.6.19 The composition of traffic on Langhurstwood Road between the site access and the Mercer Road junction (link 1) and between Mercer Road and the A264 (link 2) has been considered to determine the magnitude of change.
- 6.6.20 The HGV content of total traffic flows along Langhurstwood Road Link 1 under baseline conditions over a 12 hour weekday and Saturday is 12.9% and 7.7% respectively. On Langhurstwood Road Link 2 the HGV content of total traffic flows are 16.3% and 8.9% respectively.
- 6.6.21 With the addition of average construction traffic flows, the HGV levels on Langhurstwood Road Link 1 are predicted to increase to 13.1% and 9.2% on a 12 hour weekday and Saturday respectively. On Langhurstwood Road Link 2 the HGV levels are predicted to increase to 16.4% and 10.1% respectively.
- 6.6.22 With the addition of peak HGV construction flows, the HGV levels on Langhurstwood Road Link 1 during a 12 hour weekday and Saturday are predicted to change to 14.3% and 13.8% respectively. On Langhurstwood Road Link 2 during a 12 hour weekday and Saturday the HGV levels are predicted to change to 17.4% and 14.1% respectively.
- 6.6.23 These changes are low and would be difficult to perceive visually in the context of existing traffic flows. It is therefore considered that the magnitude of impact on visual effects along Langhurstwood Road would be negligible. The significance of the visual effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Severance

- 6.6.24 Severance is only likely to occur on highly trafficked roads and would result from the perceived division the road and traffic create between either side.
- 6.6.25 Langhurstwood Road is lightly trafficked and, on that basis, severance is unlikely to occur. Notwithstanding this, the IEMA guidelines indicate that severance impacts may be considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively.
- 6.6.26 The increases in traffic flows as a result of the average construction traffic flows are predicted to be 3% over a 12 hour weekday on Langhurstwood Road Link 1 and Langhurstwood Road Link 2. On a Saturday, increases of 15% and 14% over a Saturday are predicted on Langhurstwood Road Link 1 and Langhurstwood Road Link 2 respectively.
- 6.6.27 During the peak construction traffic flows, increases of 10% and 9% are predicted over a 12 hour weekday on Langhurstwood Road Link 1 and Langhurstwood Road Link 2. On a Saturday, increases of 50% and 44% are predicted on Langhurstwood Road Link 1 and Langhurstwood Road Link 2 respectively. It is noted

that Langhurstwood Road is not highly trafficked and, therefore, as the IEMA guidelines set out, severance is unlikely to occur.

- 6.6.28 Notwithstanding this, a further assessment has been undertaken for periods of the highest hourly traffic flows for completeness. On a Saturday between 08.00 and 09.00, the peak construction traffic flows are predicted to increase traffic flows on Langhurstwood Road Link 2 from 35 to 137 two-way vehicle movements per hour. With the inclusion of the peak construction traffic, this equates to an average of one vehicle movement every 26 seconds. This is not at a level where severance could occur. Furthermore, there are limited built up areas on either side of the road. Given the location, which does not have pedestrian footways and where pedestrian activity is infrequent, there is limited potential for any severance impact to be felt.
- 6.6.29 It is therefore considered that the magnitude of impact on severance in this location would be negligible. The significance of the severance effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Driver Delay

- 6.6.30 Driver delays occur when traffic flows are high and roads are at or near capacity. This occurs when traffic flows are at their peak, during the weekday AM (08:00 to 09:00) and PM (17:00 to 18:00) peak hours.
- 6.6.31 The majority of construction staff movements would occur outside peaks hours. However, 20% of staff arrivals and 40% of departures would still occur during these periods.
- 6.6.32 The peak construction traffic has the largest potential to impact upon the performance of the highway network and thus impact upon driver delay. These traffic flows have been assessed through the site access junction using the Department for Transport approved Junctions 9 computer modelling suite, the results of which are summarised below in Table 6.24.

**Table 6.24: Summary of Operational Assessments at Site Access Junction with Peak Construction Traffic**

Arm	AM Peak Hour			PM Peak Hour		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
Site Access to Langhurstwood Road N / S	0.1	17.55	0.08	0.3	10.68	0.22
Langhurstwood Road N to S / Site Access	0.0	8.18	0.01	0.0	0.0	0.0

- 6.6.33 One of the key indicators of junction performance in Junctions 9 is the Ratio of Flow to Capacity (RFC) where a value of 1.0 indicates that demand traffic flows are equal to the junction capacity.
- 6.6.34 The above demonstrates that the site access junction is predicted to comfortably operate well within capacity with the peak construction traffic and thus any noticeable driver delay on Langhurstwood Road at the site access would not occur.
- 6.6.35 The Langhurstwood Road / A264 junction is a merge / diverge layout rather than a traditional give-way layout and other means of assessment are therefore required to determine driver delay at the southern end of Langhurstwood Road at the A264.
- 6.6.36 Delay on Langhurstwood Road as a result of its junction with the A264 junction relates to the ability of vehicles to merge into the mainline traffic on the A264. There is no traditional modelling tool available to model merges, and therefore the capacity of the mainline A264 carriageway has been compared to the demand traffic to identify how these compare.
- 6.6.37 The Congestion Reference Flow (CRF) of the A264 is an estimate of the total Annual Average Daily Traffic Flow (AADT) flow at which the carriageway is likely to be 'congested' in the peak periods. The CRF can be calculated using TA46/97 'Traffic Flow Ranges for use in the Assessment of New Rural Roads', contained in

Volume 5, Section 1, Part 3 of the Design Manual for Road and Bridges (DMRB) (Highways Agency *et al.*, 1997) and for the A264 has been calculated at 81,875 AADT. Although this is intended for the design of new roads, in the absence of any other relevant guidance, it has been used for assessment purposes only.

- 6.6.38 The A264 mainline carriageway is predicted to have an AADT of 33,228 in 2018 and this therefore equates to 40.6% of capacity.
- 6.6.39 On the basis of there being such spare capacity on the A264 mainline carriageway, there are gaps between vehicles that would not impede the ability of vehicles to merge from Langhurstwood Road.
- 6.6.40 The above assessments consider highway capacity connected to Langhurstwood Road and conclude that there would be no impact upon highway capacity as a result of the construction traffic. On this basis, there would be no noticeable driver delay on Langhurstwood Road.
- 6.6.41 It is therefore considered that the magnitude of impact on driver delay along Langhurstwood Road would be negligible. The significance of the driver delay effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Pedestrian Delay

- 6.6.42 There are no footways along Langhurstwood Road and pedestrian activity is limited and infrequent.
- 6.6.43 Pedestrian delay can be considered perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities, which broadly equates to a two-way link flow of approximately 1,400 vehicles per hour.
- 6.6.44 Peak hourly traffic flows with the addition of the peak construction traffic for Langhurstwood Road Link 1 reach 462 vehicle movements and for Langhurstwood Road Link 2 reach 478 vehicle movements. Both of these traffic flows are significantly below the threshold where pedestrian delay could be perceptible.
- 6.6.45 It is therefore considered that the magnitude of impact on pedestrian delay along Langhurstwood Road would be negligible. The significance of the pedestrian delay effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Pedestrian Amenity

- 6.6.46 There are no footways along Langhurstwood Road between the site and the A264. This is reflective of the rural setting and limited demand. Indeed, pedestrian activity is limited and infrequent along these roads.
- 6.6.47 In terms of pedestrian amenity, any pedestrians who currently walk along Langhurstwood Road experience passing traffic and passing HGVs, and thus may be more accustomed to passing traffic than pedestrians in other locations. There are limited generators of pedestrian movement in the vicinity of Langhurstwood Road, no public recreation areas and the pedestrian crossing of the dual carriageway A264 into Horsham is an uncontrolled crossing at derestricted vehicle speeds (70 mph).
- 6.6.48 As set out above, there is no commonly agreed guidance for determining the magnitude of change for such instances. However, guidance refers to the Manual of Environmental Assessment, which suggests that a tentative threshold for judging changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled.
- 6.6.49 During the peak construction traffic scenario, 18 hour total traffic flows on Langhurstwood Road are predicted to change from 3326 to 3606 with HGV components changing from 515 (15%) to 551 (15%). On a Saturday, respective changes in total traffic flows are 737 to 1013 with HGV components changing from 61 (8%) to 93 (9%).
- 6.6.50 During the peak HGV construction scenario, 18 hour total traffic flows on Langhurstwood Road are predicted to change from 3326 to 3558 with HGV components changing from 515 (15.5%) to 587 (16.5%). On a Saturday, respective changes in total traffic flows are 737 to 961 with HGV components changing from 61 (8.3%) to 125 (13%).

- 6.6.51 The IEMA guidelines suggest that moderate (the lowest category) fear and intimidation could be experienced when the average hourly traffic flow over an 18 hour day is around 600 to 1,200 vehicles per hour or when there are between 1,000 and 2,000 HGVs over an 18 hour day.
- 6.6.52 None of these thresholds are exceeded in the baseline scenario or following the addition of the peak construction traffic flows. Indeed, in 2018 with the peak construction traffic flows, the average hourly traffic flow over an 18 hour day along Langhurstwood Road would be 200 vehicle movements, whilst in 2018 with the peak HGV construction flows, the number of HGV movements over an 18 hour day along Langhurstwood Road would be 587.
- 6.6.53 The magnitude of the impact has been considered based upon the limited pedestrian activity, average construction traffic flows, the short temporary period of peak construction traffic flows and familiarity of existing users to vehicle movements and is considered to be low to medium. The significance of the pedestrian amenity effect as a result of the construction traffic along Langhurstwood Road would therefore be minor to moderate. The effect would not be significant in terms of the EIA Regulations.

#### Accidents and Safety

- 6.6.54 Records of Personal Injury Accidents have been reviewed using the online Crashmap database. This has determined that there have been no injury accidents along Langhurstwood Road and it can be concluded that there are no existing road safety issues along the route.
- 6.6.55 The construction vehicle movements would be similar to those already generated along Langhurstwood Road and there is no reason to suggest these would alter the injury accident rate.
- 6.6.56 It is therefore considered that the magnitude of impact on accidents and safety along Langhurstwood Road would be negligible. The significance of the accidents and safety effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Hazardous Loads

- 6.6.57 The IEMA guidelines acknowledge, in paragraph 2.4, that most developments would not result in an increase in the number of movements of hazardous or dangerous loads.
- 6.6.58 The construction process for the works is not expected to result in the transportation of any hazardous material. Any unforeseen hazardous waste that is found and which would require transportation would be managed and transported in a safe manner and in accordance with current regulations. Hazardous waste should not therefore represent a safety issue.
- 6.6.59 It is therefore considered that the magnitude of impact on hazardous loads along Langhurstwood Road would be negligible. The significance of the effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

#### Dust and Dirt

- 6.6.60 Dust and dirt arising from traffic is mainly associated with HGV traffic undertaking particular activities. The extent of any impact of dust and dirt arising from traffic during the construction phase would be dependent upon the management practices adopted on site. As set out in Chapter 7 (Air Quality), dust control measures are proposed in accordance with guidance from the Institute of Air Quality Management (IAQM, 2014). These measures will be implemented through the Construction Environmental Management Plan (CEMP). In addition, those measures relevant to HGV movements will be included in the Construction Traffic Management Plan, which will be prepared and agreed with Highway Officers prior to construction commencing.
- 6.6.61 With the application of effective dust control measures, it is considered that the magnitude of impact on dust and dirt would be negligible. The significance of the dust and dirt effect as a result of the construction traffic along Langhurstwood Road would therefore be negligible to minor. The effect would not be significant in terms of the EIA Regulations.

## 6.7 Assessment of Operational Effects

- 6.7.1 The total volume of waste imported to the site for use in the 3Rs facility would be the same as is currently permitted for the existing Waste Transfer Station/Materials Recycling Facility i.e. 230,000 tpa. The proposals would involve the demolition of the existing waste transfer building and its replacement with the 3Rs facility, which would incorporate an enhanced version of the existing Waste Transfer Station/ Materials Recycling Facility within it as well as a thermal treatment facility. All waste inputs to the proposed thermal treatment facility would be sourced from the improved facility. This means that all waste inputs to the proposed 3Rs Facility already have permission to be imported to the site under its existing planning permission.
- 6.7.2 As such, the proposed facility would not result in any increase in vehicles coming to the site above those already permitted. There would therefore be no requirement for any additional waste related HGV movements to transport waste to the site over and above the sites extant consent. There would be a requirement to transport consumables via HGV.
- 6.7.3 Total HGV movements at the site would be managed so as to not exceed the numbers permitted by the extant permission. The applicant would accept a Condition to this effect to ensure that the proposed facility would not result in any increased HGV movement on site.
- 6.7.4 Therefore, it is anticipated that there would be no change to traffic flows to the site during the operation phase. No effects on traffic and transport are therefore predicted during this phase.

## 6.8 Assessment of Decommissioning Effects

- 6.8.1 The levels of traffic associated with decommissioning are anticipated to be similar to, or lower than, those required during construction. Such effects would be considered in accordance with relevant guidance at the time prior to decommissioning. At this stage, it is anticipated that effects would be similar to, or less than, those reported for the construction phase. Therefore, no significant effects are anticipated during decommissioning.

## 6.9 Assessment of Cumulative Effects

- 6.9.1 A review of proposed or possible future third party projects that may have a cumulative impact with the development proposals has been undertaken and used to inform this assessment. The projects identified are set out in Appendix 4.4 of this ES.
- 6.9.2 In relation to traffic and transport, the following developments have been identified as having the potential to impact cumulatively with the proposed 3Rs facility and have therefore been examined as part of the assessment:
- Brookhurst Wood landfill site (development of a materials recycling facility, anaerobic digestion plant and extension to existing landfill site);
  - Land south of Brookhurst Wood landfill site (mechanical biological treatment);
  - Land west of Brookhurst Wood landfill site (proposed facility for compaction and baling of Refuse Derived Fuel);
  - Green's Accident Repair Centre, Horsham (parking and storage of vehicles, plant and equipment);
  - Land north of Horsham (proposed mixed use strategic development, including up to 2,750 dwellings, business park, retail, community centre, leisure facilities, education facilities and public open space);
  - Land west of Bewbush (Kilnwood Vale) (proposed construction of 2,500 dwellings);



- Land north of Old Guildford Road, Broadbridge Heath (construction of up to 165 dwellings, including affordable housing, care home, staff accommodation and open space);
  - Land south of Broadbridge Heath (Construction of 963 residential units, community facility including land for primary school, neighbourhood centre, youth and recreational facilities, open space, east-west link road, improvements to Five Oaks roundabout, realignment and partial closure of A264 Broadbridge Heath bypass); and
  - Land west of Southwater (Construction of up to 540 dwellings and 54 retirement apartments).
- 6.9.3 In relation to the surrounding roads and highways, the Brookhurst Wood landfill site already generates vehicle movements (included within the baseline) and these would not change with the proposed development at the site, at the Brookhurst Wood mechanical biological treatment facility to the south or with the refuse derived fuel facility. There is therefore no need to take any different account of these in future year scenarios within this assessment.
- 6.9.4 It is understood from the application made for the Green's Accident Repair Centre that vehicle movements would be similar to its former use and, therefore, there is no need to take any different account of these in future year scenarios within this assessment.
- 6.9.5 The Land north of Horsham proposed mix use development includes a mix of up to 2,750 homes and 500,000 square feet of office space, as well as extensive improvements to the road and rail network, including realigning the A264 and Langhurstwood Road. However, the proposals in this location will be built out over a 15 year period with phasing from east to west meaning that the areas in proximity to the proposed 3Rs facility is likely to commence from the mid-2020s onwards.
- 6.9.6 Therefore, in the timescales for which the construction phase for the 3Rs facility is likely to be completed, there would be no alterations to the A624 and Langhurstwood Road. The traffic flows generated from the operational phase of the 3Rs facility would not increase over and above the extant consent and, therefore, the proposed 3Rs facility would not contribute to any cumulative effect during this phase.
- 6.9.7 Proposed development west of Bewbush (also known as Kilnwood Vale) has consent and will eventually deliver up to 2,500 dwellings. This proposal is now under construction. It is located some 6 km to the east of the proposed 3Rs facility. The site is located such that all traffic that it generates will have dispersed through the network by the time it enters the study area for this assessment. Combined with the low traffic flows that it will generate during the future year being considered for this assessment (i.e. the predicted year of construction for the 3Rs facility), it is considered that any changes in traffic flows within the study area for this assessment would be negligible such that significant cumulative effects are not likely.
- 6.9.8 Land to the north of Old Guildford Road, Broadbridge Heath, has planning consent for 165 dwellings and conditions are currently being discharged. It is located some 3 km south of the study area for this assessment. The traffic flows that would be generated by the site during the future year being considered for this assessment (i.e. the predicted year of construction for the 3Rs facility) would be low. The site is located such that its traffic will have dispersed through the network by the time it enters the study area for this assessment. It is therefore considered that any changes in traffic flows would be negligible such that significant cumulative effects are not likely.
- 6.9.9 Land to the south of Broadbridge Heath has consent for 963 dwellings plus associated infrastructure and is now under construction. It is located some 4 km south of the study area for this assessment. The site is located such that all traffic that it generates will have dispersed through the network by the time it enters the study area for this assessment. Combined with the low traffic flows that it will generate during the future year being considered (i.e. the predicted year of construction for the 3Rs facility), it is considered that any changes in traffic flows within the study area would be negligible such that significant cumulative effects are not likely.
- 6.9.10 Land west of Southwater has consent for 540 dwellings plus associated infrastructure. It is located some 7 km south of the study area. The site is located such that all traffic that it generates will have dispersed through the network by the time it enters the study area for this assessment. Combined with the low traffic flows that it will generate during the future year being considered for this assessment (i.e. the predicted year of construction for the 3Rs facility), it is considered that any changes in traffic flows within the study area would be negligible such that significant cumulative effects are not likely.

## 6.10 Inter-relationships

- 6.10.1 There is an inter-relationship with this chapter and the Chapters 7 and 8 in so far as these two chapters consider the air quality and noise/vibration effects of traffic. The traffic flows set out above have been made available and these two chapters have utilised these as part of their assessments and are therefore fully consistent with the above. Landscape and visual effects are considered in Chapter 5 of this ES.

## 6.11 Further Mitigation Measures

- 6.11.1 As set out in Section 6.5, a Construction Traffic Management Plan is proposed as part of the construction phase. In addition, a Construction Environmental Management Plan will be provided. Given the conclusions of the assessment, there is no requirement for any additional mitigation for traffic and transport.

## 6.12 Monitoring and Management Strategies

- 6.12.1 The Construction Traffic Management Plan and Construction Environmental Management Plan will include a range of management measures to minimise any effect of construction traffic.

## 6.13 Residual Effects

- 6.13.1 Table 6.25 summarises the significance of effects for the construction and the operational phases for the project taking into account the mitigation measures incorporated into the proposed 3Rs facility.

Table 6.25: Summary of Likely Environmental Effects on Traffic and Transport

Parameter	Sensitivity of receptor	Likely impact	Duration	Magnitude of impact	Significance of effect	Mitigation	Magnitude of Residual Impact	Significance of Residual Effect	Significant
<b>Construction Phase</b>									
Road users along route (A264)	Negligible	Increase in traffic flows	Medium term	Negligible	Negligible	Construction Traffic Management Plan	Negligible	Negligible	Not significant
Road users along route (Langhurstwood Road)	Medium / High	Increase in traffic flows	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Visual Effects	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Severance	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Driver Delay	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Pedestrian Delay	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Pedestrian Amenity	Medium term	Low / Medium	Minor to Moderate		Low / Medium	Minor / Moderate	Not significant
		Accidents and Safety	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
		Hazardous Loads	Medium term	Negligible	Negligible to minor		Negligible	Negligible / minor	Not significant
Dust and Dirt	Medium term	Negligible	Negligible to minor	Negligible	Negligible / minor	Not significant			
<b>Operational Phase</b>									
Road users along route (A264 and Langhurstwood Road)	Medium / High	Traffic flows	Long term	Negligible	Negligible		Negligible	Negligible	Not significant

## 6.14 Conclusions

- 6.14.1 This chapter of the ES presents the assessment of the likely effects of the traffic generated by the proposed 3Rs facility. It has assessed the effects of the traffic generated during its construction phase and considered the cumulative effects with other known developments in the area.
- 6.14.2 The local roads have been characterised within and around the site through the evaluation of traffic survey data and studies. The assessments undertaken have considered the change in traffic flows along the road network as a result of the construction of the facility. The assessments have been made relative to the baseline conditions, which mean that roads with small baseline traffic volumes have larger magnitudes of impact from changes in traffic in comparison to those with larger baseline traffic volumes.
- 6.14.3 Effects on the A264 are considered to be negligible, given the low predicted percentage changes in traffic flow on that route arising from the construction phase. Due to the lower baseline flows, predicted changes in flow on Langhurstwood are higher. Therefore, an assessment of the environmental effects of these changes has been undertaken, including visual effects, severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety, hazardous loads and dust and dirt.
- 6.14.4 Construction phase effects would be managed through a Construction Environmental Management Plan and a Construction Traffic Management Plan. With such measures in place, no significant effects have been identified. Consideration of other proposed developments in the area has not identified the potential for the construction of the 3Rs facility to contribute to any significant cumulative effect.
- 6.14.5 No operational phase effects are anticipated as predicted traffic flows associated with the operation of the 3Rs facility would be no greater than traffic flows associated with the existing consent at the site.

## 6.15 References

Department for Communities and Local Government (DCLG) (2012) National Planning Policy Framework.

Department for Communities and Local Government (DCLG) (2014a) National Planning Policy for Waste.

Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1).

Horsham District Council (2015) Horsham District Planning Framework (excluding South Downs National Park).

Highways Agency, The Scottish Office Development Department, The Welsh Office and The Department of the Environment for Northern Ireland (1997) Design Manual for Road and Bridges (DMRB), Volume 5, Section 1, Part 3, TA46/97 'Traffic Flow Ranges for use in the Assessment of New Rural Roads'.

Highways Agency, Transport Scotland, Welsh Assembly Government and the Department for Regional Development Northern Ireland (2008) Assessment and Management of Environmental Effects. Design Manual for Roads and Bridges, Volume 11, Section 2, Part 5. HA 205/08.

IAQM (2014) Guidance on the Assessment of Dust from Demolition and Construction.

IEMA (1993) Guidance Note Number 1: Guidelines on the Environmental Assessment of Road Traffic. The Institute of Environmental Assessment (now IEMA), 1993.

West Sussex County Council and South Downs National Park Authority (2014) West Sussex Waste Local Plan. April 2014.