



RiverOak Strategic Partners

5.2-2

**Environmental Statement
Volume 2: Main Text –
Chapters 11 – 16**

TR020002/APP/5.2-2

Project Name:

Manston Airport Development Consent Order

Regulation:

Regulation 5(2)(a) of the Infrastructure Planning
(Applications: Prescribed Forms and Procedure)
Regulations 2009, as amended

Date:

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11. Landscape and Visual

11.1 Introduction

- 11.1.1 This Chapter sets out the results of an assessment of the landscape and visual effects of the Proposed Development.
- 11.1.2 This Chapter should be read in conjunction with the Description of the Proposed Development (**Chapter 3: Description of the Proposed Development**). Following a summary of the limitations of this Environmental Statement (ES), the Chapter outlines the relevant policy, legislation and guidance that has informed the assessment, and the data gathering methodology that was adopted as part of the landscape and visual impact assessment (LVIA). This leads on to a description of the overall baseline conditions, the environmental measures incorporated into the Proposed Development with respect to landscape and visual, the scope of the assessment, and the assessment methodology. **Section 11.8** sets out the assessment of landscape effects with **Section 11.9** presenting the assessment of effects on visual receptors. The Chapter concludes with a summary of the results of the assessment in **Section 11.10**.
- 11.1.3 The LVIA has been undertaken in accordance with relevant guidance for undertaking landscape and visual assessments in the UK that is provided by the Guidelines for Landscape and Visual Impact Assessment Third Edition (hereafter referred to as *GLVIA 3*)¹.
- 11.1.4 The *European Landscape Convention Treaty*², which was ratified in the UK in 2007, defines landscape as:
- '[A]n area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.'*
- 11.1.5 Landscape effects and visual effects are closely related, but do form separate assessments; the former relates to landscape and areas of landscape character, while the latter relates to the visual effects on views and visual amenity as experienced by people.

Limitations of the Environmental Statement

- 11.1.6 This Chapter builds upon the assessment work previously undertaken with regard to landscape and visual effects, reported in the 2017 Preliminary Environmental Information Report (PEIR) and expanded upon in the 2018 PEIR. Some of the limitations identified previously in the PEIRs, such as the outstanding viewpoint photography and visualisations for all viewpoints, have since been completed and are included in (or as an appendix to) this Chapter.
- 11.1.7 The details of architectural form and materials finish shown in the 3D visualisations are included in **Chapter 3: Description of the Proposed Development** and will be finalised in accordance with the design principles set out in the Design and Access Statement (Document 7.3) prior to the commencement of development. The 3D visualisations have been used to inform the landscape and visual impact assessments in terms of the apparent scale and massing of the Proposed Development only.
- 11.1.8 An outline lighting scheme has been prepared for the Proposed Development and this is summarised in **Chapter 3: Description of the Proposed Development**. This information has allowed an understanding of the likely lighting effects to be included within this chapter however, as the detailed design process moves forward additional information will be provided and the information contained here will be confirmed through more detailed modelling of the lighting conditions at specific receptors.
- 11.1.9 The 'Northern Grass' area has been presented through a zonal approach whereby broad zones of building heights have been established without fixed building footprints being defined. Some fixed areas of planting are proposed, such as the 45m wide buffer zones adjacent to sensitive visual residential receptors, within which bunding and planting will be introduced to provide screening.

Elsewhere in the 'Northern Grass' area, planting will be introduced as part of the final layout of this area. However, this planting has not been defined within the broad zones to allow for future flexibility in the design. As a consequence, only those buffer areas along the eastern and western boundaries of the 'Northern Grass' area, which have been fixed as part of the design, have been used to inform the assessment.

11.2 Policy, Legislative and Guidance Context

- 11.2.1 A study of landscape and visual related planning policy, legislation and guidance at the national, regional and local level has been undertaken for the site and its locality in order to highlight any requirements which the Proposed Development needs to consider. It is always important that policies, legislation and guidance are taken into consideration as they help to define the scope of assessment and can inform the identification of particular local issues.

Legislative Context

- 11.2.2 *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017³* (hereafter referred to as the '2017 EIA Regulations') requires that the Environmental Impact Assessment (EIA) identifies, describes and assesses in an appropriate manner the direct and indirect significant effects of the Proposed Development on a number of factors including landscape.

Policy Context

- 11.2.3 Full details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1**. A summary is provided in **Table 11.1**.

Table 11.1 National and Local Planning Policies relevant to landscape and visual

Policy Reference	Policy Information relevant to Landscape and Visual
Airports National Policy Statement (NPS): new runway capacity and infrastructure at airports in the South East of England⁴	
Paragraph 5.213	This paragraph states that for airport development, landscape and visual effects also include tranquillity effects. It clarifies that references to landscape should be taken as covering local landscape, waterscape and townscape character and quality, where appropriate.
Paragraphs 5.214 to 5.216	This section deals with the applicant's LVIA and notes that the LVIA should reference any landscape character assessment and associated studies as a means of assessing landscape impacts. Paragraph 5.215 states that the assessment should include any significant effects during construction of the preferred scheme and/or the significant effects of the completed development and its operation (including for example surface access proposals or aviation activity) on landscape components and landscape character, including historic characterisation. The assessment should also include the visibility and conspicuousness of the preferred scheme during construction and the presence and operation of the preferred scheme and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.
Paragraph 5.217	Paragraph 5.217 deals with mitigations and states that adverse landscape and visual effects may be minimised through appropriate design (including choice of materials) and landscaping schemes.

<p>Paragraph 5.218 and paragraphs 5.219 to 5.224</p>	<p>This section deals with the decision-making process and landscape effects; with paragraphs 5.219 to 5.224 dealing specifically with developments outside of nationally designated areas. Paragraph 5.216 states that landscape effects depend on the nature of the existing landscape likely to be changed and nature of the effect likely to occur. Both these factors need to be considered in judging the impact of the preferred scheme on the landscape.</p> <p>Paragraph 5.221 sets out that where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. In taking decisions, the Secretary of State will consider whether the preferred scheme has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation.</p>
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<p>Paragraph 5.225</p>	<p>This paragraph deals with visual impact and states that the Secretary of State will judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development.</p>
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<p>National Planning Policy Framework: Draft for consultation (March 2018)⁵</p>	
<p>Policy 15: conserving and enhancing the natural environment</p>	<p>The planning system should contribute to and enhance the natural and local environment, protecting and enhancing valued landscapes (Paragraph 168).</p>
<p>National Planning Policy Framework (2012)</p>	
<p>Policy 11: Conserving and enhancing the natural environment</p>	<p>The planning system should contribute to and enhance the natural and local environment, protecting and enhancing valued landscapes (Paragraph 100).</p>
<p>Thanet Local Plan (2006) Saved Policies⁶</p>	
<p>CC1: Development in the Countryside</p>	<p>Development in the countryside will not be permitted unless there is a need for development that overrides the need to protect the countryside.</p>
<p>CC2: Landscape Character Areas (LCAs)</p>	<p>Seeks to protect LCAs including those within the LVIA study area.</p>
<p>Dover Core Strategy (Adopted 2010)⁷</p>	
<p>DM 15: Protection of the Countryside</p>	<p>Seeks to protect the character and appearance of the countryside.</p>
<p>DM 16: Landscape Character</p>	<p>Requires the protection of landscape character within the district.</p>

11.3 Data Gathering Methodology

11.3.1 This section describes the desk study and surveys undertaken to inform the LVIA. In order to establish the baseline situation, landscape and visual data was obtained from the sources listed in **Table 11.2** to identify existing data about the site and the surrounding area.

Table 11.2 Information used in the preparation of this ES chapter

Source	Data
<p>Ordnance Survey (OS) Mapping Landranger series - scale 1:50,000 (Sheet 179 Canterbury and East Kent, Dover and Margate)</p>	<p>Location of built form, roads, tourist attractions, woodland. Understanding of the topography and land use patterns.</p>

Source	Data
OS Mapping Explorer series - scale 1:25,000 (Sheet 150 Canterbury & the Isle of Thanet)	Location of built form, roads, tourist attractions and woodland. Understanding of the topography and land use patterns.
National Character Area (NCA) Profile 113-North Kent Plain ⁸	Broad overview of key features, characteristics and sensitivities of the landscape of the site and surroundings at a national level.
Kent Historic Landscape Characterisation ⁹	Considers how the present physical landscape reflects how people have exploited, changed and adapted to the physical environment through time, with respect to different social, economic, technological and cultural factors.
Landscape Assessment of Kent ¹⁰	Key features, characteristics and sensitivities of the landscape of the site and surroundings at a county level.
Thanet LCAs ¹¹	Key features, characteristics and sensitivities of the landscape of the site and surroundings published at a district level.
Dover District Landscape Character Assessment ¹²	Key features, characteristics and sensitivities of the landscape within the southern part of the study area.
Campaign to Protect Rural England (CPRE)	Tranquillity Mapping ¹³ Night Blight Mapping (2016) ¹⁴
GoogleEarth Pro	Aerial photography, imagery dated 4 September 2017.
Kent County Council Public Rights of Way (PRoW) Map ¹⁵	Interactive mapping showing all PRoWs in the county together with their unique reference number.
OS VectorMap Local	Identifies areas of woodland and buildings to be included as exclusion areas in the Zone of Theoretical Visibility (ZTV) mapping.

Desk Study

Study Area

11.3.2 The LVIA study area is shown in **Figure 11.1**. It encompasses all areas within 5km of the site boundary and has been used for the purposes of data collection and the subsequent assessment. The study area has been selected with regard to previous experience of undertaking LVIA's for similar types of development, allied with a review of the landscape context within which the Proposed Development will operate. This definition of the study area ensures that the LVIA includes any landscape and visual receptors with the potential to sustain significant landscape or visual effects as a consequence of the construction and operation of the Proposed Development. It accords with the principle of proportionality set out in paragraph 3.16 of GLVIA 3 that states:

'The level of detail provided should be that which is reasonably required to assess the likely significant effects. It should be appropriate and proportional to the scale and type of development and the type and significance of the landscape and visual effects likely to occur.'

Zone of Theoretical Visibility

11.3.3 In addition to the sources of data listed in **Table 11.2**, ZTV maps have been prepared for various components of the Proposed Development. ZTV is defined in GLVIA 3 as 'a map, usually digitally produced, showing areas of land within which a development is theoretically visible' and represents the desktop component of the visibility analysis. Further detail is set out in **Section 11.7**. The ZTVs used OS Terrain 5 digital terrain model (DTM) data to calculate intervisibility between areas within the study area and the Proposed Development. The DTM data for all ZTVs was amended to include areas of woodland and built form as depicted in OS VectorMap District, to allow their screening effect to be incorporated in the ZTV calculation. A conservative height of 10m has been

used for the woodland exclusion zones with a height of 7.5mⁱ used for buildings. Consequently, the ZTVs calculated show a reasonable worst-case scenario.

11.3.4

The suite of ZTVs which accompanies this assessment are shown in **Figures 11.2 to 11.8** and include the following:

- ▶ ZTV: existing (baseline) infrastructure;
- ▶ ZTV: proposed airfield infrastructure (excluding the Air Traffic Control tower (ATC));
- ▶ ZTV: proposed ATC;
- ▶ ZTV: proposed aircraft tail fins when at stands;
- ▶ ZTV: indicative business park structures;
- ▶ Composite ZTV of all proposed operational elements; and
- ▶ Comparative ZTV of all proposed operational and baseline elements.

11.3.5

The ZTVs that illustrate the potential visibility of the facilities in the existing non-operational airport (i.e. the baseline) have been generated using the following parameters:

- ▶ Former radar tower at a height of 22m above ground level (AGL);
- ▶ Aircraft maintenance hangar at a height of between 12m and 16m AGL;
- ▶ Museum buildings at heights of 5m AGL;
- ▶ Fixed Base Operator (FBO) at a height of 10m AGL;
- ▶ Former ATC building at a height of 12m AGL; and
- ▶ Buildings in freight area at heights of between 6m and 12m AGL.

11.3.6

The ZTVs that illustrate the potential visibility of the permanent structures and buildings within the Proposed Development during the operational period have been generated using the following parameters:

- ▶ ATC modelled at a height of 27m AGL;
- ▶ Cargo facilities modelled at a height of 15m (to eaves) and 20m (to peak) AGL;
- ▶ Aircraft recycling hangars modelled at a height of 20m (to eaves) and 23m (to peak) AGL;
- ▶ FBO hangars modelled at 15m AGL to peak;
- ▶ Terminal building modelled at 15m AGL to peak;
- ▶ A radar tower at a height of 27m AGL; and
- ▶ Airport related business units within the 'Northern Grass' area modelled at a maximum height of 18m AGL.

11.3.7

In addition to the ZTVs, which show the theoretical visibility of the built infrastructure, a ZTV for the operational phase has been modelled to demonstrate the potential visibility of aircraft stationary at the stands. This has utilised a maximum height of a tail fin of 19.5m, based upon the aircraft list provided in **Table 3.6** (i.e. a Boeing 747-400). Additional modifications have been made to the DTM to include exclusion zones for the proposed buildings within the site to allow for the screening effects of these to be taken into consideration.

ⁱ With the exception of the glasshouses at Thanet Earth for which a height of 12m has been used.

- 11.3.8 The operational ZTVs also include modifications to allow for the relevant earthworks that form part of the Proposed Development.
- 11.3.9 The following scenarios or screening have not been modelled as part of the ZTVs:
- ▶ ZTVs for aircraft approaching, moving along and departing from the runway: Modelling aircraft in the air would result in all of the study area being included in the ZTV, which would not aid the assessment. It is also not considered likely that overflying of aircraft in the sky could give rise to significant visual effects due to the intermittent, transitory and small-scale nature of the changes that would arise in views. The same principles apply for aircraft moving along the runway whereby the intermittent and transitory nature of this change alone is unlikely to lead to significant visual effects;
 - ▶ ZTVs for the construction phase: It is understood that two mobile cranes (up to 40m in height) would be periodically deployed throughout the four phases of the construction period. Whilst the cranes are likely to be visible across a high proportion of the study area, they will be an intermittent visual presence in a receptor's view and it is highly unlikely that this intermittent presence would make the difference between visual effects being significant or not significant. Where the cranes would be the only element visible, which would be in primarily long-distance views, it is highly unlikely that the temporary presence of the cranes alone would result in significant visual effects being sustained; and
 - ▶ Any potential screening effects of the proposed tree planting around the Proposed Development has not been taken account of. This is because the tree planting is unlikely to form an effective screen due to the restrictions of dense tree planting for bird hazard reasons around airport sites and as such it will only have the capacity to break up the mass of the airport/business park buildings rather than to screen them in their entirety.

Survey Work

- 11.3.10 The 2017 PEIR identified 14 provisional photographic viewpoint locations for use in the landscape and visual assessment. The list of viewpoints included in the 2017 PEIR was refined following the outcome of the consultation process in 2017. This formed a schedule of 22 viewpoints that were used in the 2018 PEIR. No further amendments to the viewpoint list were required as a result of the 2018 consultation process and the final list of viewpoints included in the LVIA is set out in **Table 11.3**. It should be noted that viewpoints have been renumbered since the June 2017 PEIR so that the closest location to the Proposed Development is Viewpoint 1 and that furthest away is Viewpoint 22. Both the new and previous viewpoint numbers are included in **Table 11.3** for clarity.
- 11.3.11 **Table 11.3** includes the rationale for the selection of each viewpoint alongside the type of viewpoint (as defined in paragraph 6.19 of GLVIA 3) as follows:
- ▶ Representative viewpoints, selected to represent the experience of different types of visual receptor, where large numbers of viewpoints cannot all be included individually and where significant effects are unlikely to differ;
 - ▶ Specific viewpoints, chosen because they are key and sometimes promoted viewpoints within the landscape; and
 - ▶ Illustrative viewpoints, chosen specifically to demonstrate a particular effect or specific issues.
- 11.3.12 Viewpoint locations are shown in **Figures 11.7** and **Figure 11.8**.

Table 11.3 Final schedule of photographic viewpoint locations

Viewpoint (Vpt) Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 1	Manston Road close to RAF Manston Museum	633315, 166524	Open, close distance views available to visitors to the two museums which are being retained as part of the Proposed Development. TDC consultation request.	Yes	Yes	Specific
Vpt 2	Manston Road	634032, 167145	Representative of the close distance views available to residents in properties along the western side of Manston Road close to the Charles River Laboratories site. TDC consultation request.	Yes	Yes	Representative
Vpt 3	PRoW (code 0339/TR32/1) to the south of Canterbury Road West	634366, 165089	Representative of views available to northbound users of the footpath, residents in properties along the southern side of Canterbury Road West and westbound vehicular receptors travelling along Canterbury Road West. TDC consultation request.	Yes	Yes	Representative
Vpt 4	Car park north-western side of Mount Pleasant traffic island	631122, 165862	Closest and most open views potentially available to residents in Minster and key view for westbound vehicular receptors on A299. Original PEIR (2017) Vpt 4	Yes	No	Specific
Vpt 5	Canterbury Road West close to the south-western corner of consented Manston Green housing development	635205, 165114	Location on Canterbury Road West close to the roundabout with the A256 Haine Road. View representative of westbound vehicular receptors travelling along Canterbury Road West. TDC consultation request.	Yes	Yes	Representative
Vpt 6	B2050 western edge of Manston	634619, 166204	Provides the most open, publically available view potentially available to residents in the closest settlement to eastern components of the Proposed Development, in particular the passenger facilities and the maintenance, repair and overhaul facilities. Original PEIR (2017) Vpt 1A	Yes	Yes	Representative
Vpt 7	Vincent Road near Flete Farm	634481, 167555	One of closest publically accessible locations to the north of Proposed Development, in particular the secondary business infrastructure components. Original PEIR (2017) Vpt 3	Yes	Yes	Illustrative



Viewpoint (Vpt) Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 8	Woodchurch Road, southern edge of Woodchurch	632564, 167096	Representative of periodic, open, middle distance views available to a variety of visual receptors to the northwest. Original PEIR (2017) Vpt 2	Yes	No	Representative
Vpt 9	Minster Road, Acol	630872, 166840	Middle distance views from the west that are only available to residents in the terraced row in southern edge of Acol. Original PEIR (2017) Vpt 7	Yes	Yes	Specific
Vpt 10	Pumping station south of Quex Park	631819, 167446	Representative of open views available from middle distance locations to northwest that are available to recreational and vehicular visual receptors. Exceptionally open views to south and east. Original PEIR (2017) Vpt 5	Yes	No	Representative
Vpt 11	Viking Coastal Trail, Cottingham Road	633107, 164479	Representative of open middle-distance views from locations to the south of the site. Viewpoint is located on a minor road which forms part of the Regional Cycle Route (RCR) 15 (Viking Coastal Trail). TDC consultation request.	Yes	Yes	Representative
Vpt 12	A256 Cottingham Road Bridge	633790, 164232	Views available to northbound vehicular receptors from a short, elevated stretch of the A256 to the west of Cliffs End. TDC consultation request.	Yes	Yes	Specific
Vpt 13	Nash Court, Nash Road, Margate	635654, 168600	Representative of the limited number of open, middle distance southwesterly views from the Westwood area. Original PEIR (2017) Vpt 9	Yes	No	Representative
Vpt 14	Junction of High Street & Shottendane Road, southern Garlinge	633511, 168850	Representative of open southerly views available from the southern fringe of Margate. Original PEIR (2017) Vpt 6	Yes	Yes	Representative
Vpt 15	PRoW, Shottendane Road	632531, 168633	Representative of middle distance views available from locations to the north. TDC consultation request.	Yes	Yes	Illustrative



Viewpoint (Vpt) Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 16	Northern side of Pegwell Country Park	634328, 163120	Popular recreational facility and one of limited number of publically accessible locations in the Stour Valley Original PEIR (2017) Vpt 8	Yes	No	Specific
Vpt 17	South Saxon Way alongside the River Stour	631780, 162767	Illustrative of the northern views available from some open sections of this regional trail and other limited publically accessible locations in the closest part of the Stour Valley Original PEIR (2017) Vpt 10	Yes	No	Illustrative
Vpt 18	Goldstone Drove PRoW west of Lower Goldstone	629443, 161275	Representative of the long distance, occasional views which are available from the south. TDC consultation request for additional viewpoints to the south of the site.	Yes	No	Representative
Vpt 19	Eastern edge of St Nicholas-at-Wade	626863, 166205	Representative of long distance, very open views from west, in particular those available to residents on edge of this settlement. Original PEIR (2017) Vpt 13	Yes	No	Representative
Vpt 20	North side of bridge at Plucks Gutter	626980, 163458	Representative of long distance, very open views from the south west and another section of South Saxon Way. Original PEIR (2017) Vpt 14	Yes	Yes	Representative
Vpt 21	St. Michael's Avenue, Northdown	637905, 169846	Representative of locations in Margate and Broadgate where open, long distance, south western views are sometimes available. Original PEIR (2017) Vpt 11	Yes	No	Representative
Vpt 22	PRoW, north of Richborough Castle	632440, 160311	Illustrative of the periodic open views available from the southern side of the Stour Valley and in particular from some locations close to the tourist attraction of Richborough Castle Roman Fort. Original PEIR (2017) Vpt 12	Yes	No	Illustrative

- 11.3.13 A preliminary site survey was carried out in April 2016 and a second field survey was completed in November 2016 to inform the baseline and the selection of viewpoints. Following consultee comments made in response to the 2017 PEIR, and the refinement and finalisation of the viewpoint schedule, additional daytime and nighttime field surveys were undertaken in September and October 2017.
- 11.3.14 All photography and data recording has been undertaken in accordance with the Landscape Institute’s Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment¹⁶ and Scottish Natural Heritage’s (SNH) Visual Representation of Wind Farms Version 2.2¹⁷. Whilst the SNH guidance is specifically intended for use in relation to on-shore wind farms, much of its content is applicable to all types of large scale development. Annotated baseline daytime photography is presented in **Figure 11.9a** to **Figure 11.21** whilst nighttime photography is shown in **Figure 11.22a** to **Figure 11.29**.

Consultation

EIA Scoping

- 11.3.15 RiverOak has engaged with consultees with an interest in potential landscape and visual effects as part of the scoping exercise and in relation to specific landscape and visual issues. A Scoping Report (**Appendix 1.1**) including a chapter covering LVIA was produced and submitted to PINS in June 2016. A response from PINS in the form of a Scoping Opinion was received in August 2016 (**Appendix 1.2**). The approach taken in the 2016 scoping exercise accords with PINS Advice Note Seven¹⁸. However, although the Scoping Report submitted by the applicant (RiverOak) in request of a Scoping Opinion, for reasons explained in **Chapter 1: Introduction**, no longer formally applies to these proposals, it seems sensible and perfectly reasonable, because the scheme has remained the same, to use the Scoping Opinion received to guide the scope of the detailed assessment. **Section 5.4** of this ES provides additional detail to the background to the EIA scoping.
- 11.3.16 A number of statutory and non-statutory organisations, and others with an interest in the Proposed Development were consulted as part of the scoping stage in June 2016. The organisations that responded to the Scoping Report with landscape and visual comments in August 2016 are as follows:
- ▶ Natural England (NE);
 - ▶ Thanet District Council (TDC);
 - ▶ Kent County Council (KCC); and
 - ▶ Dover District Council (DDC).
- 11.3.17 A summary of the consultee comments and responses which relate to landscape and visual effects and an explanation of how these have been addressed in the ES is provided in **Table 11.4**.

Table 11.4 Consultee Comments and Responses to EIA Scoping

Consultee	Comments and considerations	How addressed in the 2017 and 2018 PEIRs and the ES
PINS (Scoping Opinion August 2016)	The Secretary of State notes that consultation with relevant consultees, such as TDC, KCC and DDC, in relation to landscape and visual matters has not yet commenced, and recommends that the methodology, extent of the study area, potential receptors, and location of viewpoints is agreed with them at the earliest opportunity. It is noted that it is proposed to scope out effects on the	TDC, KCC and DDC were asked to comment on the appropriateness of proposed viewpoints (as set out in Table 11.3 of this report) in November 2016, but no comments were provided at the time of the 2017 PEIR. The 2017 PEIR consultation has subsequently provided the opportunity for the relevant councils to comment and agree the methodology, study area

Consultee	Comments and considerations	How addressed in the 2017 and 2018 PEIRs and the ES
	<p>North Kent National LCA (and any other LCAs outside the ZTV; discussed above); the Applicant is referred to the Secretary of State's comments above.</p>	<p>and location of viewpoints and updates have been made accordingly in this ES.</p>
<p>PINS (Scoping Opinion August 2016)</p>	<p>The Secretary of State notes and welcomes that the landscape and visual assessment will include use of a ZTV. The ES should describe the model and methodology used and provide information on the area covered and the timing of any survey work. The ZTV should take account of any land raising activities at the airport. The Secretary of State notes that the location of viewpoints will be agreed with the local authorities.</p>	<p>The ZTVs included in this ES have been generated using a model that takes account of land raising activities. The parameters used in the ZTV model including any exclusions zones which have been added to more accurately depict the effects of vegetative screening are set out in Section 11.3 of this Chapter. The final schedule of viewpoints has been formed in response to requests for additional viewpoints from TDC.</p>
<p>PINS (Scoping Opinion August 2016)</p>	<p>The Proposed Development includes large structures on the site. The Secretary of State recommends that careful consideration is given to the form, siting, and use of materials and colours in terms of minimising the visual impact of these structures. The potential effects of the required airport lighting on night-time views should be taken into account. The Applicant's attention is drawn to TDC's comments, contained in Appendix 3, in this regard. The Secretary of State recommends that photomontages and wirelines of the Proposed Development are provided with the ES, and include night-time visualisations, bearing in mind the need for extensive night-time lighting across the site.</p>	<p>Careful consideration has been given to form and siting in terms of minimising the visual impact of these structures. The design principles set out in the Design and Access Statement will be used to ensure that all elements of the Proposed Development, including materials and colour are designed to a high standard as detailed design progresses.</p> <p>An outline lighting scheme has been prepared for the Proposed Development and this is summarised in Chapter 3 of this document. This information has allowed an understanding of the likely lighting effects to be included within this chapter however, as the detailed design process moves forward additional information will be provided and the information contained here will be confirmed through more detailed modelling of the lighting conditions at specific receptors.</p> <p>The LVIA is accompanied by daytime wirelines from each of the viewpoints (see Appendix 11.1). These are referred to throughout this chapter as photowires as set out in the Appendix of the Landscape Institute Technical Note March 2017: Visual Representation of Development Proposals.</p>
<p>PINS (Scoping Opinion August 2016)</p>	<p>No information is provided in relation to potential mitigation other than a brief reference in paragraph 10.6.10 to mitigation planting. The Applicant should consider in the ES how measures proposed to mitigate landscape and visual effects, such as planting, may relate to other topics, for instance impacts on ecological receptors. Appropriate cross-reference should be made between related topics in the ES, such as Biodiversity and Historic Environment.</p>	<p>The Chapter sets out mitigation measures in Table 11.11.</p>
<p>PINS (Scoping Opinion August 2016)</p>	<p>Figure 10.3, in Appendix C, shows the long-distance walking and cycling routes that fall within the LVIA study area. It identifies National Cycle Route 1 as crossing the south of the study area, although this is not referenced in the Scoping Report. The Applicant should ensure that this receptor is included in the EIA.</p>	<p>The visual effects on users of National Cycle Route 1 has been considered and assessed in this ES. The route of National Cycle Route 1 within the LVIA study area is shown in Figure 11.34.</p>

Consultee	Comments and considerations	How addressed in the 2017 and 2018 PEIRs and the ES
NE (Scoping Opinion August 2016)	NE advised that based on the distance of the proposal site from the Kent Downs Area of Outstanding Natural Beauty (AONB) it did not believe that any impacts on tranquillity from increased overflying would be sufficiently significant to meet its current criteria for engagement with landscape casework.	The Kent Downs AONB is not included in the LVIA.
TDC (Viewpoint consultation November 2016)	TDC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. No response had been received at the time of the June 2017 PEIR.	No alteration to the proposed viewpoint schedule at the time of the June 2017 PEIR. The 2017 PEIR consultation has subsequently provided the opportunity for TDC to comment on the location of viewpoints (see Table 11.5) and updates have been made accordingly in this ES.
KCC (Viewpoint consultation November 2016)	KCC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. KCC responded that no advice would be provided in the absence a Planning Performance Agreement.	No alteration to proposed viewpoint schedule.
DDC (Viewpoint consultation November 2016)	DDC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. KCC responded that no advice would be provided in the absence a Planning Performance Agreement.	No alteration to proposed viewpoint schedule.

Statutory Consultation

- 11.3.18 In June 2017, RiverOak published for consultation a 2017 PEIR, prepared to align with the requirements of *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009* (2009 EIA Regulations). Since then the 2009 EIA Regulations have been amended.
- 11.3.19 Subsequently, a 2018 PEIR was prepared to align with the requirements of 2017 EIA Regulations. The 2018 PEIR updates the preliminary environmental information provided previously, where appropriate and provides the preliminary environment information for the additional requirements of the 2017 EIA Regulations. This information has been incorporated into this ES.
- 11.3.20 The 2017 PEIR issued for consultation¹⁹ built on the information presented in the Scoping Report, taking account of representations received at the scoping stage and provided high-level information on the potential effects of the Proposed Development. The report was consulted upon as part of statutory consultation between June to July 2017 and the representations received in relation to landscape and visual issues were used to inform the assessments reported in the 2018 PEIR. Further information on the consultation process is included in **Chapter 1: Introduction** and **Chapter 5: Approach to the Environmental Statement**.
- 11.3.21 A summary of the consultee comments and responses which relate to landscape and visual effects and an explanation of how these have been addressed is provided in **Table 11.5**.

Table 11.5 Consultee Comments and Responses to the 2017 PEIR and the 2018 PEIR

Consultee	Comments and considerations	How addressed in the ES
TDC (2017 PEIR)	<p>TDC advised that a number of additional viewpoints should be added, at a minimum in the following locations:</p> <ul style="list-style-type: none"> • A viewpoint on Shottendane Road close to Minster Road, to show the landscape impact from Westgate; • A viewpoint (A256) on Haine Road (adjacent to eastern extent of the site), just south of the approved Manston Green layout; • A viewpoint from Grinsell Road looking north; • A viewpoint from Canterbury Road West adjacent to the Jentex site (western side); • A viewpoint on Manston Road between the two museums; and • A viewpoint on Manston Road adjacent to the Charles River site. 	<p>The locations requested by TDC have been included in this Chapter as Viewpoints 15, 5, 11, 3, 1 and 2 accordingly.</p>
TDC (2017 PEIR)	<p>In additional, the following points are made about the proposed viewpoint locations:</p> <ul style="list-style-type: none"> • Viewpoint 3 should be assessed at nighttime to visualise extent of light intrusion into landscape when viewed from the north on Vincent Road. • Viewpoint 6 and new viewpoint above should include night-time assessment. • A viewpoint (A256) on Haine Road (adjacent to eastern extent of the site) should be selected, just south of the approved Manston Green layout. 	<p>The requests have been included in this Chapter as follows:</p> <ul style="list-style-type: none"> • Night-time baseline photography is included for Viewpoint 3 (now Viewpoint 7); and • Night-time baseline photography is included for Viewpoint 6 (now Viewpoint 14) and for the nearby Viewpoint 15. <p>The health and safety risks involved with obtaining viewpoint photography from alongside the busy A256 Haine Road where there is no highway footpath has meant that an alternative location has been selected. This is from Canterbury Road West and forms Viewpoint 5. This location is also close to the southern edge of the approved Manston Green development and therefore provides a suitable, safe alternative.</p> <p>An outline lighting scheme has been prepared for the Proposed Development and this is summarised in Chapter 3: Description of the Proposed Development. This information has allowed an understanding of the likely lighting effects to be included within this chapter however, as the detailed design process moves forward additional information will be provided and the information contained here will be confirmed through more detailed modelling of the lighting conditions at specific receptors.</p>
TDC (2017 PEIR)	<p>We would suggest that a day/night viewpoint is selected on the A256 north bound when approaching the brow of the hill before descending to the roundabout with the A299. Some structures appear visible on the airport site from this road and therefore this should be assessed to ensure that the assessment currently provided in the PEIR is adequate and impact on this view quantified in the ES.</p>	<p>This location is included as Viewpoint 12 and day and night-time photography is included in the figures which accompany this Chapter.</p>
TDC (2017 PEIR)	<p>Whilst a baseline from the assessment of landscape has been produced for the PEIR, the results of this work at this stage does not appear to have informed the masterplan of the site, nor this has not been explicitly outlined in the information, nor whether the further work in the ES will alter this layout at all. No mitigation measures are outlined and we await the “Manston Airport Design Principles” document to assess the adequacy of the measures proposed</p>	<p>This Chapter sets out mitigation measures in Table 11.11. The Design and Access Statement sets out the design principles that have been used to inform the Proposed Development and which will be used to inform detailed design. The LVIA team has provided preliminary assessments to the masterplanning team to inform emerging landscape (planting) mitigation measures as part of an iterative design and assessment process.</p>

Consultee	Comments and considerations	How addressed in the ES
TDC (2017 PEIR)	It is noted that no assessment of the effects of lighting from the proposed development has occurred according to the PEIR and we await further information on the impact on visual receptors from this element of the development.	An outline lighting scheme has been prepared for the Proposed Development and this is summarised in Chapter 3: Description of the Proposed Development . This information has allowed an understanding of the likely lighting effects to be included within this chapter however, as the detailed design process moves forward additional information will be provided and the information contained here will be confirmed through more detailed modelling of the lighting conditions at specific receptors.
DCC (2017 PEIR)	The District Council concurs with the proposed landscape sensitivity assessment for LCA within DDC's administrative area, as set out in paragraphs 11.11.1 to 11.11.5.	With the exception of the inclusion of observations made during additional field surveys, no alteration has been made to the landscape sensitivity assessments.
The Ramsgate Society and The Ramsgate Heritage and Design Forum (2017 PEIR)	At this stage our main concern is the disturbance to peace and tranquillity within the Pegwell Bay Landscape Character Area caused by aircraft movements. There is substantial public access to the area in the form of footpaths and cycle routes, providing a much cherished amenity by both local residents and visitors. The same concern arises in relation to the public enjoyment of the beaches of Ramsgate and surrounding seaside settlements which contribute significantly to the tourist business of south east Kent.	A full assessment of the likely landscape effects on the Pegwell Bay Landscape Character Area forms part of this Chapter and includes consideration of the effects on tranquillity as a result of aircraft movements on flight paths to the east of Manston Airport.
Planit-IE LLP on behalf of Stone Hill Park Ltd (2017 PEIR)	<p>Baseline Viewpoint Selection</p> <p>The viewpoint selection methodology presents a clear rationale for each viewpoint chosen. However, in addition to residential properties, there are only two locations selected that are near the site. Whilst there may be limited sensitive receptors, greater emphasis should be given to this zone, as visual impacts at close range from such large new buildings and infrastructure could possibly be significant. We would suggest the following should be part of the assessment:</p> <ul style="list-style-type: none"> • Receptors on the local and strategic road networks particularly on Manston Road and Spitfire Way. These represent local level views and are important cross Thanet links to the major settlement areas; • Views from the on-site Heritage and Spitfire Museums. Whilst heritage considerations should be addressed separately, the setting and environment of this important tourist attractions should be part of the assessment; and • On-site PRoWs to the eastern boundary, where views into the site would be part of the experience of the user. 	<p>Additional viewpoints are included in response to TDC's request and which provide additional locations located in close proximity to the site boundary.</p> <p>With specific reference to the three suggestions offered by Planit-IE LLP, after consideration of these locations, two locations have been carried through to the assessment as follows:</p> <ul style="list-style-type: none"> • Manston Road is included as Viewpoints 2 and 6. No location was identified on Spitfire Way which was safe for photography due to the lack of highway footpaths and narrow nature of the grass verges; • Views from the Heritage and Spitfire Museums are included as Viewpoint 1; and • Viewpoint photography has not been included from the PRoWs close to the eastern boundary as this will require a diversion as part of the proposals.
Planit-IE LLP on behalf of Stone Hill Park Ltd (2017 PEIR)	<p>Viewpoint Photography</p> <p>The supporting viewpoint photography and photomontages provided within the assessment are incomplete. Figure 11.2 identifies fourteen views with thirteen views included for reference in subsequent figures. View 10 is not included.</p> <p>With regards to the images provided, no information is shown in relation to exact position, field of view, focal length or if the view has been surveyed and verified.</p> <p>Given the size and nature of the application, verified views would be expected. The views provided are clearly several images 'stitched' together to form a wider panoramic image. Whilst this allows the site's wider context to be generally appreciated, it is not an accurate representation</p>	<p>All viewpoint photography has been completed and is included as part of the suite of figures which accompanies this Chapter.</p> <p>Annotated baseline photographs have been presented in accordance with the Landscape Institute's Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment (2011)²⁰ and include details with regard to photograph parameters (location, date and time, equipment), field of view and viewing distance.</p>

Consultee	Comments and considerations	How addressed in the ES
	of the visibility of the site or field of view. The methodology does not state how these images have been produced, or if any part of the image can be verified.	
Planit-IE LLP on behalf of Stone Hill Park Ltd (2017 PEIR)	<p>Photomontages</p> <p>Only two photomontages are provided within the assessment, and are identified as views 1 and 2. View 2 appears to correspond with location of viewpoint 2, whilst view 1 does not correspond with any viewpoint position. Whilst technical information relating to these views is provided, no commentary is provided on verification of the views, or the methodology used to prepare them. Both images appear to be 'stitched' panoramic images, which draws the technical robustness of the images into question, and this should be acknowledged with a lower confidence level assigned to assessments based on them. No justification is included within the assessment as to why only these two views have been produced, or if these have been used to inform the assessment.</p> <p>The tables provided at the end of the document makes initial judgements on the significance of likely visual impacts on receptor groups. Whilst a detailed justification is provided, it is unclear what these conclusions are based on in the absence of a robust and complete visual evidence base.</p>	Photowires have been provided from all 22 viewpoints and are included in Appendix 11.1 of this ES. These have been presented as 75 degree photographic panoramas using cylindrical projection. This has a viewing distance of 30cm on A3 sheets. Where close distance views require 75 degree wirelines to extend over multiple A3 sheets. The use of stitched panoramas are the common presentation method for LVIA photography.
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	Choice of 5km study area not explained. Methodology does not make clear how the effects of introduction of aircraft in flight have been assessed.	<p>The rationale for the definition of the LVIA study area is set out in paragraph 11.3.2 and is in accordance with the principle of proportionality set out in paragraph 3.16 of GLVIA 3.</p> <p>The scope of the assessment with regard to aircraft in flight is set out in paragraph 11.6.15 and 11.6.16.</p>
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	Photographic survey undertaken when trees still in partial leaf which does not represent the greatest extent of potential visibility.	The viewpoint analysis considers seasonally reduced leaf cover and is included in the ES in Appendix 11.3 .
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	No information on what planting will comprise. Landscape mitigation proposals are not properly described.	Detailed specification of landscape mitigation measures including bunding and screen planting will be agreed post-consent. To be captured as a requirement within the DCO. The design principles to be used to inform detailed design are set out in the Design and Access Statement (DocumentTR020002/APP/7.3).
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	Unclear what images in the PEIR are verified and no methodology on the verification method.	All the photowire images provided in Appendix 11.1 are verified. A verification method statement is provided in Appendix 11.1 .
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	No lighting assessment in the PEIR.	An outline lighting scheme has been prepared for the Proposed Development and this is summarised in Chapter 3: Description of the Proposed Development . This information has allowed an understanding of the likely lighting effects to be included within this chapter however, as the detailed design process moves forward additional information

Consultee	Comments and considerations	How addressed in the ES
		will be provided and the information contained here will be confirmed through more detailed modelling of the lighting conditions at specific receptors.
Pinsent Masons on behalf of Stone Hill Park Limited (2018 PEIR)	Tranquillity not considered in its own right and a blanket assumption has been made as to effects of overflying.	Tranquillity is considered in its own right in paragraphs 11.4.39 through 11.4.41. Tranquillity is explicitly referred to as a key factor in the LCA sensitivity assessments provided in Appendix 11.2 and in the impact assessments for the LCAs provided in Table 11.20 through 11.33 . Table 11.20 through 11.33 also include specific reference to the effects of overflying.

- 11.3.22 Whilst all viewpoint consultation requests have been included in the revised schedule set out in **Table 11.3**, some minor refinement to the requests has been necessary during the field survey to respond either to specific health and safety concerns of obtaining day and night time photography from the side of busy roads with no highway footpath (i.e. at Viewpoint 2), or where it was found that foreground elements at suggested locations restricted views towards the site (i.e. at Viewpoint 15). Locations close to the requested viewpoints have been included as alternatives.

11.4 Overall Landscape and Visual Baseline

- 11.4.1 The landscape and visual baseline is supported by the figures set out in **Table 11.6**.

Table 11.6 Landscape and visual figures

Figure number	Title
Figure 11.1	LVIA Study Area
Figure 11.2	Zone of Theoretical Visibility: existing (baseline) infrastructure
Figure 11.3	Zone of Theoretical Visibility: proposed airfield infrastructure (excluding the air traffic control tower)
Figure 11.4	Zone of Theoretical Visibility: proposed air traffic control tower
Figure 11.5	Zone of Theoretical Visibility: proposed tail fins at stands
Figure 11.6	Zone of Theoretical Visibility: proposed business park structures
Figure 11.7	Composite Zone of Theoretical Visibility of all proposed operational elements and viewpoint locations
Figure 11.8	Comparative Zone of Theoretical Visibility of all proposed operational and baseline elements with viewpoint locations
Figure 11.9a & b	Annotated Daytime Viewpoint Photography: Viewpoint 1
Figure 11.10	Annotated Daytime Viewpoint Photography: Viewpoint 2
Figure 11.11	Annotated Daytime Viewpoint Photography: Viewpoints 3 & 4
Figure 11.12	Annotated Daytime Viewpoint Photography: Viewpoint 5
Figure 11.13	Annotated Daytime Viewpoint Photography: Viewpoint 6
Figure 11.14	Annotated Daytime Viewpoint Photography: Viewpoints 7 & 8

Figure 11.15	Annotated Daytime Viewpoint Photography: Viewpoints 9 & 10
Figure 11.16	Annotated Daytime Viewpoint Photography: Viewpoints 11 & 12
Figure 11.17	Annotated Daytime Viewpoint Photography: Viewpoints 13 & 14
Figure 11.18	Annotated Daytime Viewpoint Photography: Viewpoints 15 & 16
Figure 11.19	Annotated Daytime Viewpoint Photography: Viewpoints 17 & 18
Figure 11.20	Annotated Daytime Viewpoint Photography: Viewpoints 19 & 20
Figure 11.21	Annotated Daytime Viewpoint Photography: Viewpoints 21 & 22
Figure 11.22a & b	Annotated Night-time Viewpoint Photography: Viewpoint 1
Figure 11.23	Annotated Night-time Viewpoint Photography: Viewpoint 2
Figure 11.24	Annotated Night-time Viewpoint Photography: Viewpoints 3 & 5
Figure 11.25	Annotated Night-time Viewpoint Photography: Viewpoint 6
Figure 11.26	Annotated Night-time Viewpoint Photography: Viewpoints 7 & 9
Figure 11.27	Annotated Night-time Viewpoint Photography: Viewpoints 11 & 12
Figure 11.28	Annotated Night-time Viewpoint Photography: Viewpoints 14 & 15
Figure 11.29	Annotated Night-time Viewpoint Photography: Viewpoint 20
Figure 11.30	Topography
Figure 11.31	Principal Settlements whose residents are included in Visual Assessment
Figure 11.32	Groups of properties whose residents are included in Visual Assessment
Figure 11.33	Properties in the immediate vicinity of the Development Site
Figure 11.34	Long distance recreational routes
Figure 11.35	Recreational destinations
Figure 11.36	Individual and groups of Public Rights of Way whose users are included in Visual Assessment
Figure 11.37	Landscape Character Areas
Figure 11.38	Comparative Tranquillity Levels
Figure 11.39	Comparative Light Pollution Levels.
Figure 11.40	Distribution of significant effects

11.4.2 Three appendices also support the LVIA as follows:

- ▶ **Appendix 11.1:** Visualisations;
- ▶ **Appendix 11.2:** Landscape Character Areas Sensitivity Assessments; and
- ▶ **Appendix 11.3:** Viewpoint Analysis.

Current Baseline

Landscape and Visual Context

Topography and drainage

- 11.4.3 Within the study area, elevations range from sea level to approximately 55m Above Ordnance Datum (AOD). The landform is shown in **Figure 11.30**.
- 11.4.4 The Proposed Development site and its immediate surroundings are located at an elevation of between 40m and 55m AOD. To the south and west of the site, the River Stour and the River Wantsum, with their surrounding marshland areas (e.g. Minster Marshes, Ash Level, Wade Marsh), have a lower topography of approximately 10m to 30m AOD. The topography reflects the history of Thanet, which until approximately 1,000 years ago was an island, cut off from the mainland by the Wantsum Channel, until it silted up. The distinctive topography is noted in the Landscape Assessment of Kent²¹ as follows:
- 'The island quality is preserved in the way that Thanet rises out of the marshes to a modest height of about 50 metres. The landscape falls into two distinct types, based on local topography. These are the flat plateau top above the 40 metre contour and the sloping backdrop to the marshes between 20 and 40 metre contour.'*
- 11.4.5 The western edges of Ramsgate and Broadstairs extend westwards onto the chalk plateau that forms the central part of the Isle of Thanet and upon which the Proposed Development is located. The western parts of these settlements are at elevations which are comparable to that of the Proposed Development site of between 40m and 50m AOD.
- 11.4.6 In the north and east of the study area, the towns of Birchington, Margate, Broadstairs and Ramsgate all occupy elevations of between 5m and 50m AOD and are characterised by steep chalk cliff faces down to the sea.

Vegetation and Land Use

- 11.4.7 Manston Airport closed in 2014, but some of the airport and associated infrastructure and buildings remain on site, including:
- ▶ A cargo handling facility comprising two storage warehouses 6m to 8m high and one hanger, 12m in height, all finished with metal cladding and covering an area of 5,200m² with gated entrance and security box;
 - ▶ A fire station building, 12m in height covering an area of 2,200m² and constructed of brick with a corrugated metal roof;
 - ▶ A helicopter pilot training facility comprising two 10m high hangers with metal cladding and covering an area of 950m²;
 - ▶ Two museum buildings of brick construction, 5m high and covering 2,000m²;
 - ▶ A 4m high airport terminal building on an area of 2,400m². This is located on the eastern edge of the site and is surrounded by large expanses of hard surfacing to its east and west which was used as stands for aircraft and car parking for passengers, respectively;
 - ▶ ATC building, 6m high, including a viewing tower approximately 9m high, covering an area of 700m²;
 - ▶ A large aircraft maintenance hangar, covering 4,700m², approximately 12m high with a taller approximately 16m high movable section to enclose an aircraft tail fin;
 - ▶ A network of hard surfacing used as taxiways, aprons and roads connecting the buildings to the runway and to the two main entrance points that are located in the east and west; and

- ▶ Post and wire security fencing of varying height runs alongside most of the perimeter.

11.4.8 Vegetation within the site is minimal, but includes:

- ▶ Expanses of short mown grass around the runways and adjacent buildings;
- ▶ Avenue of tree planting along sections of B2190 Spitfire Way (both inside the site boundary and immediately outside but adjacent to the boundary on the grass verge outside the perimeter fence);
- ▶ Short avenue of trees in the south-east corner of the site, within the site boundary where it follows the route of Canterbury Road West; and
- ▶ Areas of overgrown scrub planting along sections of the fence line.

11.4.9 Within the LVIA study area, beyond the Proposed Development site boundary, there are a range of land uses. The primary land use is arable fields which cover approximately 60% of the land in the south, west and centre of the LVIA study area. The fields are medium to large in size and often have no boundary fence or hedgerow, creating an extensively open landscape. To the north west of the site boundary, between Woodchurch Road and the Defence Fire Training and Development Centre, lies an area of paddocks. Here, the fields are smaller in scale and separated by post and wire fencing, which again facilitates clear and expansive views across the surrounding landscape, although in the south-eastern direction of the Proposed Development site views of the non-operational airport are screened by the extensive tree cover within the extensive Defence Fire Training and Development Centre.

11.4.10 Immediately surrounding the Proposed Development site, the arable landscape is frequently interspersed with scattered non-residential built form. Examples include the buildings and facilities associated with the non-operational airport itself, the collection of buildings in northern Minster at the junction between the A299 and Tothill Street immediately south west of the Proposed Development site boundary (which include a petrol station, fast food restaurants and a hotel), the Defence Fire Training and Development Centre located to the north west of Manston Road and a concentration of buildings to the north of the B2190/B2050 including Manston Business Park, Bell Helicopter Heli Charter on Spitfire Way and Reclamat Recycling Centre east of Woodchurch Road to the north east of the site. The tallest, and consequently the most widely visible built elements within and around the Proposed Development site, are the former radar facility which is sited within the northern part of the site close to Manston Road and a telecommunications mast located west of Manston Road to the north of the Defence Fire Training and Development Centre. The latter is illuminated at night-time.

11.4.11 Tree cover is often low in the arable agricultural areas between settlements. There are few substantial woodland blocks in the study area and tree cover is more typically associated with belts of trees along the perimeter of caravan parks (e.g. Preston Parks), around farmsteads and other residential properties located in otherwise open tracts of countryside or sometimes on the edge of settlements (e.g. along sections of the boundary of Manston).

11.4.12 Where small woodland blocks do occur, they are typically found within the open spaces of the towns of Margate, Broadstairs and Ramsgate. Examples include those found at Margate Cemetery and Hartsdown Park. Quex Park also has many mature trees including small woodland blocks.

11.4.13 However, levels of tree cover are higher in the area around the northern half of the Proposed Development site as a consequence of the coalescence of the tree cover within Manston and Woodchurch, especially the Defence Fire Training and Development Centre.

Settlement and infrastructure patterns

11.4.14 The principal settlements within the LVIA study area comprise the coastal towns of Ramsgate (population of approximately 40,000), Broadstairs (population of approximately 23,500) and Margate (population of approximately 61,000)²². These towns are sprawling and merge to form an almost continuous belt of development along the northern and eastern fringes of the LVIA study area. This belt of development extends southward and westwards towards the Proposed

Development site, although separation is maintained by agricultural land varying in width between 0.5km and 3km. The closest part of Ramsgate is the Westwood Cross Retail Park, which contains some of the largest scale and tallest built development in these principal settlements. The distribution of principal settlements in relation to the ZTV, and therefore included in the visual assessment, is shown in **Figure 11.31**.

- 11.4.15 Villages within the study area include Minster, Monkton and Cliffsend located to the south of the site, St. Nicholas-at-Wade and Acol to the west and Manston to the east. These are interspersed by the hamlets of Plucks Gutter, Gore Street and Brooks Corner to the west and Lydden to the east. Beyond these villages and hamlets are occasional individual and small groups of residential properties and farmsteads located alongside minor rural lanes. Most of these settlements are located at slightly lower elevations than the Proposed Development site. Reviews of aerial photography and site visits show that their curtilages frequently contain moderate levels of tree cover and are sometimes bounded by tall hedgerows/shelterbelts. The distribution of villages in relation to the ZTV and therefore included in the visual assessment is also shown in **Figure 11.31** whilst groups of properties are shown in **Figure 11.32**. Those properties located in the immediate vicinity of the Proposed Development site and included in the visual assessment are shown in **Figure 11.33**.
- 11.4.16 There is a notable absence of settlement across the low-lying marshes located at the bottom of the valley of the River Stour to the south of the Proposed Development site with the South-East Main Rail Line marking the transition point (with the exception of the hamlet of Plucks Gutter).
- 11.4.17 Thanet Earth, located to the west of the Proposed Development site, is a large industrial agriculture/plant factory consortium and the largest greenhouse complex in the UK. The site covers 90ha and includes seven glasshouses, a research centre, packhouse, small number of dwellings, four reservoirs and a combined heat and power system. There are also large-scale warehouse-type modern developments located to the west of the Proposed Development site accessed by Columbus Avenue and Merlin Way east of Acol. Solar farms are a recent introduction to the landscape, including the extensive Manston Solar Farm to the north-east of the site boundary and Thorne Solar Farm located on the southern side of the A299, close to the southern boundary of the site besides the northern edge of Cliffsend.
- 11.4.18 A number of 132kV overhead lines also cross the LVIA study area. These commence at the Richborough Substation located between the A256 and River Stour, approximately 4km to the south of the Proposed Development site. From here, a dual line travels in a north-westerly direction towards Monkton Marshes where it divides with one 132kV line heading north and then east towards Broadstairs. The southernmost line continues west towards Canterbury and has recently been subject of a DCO application for its removal and replacement with a 400kV line as part of National Grid plans. The proposed new 400kV line will be included in the assessment of cumulative effects included in **Chapter 18: Cumulative Effects**. A third 132kV line heads south-west and then south from the Richborough Substation.

Transport Network

- 11.4.19 The dense and evenly dispersed settlement pattern has resulted in a relatively dense network of 'A', 'B' and minor roads.
- 11.4.20 'A' roads within the LVIA study area are as follows:
- ▶ The A299 which enters the western fringes of the LVIA study area to the north of St. Nicholas-at-Wade as a dual carriageway and continues west along the southern boundary of the site to Cliffsend and the eastern suburbs of Ramsgate. From here, it continues as a single carriageway 'A' road to the Port of Ramsgate. The lighting columns alongside sections of the A299 are cumulatively visually prominent in some views from the south;
 - ▶ The A28 which passes Sarre on the western edge of the LVIA study area and continues in a northeasterly direction through Birchington and Margate;

- ▶ The A253, a short link road which connects the A28 with the A299 to the west of the Proposed Development site;
- ▶ The A254 is a non-primary route that commences in the centre of Margate at a roundabout with the A28. It continues in a south-easterly direction to Ramsgate where it terminates at a T-junction with the A255 and A299 in the centre of Ramsgate;
- ▶ The A255 commences at a junction with the A254 in Margate before following a route between Margate and Ramsgate passing through Broadstairs. It joins the A299 at a roundabout at Chilton on the edge of Ramsgate; and
- ▶ The A256 commences on the outskirts of Broadstairs. At its junction with the A299 at Cliffsend, it becomes a dualled primary route and heads south between Minster Marshes and Pegwell Bay towards Great Stonar. At this point it exits the LVIA study area and continues south towards Dover.

11.4.21 Beyond the 'A' routes, a network of 'B' roads and rural roads cross the landscape. Rail lines through the study area include the Kent Coast Line/Javelin high speed train link which follows a coastal route and connects London St. Pancras International with the towns of the north Kent coast including Margate, Broadstairs and Ramsgate. A second Javelin high speed line, the Ashford to Ramsgate (via Canterbury West) line, also connects Margate, Broadstairs and Ramsgate with London St. Pancras International and passes through the centre of the LVIA study area. The Folkestone and Dover branch line, via Sandwich, also passes through the LVIA study area to the south of the Proposed Development site.

Recreational Use

11.4.22 Parts of the study area are popular holiday and recreational destinations and, consequently, a number of amenity assets are present such as campsites, equestrian centres and beaches. Key destinations for visitors and local residents are set out in paragraphs 11.4.23 to 11.4.38 and **Tables 11.7, 11.8 and 11.9**.

Long Distance Footpaths

11.4.23 The study area contains a network of promoted long distance walking routes, the distribution of which are shown in **Figure 11.34**. These are as follows:

- ▶ **Saxon Shore Way:** This route follows the ancient Kent coastline, which now is in some places miles inland. It connects Gravesend on the banks of the River Thames with Hastings on the south coast. It is 257km long in total, approximately 9km of which is within the LVIA study area. Within the southern part of LVIA study area the Saxon Shore Way follows the route of the River Stour at a relatively low elevation;
- ▶ **Turner and Dickens Walk:** This route connects Margate to Broadstairs and is approximately 8km long. It is almost entirely located within the LVIA study area, with the exception of the easternmost approximately 200m within Broadstairs. Much of the walk follows an ancient footpath between St. Peter's and St. John's churches;
- ▶ **Thanet Coastal Path:** This coastal route connects Reculver (approximately 3km to the west of the LVIA study area boundary) with Pegwell Bay which is located approximately 2km south of the Proposed Development site. The route is approximately 32km in length, of which approximately 27km is within the LVIA study area;
- ▶ **Stour Valley Walk:** A route connecting the source of the River Stour at Lenham with its confluence at Pegwell Bay. It is approximately 96km long and approximately 2.5km of the easternmost section of the Stour Valley Walk is within the LVIA study area as it heads north along the coast towards Pegwell Bay;

- ▶ **Wantsum Walk:** A 40km walk between Herne Bay and Birchington along the Wansum River. Approximately 8km of the route is located within the LVIA study area as it crosses the A299, travelling northwards to the coast and then east along the coastline to Birchington; and
- ▶ **England Coast Path:** The Folkestone to Ramsgate section of this new National Trail is open to the public and follows the coastline to the south of Ramsgate. To the north of Ramsgate, the Ramsgate to Whitstable section of the route was approved by the Secretary of State for Environment, Food and Rural Affairs in December 2016. Work is now underway to prepare this section of the England Coast Path for public use and new access rights are expected to come into force along the route in late 2017.

Cycle Routes

11.4.24 In addition to the long-distance walking routes, two cycle routes lie within the LVIA study area. Their routes are shown in **Figure 11.34** as follows:

- ▶ **Sustrans National Cycle Route (NCR) 1:** This long-distance cycle route connects Dover and the Shetland Islands via the east coast of England and Scotland. A short section, approximately 2km long, follows the southern boundary of the LVIA study area in the vicinity of Richborough Castle; and
- ▶ **Viking Coastal Trail Cycle Route (Regional Cycle Route (RCR) 15):** This is a circular route which travels from Reculver through Margate, Broadstairs and Ramsgate and then continues inland to return to Reculver, being routed through Minster, Monkton and St. Nicholas-at-Wade. It is 51.4km long and approximately 40km of the route is within the LVIA study area. The section between Minster and Cliffsend is routed approximately 1km south of the Proposed Development site.

Country Parks

11.4.25 The Pegwell Bay Country Park is the only country park within the study area and forms part of the Sandwich and Pegwell Bay National Nature Reserve (NNR). It is approximately 29ha in size and its location in relation to the Proposed Development is shown in **Figure 11.35**. A small section of the southern part of the country park is not publicly accessible as it is a sensitive wildlife area, but the majority of the area is publicly accessible, with a network of mown and surface paths, picnic areas, car parking and play areas. It is a country park which advertises the attractive views that can be experienced of Sandwich and Deal to the south-west and the cliffs of Ramsgate to the north-east.

Open access Land

11.4.26 Within the LVIA study area there is an area of land on the coastal margin that is defined as default access land under the *Marine and Coastal Access Act 2009*²³, but which also includes some areas not subject to access rights. This area follows the coastline from Ramsgate Marina, westwards and southwards, as far as the southern extent of the study area. The width of the access land varies and includes both areas of land and sea; however, the landward extent of the access land is typically very narrow and is defined by the location of the England Coast Path. The extent of the England Coast Path Coastal Margin is shown in **Figure 11.35** and the assessment of visual effects upon recreational receptors using this area is considered as part of the assessment of visual effects upon users of the England Coast Path.

Parks and Gardens open to the Public

11.4.27 Within the towns of Birchington, Margate, Broadstairs and Ramsgate there are numerous parks that offer a range of amenities, including playgrounds and sports pitches. The location and description of these parks is provided in **Table 11.7**.

Table 11.7 Publicly accessible parks and gardens within the study area

Publicly accessible parks and gardens	Distance from the Proposed Development site	Description
Northdown Park	Approximately 4.5km north-east	<p>The park was originally part of Northdown House, a Georgian house that still stands at the southern edge of the park in a wooded setting. The park has formal walled gardens nearer the house, open spaces with more natural woodland and a children's play area to the northern end. The park also has two areas where public access is restricted.</p> <p>The park slopes gently from a high point in the south to a low point in the north.</p>
Hartsdown Park and Tivoli Park	Approximately 3km north-east	<p>The land that now forms Hartsdown Park was originally owned by the Hatfield family. Hartsdown Park has tennis courts and a play area. It adjoins the Hartsdown Football Club. There are football and cricket pitches within the park.</p> <p>Tivoli Park is located adjacent to the south-eastern boundary of Hartsdown Park. In 1830, Le Jardin de Tivoli was described as 'one of the most beautiful and romantic spots in Thanet'. Originally designed as a pleasure garden, Tivoli Park has in recent years been left unmanaged and is now a designated nature reserve. There are many mature trees and several pathways.</p>
Quex House	Approximately 2km north-west	<p>Quex Park itself is 250 acres of parkland and gardens with Quex House and other buildings situated just south-east from Birchington. The park houses the Powell-Cotton Museum and the house gardens and park holds visitor attractions, leisure activities, and retail food and drink outlets.</p>
Dane Park	Approximately 4km north-east	<p>Dane Park was donated to the residents of Margate in the late 19th century. The main entrance is through ornamental wrought iron gates on Park Road. There are surfaced paths around and through the park. It has a children's play area.</p> <p>The northern section of the park has many mature trees planted in small groups creating an enclosed character. The southern section of the park is less wooded and more open.</p>
Crispe Park	Approximately 2km north	<p>A small park within a residential setting in the town of Birchington. It is mainly amenity grassland with a playground in the centre and a block of woodland to the west. It is separated from the adjacent housing and the A28 to the south by narrow belts of mature trees.</p>
King George VI Memorial Park	Approximately 4km east	<p>King George VI Memorial Park occupies a cliff top position overlooking the English Channel between Ramsgate and Broadstairs; it gently slopes from a high point in the west to a low point in the east and therefore faces away from the site. The park is a combination of open amenity grassland and woodland areas. The Viking Coastal Trail and Thanet Coastal Path (both sharing the same route) pass through the eastern section of the park.</p> <p>The King George VI Memorial Park is also an important heritage site in Thanet. It was formed out of the grounds of East Cliff Lodge, the home for over fifty years of the nineteenth-century philanthropist Sir Moses Montefiore. The house was demolished in the 1950s but the stable courtyard survives and the early 19th Century Italianate glasshouse is built against its outer side.</p>
Ellington Park	Approximately 1.5km east	<p>Located within a residential area of Ramsgate.</p> <p>Large expanse of amenity grassland intersected by tree lined paths. The park has a range of amenity features including a playground, bowling green, Edwardian band stand and a miniature railway.</p> <p>The park contains many mature trees, including small groups of mature trees around the perimeter.</p>
Nethercourt Park	Approximately 1km south-east	<p>Located within a residential area of Ramsgate.</p> <p>Amenity grassland with a playground in the north-west corner. Well populated with mature trees, particularly around the boundaries of the park.</p>

Publicly accessible parks and gardens	Distance from the Proposed Development site	Description
Royal Esplanade Gardens	Approximately 2km south-east	Gardens located in Ramsgate between the Royal Esplanade and Westcliff Promenade facing onto the sea front. The park includes a boating lake, a bowling green and a pitch and put.
Dane Valley Woods	Approximately 4km north-east	This is a 13-acre community managed woodland on the outskirts of Margate. The initiative was started in 2003 and since then 5,770 trees have been planted ²⁴ .
Windmill Community Gardens	Approximately 4km north-east	This is a food growing project which has been operational since 2004, transformed from derelict land. The gardens are open to the public for a limited time, most days of the week. It is located adjacent to Dane Valley Woods, on the outskirts of Margate.
Spencer Square	Approximately 2.5km south-east	A square in the centre of Ramsgate. There are three tennis courts located in the south west of the site and the remainder of the square is paved with planting beds and benches.
Pierremont Park	Approximately 4.9km east	A small park within Broadstairs. Pierremont Park was originally the gardens to Pierremont Hall. The house still exists within the park. The park now includes formal planting around a pergola, informal planting under mature trees, seating, and a children's play area.
Albion Place Gardens (Ramsgate)	Approximately 3.1km east	Albion Place Gardens is an early 19 th Century public garden extending to 0.36ha.

11.4.28 A review of the ZTVs presented in **Figures 11.3 to 11.8**, in conjunction with a review of aerial photography and Google Street View, indicates that the views from all of the identified publicly accessible parks and gardens within the study area will be limited by dense vegetation around the perimeters of the parks or by the dense built form which surrounds them. As such recreational receptors visiting these parks and gardens have not been carried through as receptors to the Visual Assessment in **Section 11.9** of this Chapter.

Sports and Recreation Grounds

11.4.29 **Table 11.8** describes the sports and recreation grounds located within the LVIA study area and the locations of those carried through to the Visual Assessment are shown in **Figure 11.35**.

Table 11.8 Sports and recreation grounds within the study area

Sports and recreation ground	Distance from the Proposed Development site	Description
Manston Golf Club	Approximately 1km to the east	Nine-hole golf course and driving range. The golf course is largely flat and fairly open with only occasional tree groups planted within the course and along its boundary.
Manston Riding Centre	Approximately 0.3km to the north	Located at the end of a track off Alland Grange Lane. A belt of mature overgrown hedgerow surrounds the riding centre.
Minster Recreation Ground	Approximately 1.5km to the south	Grass football pitch, multi-use games area, skatepark and sports pavilion.

Sports and recreation ground	Distance from the Proposed Development site	Description
Westgate and Birchington Golf Club	Approximately 3km to the north	Eighteen-hole golf course to the west of Westgate on Sea. Spans both sides of the railway line.
Memorial Recreation Ground	Approximately 4km to the east	Amenity grassland with a playground, bowling green and tennis courts.
Birchington Recreation Ground	Approximately 2.5km to the north	Amenity grassland with sports pitches.
St. Peter's Recreation Ground	Approximately 4km to the east	Amenity grassland with sports pitches.
Table Broadstairs Cricket Club	Approximately 4.5km to the east	Mown grass with cricket square and cricket nets.
Hartsdown Park	Approximately 4km to the north/north-east	A football ground, home to Margate FC.
Margate Lawn Tennis Club	Approximately 4km to the north/north-east	Located to the east of Trivoli Park Avenue and separated from it by a hedgerow approximately 1.5m in height.
Warre Recreation Ground	Approximately 1.5km to the east	Recreation ground in a residential area of Ramsgate, immediately south of the railway line. Boundaries of the recreation ground are marked by occasional and gappy groupings of mature trees.
St Augustines Golf Club	Approximately 1.5km to the south	An 18-hole golf course located on low lying ground close to Pegwell Bay. Fairways are lined with mature trees and the northern and western boundaries are lined by hedgerows and tree belts.
Stonelees Golf Centre	Approximately 1.8km to the south	A nine-hole course with occasional tree groups but generally open boundaries.
Prince's Golf Club	Approximately 4km to the south	A coastal 27-hole course on low lying ground adjacent to Sandwich Flats.

11.4.30

A review of the ZTVs presented in **Figures 11.3 to 11.8**, in conjunction with a review of aerial photography and Google Street View, indicates that the views from a large proportion of the identified sports and recreation grounds within the study area will be limited. Five of the sports and recreation grounds (alongside the recreational receptors using the facilities) have been carried through to the Visual Assessment in **Section 11.12** of this Chapter, as follows:

- ▶ Manston Golf Club;
- ▶ Hartsdown Park;
- ▶ St. Augustines Golf Club;
- ▶ Stonelees Golf Centre; and
- ▶ Prince's Golf Club.

- 11.4.31 The locations of these five sports and recreation grounds in relation to the Proposed Development site and the composite ZTV are shown in **Figure 11.35**.

Caravan and Camping Sites

- 11.4.32 The Kent coast and the towns of Broadstairs, Margate and Ramsgate are popular tourist destinations resulting in numerous campsites, caravan site and holiday parks within the study area. It is likely that a proportion of the caravan sites are used for permanent residences as opposed to holiday lets. These are set out in **Table 11.9** and the locations of those carried through to the Visual Assessment are shown in **Figure 11.35**.

Table 11.9 Caravan and camping sites and holiday parks within the LVIA study area

Caravan/camping site	Distance from the Proposed Development site	Description
Nethercourt Touring Park	Approximately 1km east	A site for camping and touring caravans. Set within a residential area on the western outskirts of Ramsgate. The site is gently sloping from a high point in the east to a low point in the west. Belts of mature trees separate the site into land parcels.
Manston Court Caravan Site	Approximately 0.4km east	This site includes permanently located holiday lets as well as pitches for touring caravans and tents. Located in a field to the north west of Manston, off Manston Court Road. The field is bound by hedgerow with hedgerow trees and there are ornamental hedgerows within the site
Preston Parks	Approximately 0.7km east	The site includes permanent holiday homes and also pitches for camping and for touring caravans. Located on the northern edge of Manston on both the east and west sides of Preston Road. The boundary is a combination of coniferous hedgerow, brick walls, concrete walls and tree planting.
Birchington Vale Holiday Park	Approximately 2km north	The site includes permanent holiday homes and also pitches for camping and for touring caravans. Located south of Quex House, on the south side of Shottendane Road, in an agricultural setting approximately 1km south of Birchington. Sections of the boundary to the park are contained by hedgerow although the south eastern and eastern boundaries are open and unvegetated. To the north, south and east much of the boundary is marked by mature trees and hedgerow. The western boundary facing Quex House is more open and not bound by hedgerow.
Quex Holiday Park and Campsite	Approximately 2km north	The site is located immediately north of Birchington Vale Holiday Park, on the north side of Shottendane Road in includes permanent holiday homes and also pitches for camping and for touring caravans. The site is level and wooded in parts.
Pegwell Bay Caravan Park	Approximately 1.5km south-east	The site contains permanent holiday homes/static caravans. It is located in the far south west of Ramsgate on the coast, overlooking Pegwell Bay.
Wayside Caravan Park	Approximately 0.7km south	A touring caravan and camping site located on the southern edge of the hamlet of Way, approximately 500m east of Minster. The caravan park is located on flat ground at an elevation of approximately 15m AOD and has a boundary of hedgerow and mature trees to the west and along much of the northern and southern boundaries. The eastern boundary is marked by coniferous hedgerow.
Bradgate Holiday Park	Approximately 1km north	Holiday homes/static caravan site located on the western edge of the hamlet of Lydden. The site gently slopes from a high point in the west to a low point in the east.

Caravan/camping site	Distance from the Proposed Development site	Description
		The eastern boundary is defined by the settlement edge of Lydden. To the north, south and west the boundary is a combination of hedgerow and a belt of woodland and scrub approximately 5m in height.
The Foxhunter Park	Approximately 2.5km south-west	A holiday park with permanent holiday homes/static caravans located on the southern edge of the village of Monkton. A belt of woodland marks the eastern and southern boundary and separates the site from the adjacent arable fields. A narrower belt of trees defines the south-western boundary, while the western edge is defined by hedgerow. To the north is the settlement of Monkton.
Acol Caravan Park	Approximately 1.2km north-west	A holiday park with permanent holiday homes/static caravans located on the northern edge of the settlement of Acol at a fork in the road between Acol Hill and Margate Hill. North of the site the land use is arable. The caravan park is separated from the arable fields by fence approximately 2m in height and a belt of tall (over 10m high) trees. The site slopes gently from a high point in the north-east corner to a low point in the south-west corner.
Frost Farm	Approximately 4.5km north-west	A small campsite located approximately 150m north of St. Nicholas-at-Wade, immediately south of the A299. It is surrounded by paddocks and separated from them by hedgerow.
St. Nicholas Camping Site	Approximately 4.5km north-west	A site for touring caravans and camping located in a field on the north-western edge of St. Nicholas-at-Wade. The boundary of the field to the north, south and west is defined by hedgerow approximately 3m high. To the east is an avenue of mature trees.
Dog and Duck Caravan Park	Approximately 5km south-west	A site of permanent caravan holiday homes set within a rural setting on the southern banks of the River Stour. The site is separated from the surrounding landscape by a belt of mature trees and overgrown hedgerow.

11.4.33 A review of the ZTVs presented in **Figures 11.3 to 11.8**, in conjunction with a review of aerial photography and Google Street View, indicates that the views from a large proportion of the identified caravan and camping sites within the study area will be limited. Seven of the caravan and camping (alongside and the recreational receptors using the facilities) have been carried through to the Visual Assessment in **Section 11.12** of this Chapter, as follows:

- ▶ Manston Court Caravan Site;
- ▶ Preston Parks;
- ▶ Birchington Vale Holiday Park;
- ▶ Quex Holiday Park and Campsite;
- ▶ Bradgate Holiday Park;
- ▶ Frost Farm; and
- ▶ Dog and Duck Caravan Park.

11.4.34 The locations of these seven caravan and camping sites in relation to the Proposed Development site and the composite ZTV are shown in **Figure 11.35**.

PRoWs and Bridleways

11.4.35 PRoWs in close proximity to the Proposed Development are shown in **Figure 11.36**. A single bridleway (reference TR8) is the only PRoW to be partly routed within the Proposed Development site. The TR8 runs south from the B2050 at its junction with Manston Court Road for approximately

300m before turning 90 degrees to the east to join the High Street (at Bush Farm) in Manston. It follows the existing fenceline of the non-operational airport along a section of the boundary that is otherwise open and unvegetated. Consequently, people (recreational visual receptors) using the TR8 possess clear views into the south-eastern portion of the Proposed Development site, with the existing Aircraft Maintenance Building and Passenger Terminal Building being the most readily apparent facilities associated with the non-operational airport. A network of bridleways (TR9 and TR10) continue eastwards from the High Street in southern Manston to join the A256 on the outskirts of Ramsgate. Tree cover and overgrown hedgerows minimise the availability of views across most of the Proposed Development site from TR9 and TR10, with the exception of the eastern end of the runway.

- 11.4.36 To the north-east of the Proposed Development site, north of Manston, there are six PRowWs which cross arable and pasture fields, some of which are bounded by tall hedgerows and vegetation in adjacent gardens of residential properties and caravan parks. These six PRowWs connect the rural roads between Manston and Northwood and those heading north between Manston and Lydden. These PRowWs are coded TR22, TR23, TR24, TR25, TR26 and TR31.
- 11.4.37 Other PRowWs located in close proximity to the Proposed Development site and highlighted in **Figure 11.36** include:
- ▶ TR32 which links Canterbury Road West (which forms the southern boundary of the Proposed Development site) with Cottington Road to the south-west of Cliffsend;
 - ▶ TE29 which runs south from the A299 west of Mount Pleasant to meet the northern fringes of Minster;
 - ▶ TE18 which heads west from Minster Road to join Plumstone Road to the west of the Proposed Development site boundary; and
 - ▶ TE16 which follows a north-easterly route from Minster Road to Manston Road to the north of the Proposed Development site boundary.
- 11.4.38 Elsewhere across the LVIA study area, the fields are traversed by a network of PRowWs at varying densities. The highest concentration is found to the east of the Proposed Development site, linking different parts of Margate, Broadstairs and Ramsgate. A moderately dense network of PRowWs also crosses the low-lying Minster Marshes and Ash Level to the south of the Proposed Development, connecting the villages and hamlets with the River Stour and the Saxon Shore Way. These PRowWs have been grouped together on the basis of geographical distribution, connectivity and direction to the Proposed Development site. The result has been to define eight discrete groups of PRowWs as shown in **Figure 11.36**.

Tranquillity

- 11.4.39 **Figure 11.38** illustrates the results of Campaign to Protect Rural England's (CPRE's) Tranquillity Mapping, which shows the likelihood of finding tranquillity in any given locality and is relative on a regional level (i.e. south-east England). This is based on a methodology which was developed by Northumbria University on behalf of CPRE and formerly the Countryside Agency (now NE) in 2007. The data is subject to the limitations inherent in many large-scale desk-based studies and should only form an initial indication of the relative levels of tranquillity that are experienced in the LVIA study area. More detailed observations have been obtained through the field survey work.
- 11.4.40 **Figure 11.38** indicates that the lowest levels of tranquillity within the LVIA study area are associated with the northern and eastern fringes, coinciding with the towns of Ramsgate, Broadstairs, Margate and Birchington. Along this coastal strip, the high proportion of built form, overt signs of human impact and the dense road and rail network, with associated movement and noise disturbance, are likely to reduce tranquillity levels. By contrast, Minster Marshes, Monkton Marshes and Ash Level in the southern part of the LVIA study area are considered to be the most tranquil parts of the study area. This is likely to be due to the presence of limited built form and a general absence of road and rail infrastructure, which is allied with high levels of openness of the landscape, perceived naturalness and the presence of the River Stour, although as noted in

paragraph 11.4.18 this area is traversed by 132kV overhead power lines. This high level of tranquillity extends east to cover Pegwell Bay and Sandwich Flats where the visibility of the sea is, under the CPRE methodology, deemed to be a positive contributing factor to tranquillity.

- 11.4.41 The Proposed Development site itself is likely to display moderate to low levels of tranquillity. The lower levels are likely to be found within the northern part of the site, extending north and east to cover Manston and south across Minster. Between this area and the coastal settlements, tranquillity is indicated to be moderate, reflecting its proximity to the urban development and presence of 'A' and 'B' roads. It is likely that when the airport was operating prior to its closure in 2014, levels of tranquillity were reduced in comparison with the current baseline situation.

Dark skies

- 11.4.42 **Figure 11.39** illustrates 'Night Blight' mapping released by CPRE in June 2016. This maps England's light pollution and dark skies and is based on satellite imagery gathered throughout September 2015. Further field survey work including night-time photography has been undertaken as part of the landscape and visual baseline collection (see annotated night-time viewpoint photography in **Figures 11.22 to 11.29**) and commentary is provided as part of the baseline descriptions included in the Viewpoint Assessment provided in **Appendix 11.3**.
- 11.4.43 **Figure 11.39** indicates that the brightest levels of radiance are found in isolated pockets within the LVIA study area including at the Port of Ramsgate (with associated light houses) and at Thanet Earth. Other high levels of radiance are concentrated along the coastal zones encompassing Ramsgate, Broadstairs, Margate and Birchington as a result of high levels of highway lighting and floodlighting. Levels of radiance decrease inland to become more moderate although increasing again around the northern and western parts of the Proposed Development site. Lower levels of radiance are associated the less settled southern parts of the LVIA study area around Ash Level in particular where from the absence of settlements and road networks result in limited sources of light.
- 11.4.44 **Figure 11.39** illustrates the levels of night-time lighting associated with the Proposed Development site after the closure of Manston Airport in April 2014. As such, it is likely that the levels of radiance at the Proposed Development site indicated on the figure are lower than those associated with the historic use of the site. However, in the absence of any maps documenting levels of radiance before CPRE's 2015 mapping, the difference between the two levels cannot be quantified.

Landscape Character

National Character Areas

- 11.4.45 The Proposed Development site and the LVIA study area are located entirely within the *National Character Area (NCA) 113: North Kent Plain*. This NCA encompasses an approximately 90km long strip of land bordering the Thames Estuary to the north and the chalk of the Kent Downs in the south. The NCA comprises an open, low and gently undulating landscape characterised by its arable use. The chalk outlier of Thanet, on which the Proposed Development site is located, is identified as a key feature that is a discrete and distinct area characterised by its dominant agricultural use stemming from the highly quality, fertile soils.
- 11.4.46 The key characteristics of NCA 113: North Kent Plain are:
- ▶ *'An open, low and gently undulating landscape, characterised by high quality, fertile, loamy soils dominated by agricultural land uses.*
 - ▶ *The area's geology is dominated by Palaeogene clays and sands, underlain by the Chalk.*
 - ▶ *Geologically a chalk outlier - and historically an island separated from the mainland by a sea channel - Thanet forms a discrete and distinct area that is characterised by its unity of land use, arising from the high quality fertile soils developed in thin drift deposits over chalk.*

- ▶ *A diverse coastline (both in nature and orientation), made up of cliffs, intertidal sand and mud, salt marshes, sand dunes and shingle beaches. Much of the coastal hinterland has been built on, and the coast itself has been modified through the construction of sea walls, harbours and piers.*
- ▶ *Large arable/horticultural fields with regular patterns and rectangular shapes predominating, and a sparse hedgerow pattern.*
- ▶ *Orchards and horticultural crops characterise central and eastern areas, and are often enclosed by poplar or alder shelterbelts and scattered small woodlands.*
- ▶ *Woodland occurs on the higher ground around Blean and in smaller blocks to the west, much of it ancient and of high nature conservation interest.*
- ▶ *The Stour and its tributaries are important features of the eastern part of the NCA, draining eastwards into the North Sea, with associated wetland habitats including areas of grazing marsh, reedbeds, lagoons and gravel pits. The River Medway cuts through the NCA as it flows into the Thames Estuary.*
- ▶ *Other semi-natural habitats include fragments of neutral, calcareous and acid grassland, and also heathland.*
- ▶ *The area has rich evidence of human activity from the Palaeolithic period. Key heritage assets include Roman sites at Canterbury, Reculver and Richborough; the Historic Dockyard at Chatham; military remains along the coast; and historic parks and buildings.*
- ▶ *Large settlements and urban infrastructure (including lines of pylons) are often visually dominant in the landscape, with significant development around Greater London and the Medway Towns, as well as around towns further east and along the coast. Major rail and road links connect the towns with London.'*

County level landscape character

- 11.4.47 At a county level, landscape character is defined by the Kent Historic Landscape Characterisation²⁵ and the Landscape Assessment of Kent²¹ which includes previous assessments of condition and sensitivity of LCAs. Whilst these county level documents are over a decade old they continue to provide useful context to the district level landscape character assessments.
- 11.4.48 The Kent Historic Landscape Characterisation²⁵ locates the Proposed Development site within Historic Landscape Character Area (HLCA) 18 - Isle of Thanet. This HLCA is comprised mainly of two Historic Landscape Types (HLTs): a post-1801 settlement (HLT 9.6) and irregular fields bounded by roads, tracks and paths (HLT 1.14). The latter is described as a relatively recent phenomenon and overlies potentially earlier landscapes of similar character. Urban developments of Margate and Ramsgate are considered to be integral elements within HLCA 18.
- 11.4.49 The Landscape Assessment of Kent²¹ locates the Proposed Development site and much of the LVIA study area within the Thanet LCA. This features a centrally domed ridge with the former airport "*dominant on the crest*" of this ridge. Other features include open, large scale arable fields with long views. The Thanet LCA is assessed as having a poor condition due to the "*vulnerability of the farmed landscape, lack of natural habitats and the negative impact of recent development*". However, the sensitivity of the Thanet LCA is described as "*very high*" due to the presence of open views and very strong sense of place.

District level landscape character

- 11.4.50 At a district level, two published landscape character assessments cover the study area; Thanet Landscape Character Assessment²⁶ and the Dover District Landscape Character Assessment²⁷. The distribution of LCAs within the LVIA study area is shown in **Figure 11.37** and the key characteristics and pertinent information in these two published assessments for the LCAs is summarised in **Table 11.10**.

Table 11.10 LCAs within the study area

Landscape Character Area	Key characteristics
Thanet Landscape Character Assessment 2017	
A1: Manston Chalk Plateau	<ul style="list-style-type: none"> • <i>Elevated, flat landform with gently rolling undulations between 40-55m AOD, characterised by an underlying chalk geology and an isolated area of Thanet sand formation in the east.</i> • <i>Predominantly regular, medium to large scale arable and horticultural fields on ALC Grade 1 and 2 soils with little defining features which create a very open landscape.</i> • <i>Tree belts and linear woodland with localised areas of paddocks and pasture provide enclosure around small villages of Manston and Woodchurch as well as scattered farmsteads.</i> • <i>The disused Kent International Airport consisting of dilapidated terminal buildings and neglected grassland defined by security fencing occupy the southern area.</i> • <i>A road network of roads and lanes dissect the plateau and includes the A299 which provides a main connection into Thanet.</i> • <i>Settlement comprises low density, 1-2 storey detached properties including the small village of Manston and buildings along minor roads. A variety of building materials including traditional flint, plus red brick, render and timber cladding. Area of former plotland at Woodchurch.</i> • <i>Elevated plateau results in long distance panoramic views in the south over Minster Marshes and across Pegwell Bay and, in the west, across the Wantsum.</i> • <i>The elevated central chalk plateau also forms a skyline in many views back from lower landscapes in Thanet, including the coast and marshlands.</i> • <i>Other land uses include Manston Golf Club and a solar farm and are generally well integrated into the landscape due to the flat topography and bordering vegetation.</i> • <i>Urban influences in form of exposed adjoining settlement edges including large scale buildings at Westwood Cross Shopping Centre. Areas of cropping (brassicas) in stark contrast to adjacent urban areas.</i> • <i>Military influences including the Defence Fire Training Centre and RAF Manston Spitfire and Hurricane Museum.</i>
B1: Wantsum North Shore	<ul style="list-style-type: none"> • <i>Sloping arable fields characterised by a transitional underlying geology formed of chalk and Thanet Sand formations.</i> • <i>Former channel side 'port' villages of Minster, Monkton and Sarre evidencing the growth of settlement and commerce via the Wantsum – retaining strong historic character.</i> • <i>Regular, rectilinear field pattern with few defining boundary features between fields creating a large scale and open landscape.</i> • <i>Asparagus cultivation on the south facing sandy slopes creating a distinctive seasonal agricultural landscape.</i> • <i>Localised areas of tree planting containing isolated farmsteads and roadside houses with intermittent hedgerows lining connecting roads and around settlements.</i> • <i>Settlements with distinct local vernacular and historic cores arranged in a grid pattern with irregular settlement edges and modern additions comprising linear development rising up the landform, generally well contained by trees.</i> • <i>St Augustine's Cross, a stone memorial with carvings of significant Christian figures and events near to the village of Cliffsend.</i> • <i>Long views over the marshes into Dover and Canterbury Districts as well as sea views from the elevated ground and cliff tops over Pegwell Bay and the English Channel.</i> • <i>Outside the villages there is relatively little development resulting in an undeveloped ridgeline and slopes interspersed with occasional woodland and tree belts. Some quiet rural lanes.</i>

Landscape Character Area	Key characteristics
Thanet Landscape Character Assessment 2017	
C1: St Nicholas-at-Wade Undulating Chalk Farmland	<ul style="list-style-type: none"> • <i>Agricultural fields on undulating landform characterised by chalk geology.</i> • <i>Large scale arable fields with mostly denuded open field boundaries, with tree planting limited to a small number of copses and tree belts.</i> • <i>The vast horizontal expanse of the greenhouses at Thanet Earth is a dominant feature on the skyline.</i> • <i>Monkton Nature Reserve (LNR/RIGS) comprising a former quarry now regenerated, including distinct white chalk exposures and rich biodiversity, and use for astronomy.</i> • <i>Larger ridge top village at St Nicholas-at-Wade, and smaller linear village at Acol both with historic cores (Conservation Areas), smaller surrounding fields and tree planting contrast with open arable farmland.</i> • <i>Distinct built vernacular comprising flint and ragstone, red brick and clay roof tiles as well as some brick and render contributing to rural character. Flemish/Dutch gables and Oast houses are locally distinctive built form.</i> • <i>Long distance panoramic views across the agricultural landscape and to the Thames Estuary and the Channel.</i> • <i>The church tower within St Nicholas-at-Wade and woodland at St Nicholas Court form a distinct landmark appearing as a wooded ridge within views from the lower lying marshes.</i> • <i>Main roads cross and divide the farmland - key routes into and out of Thanet, with moving traffic</i>
C2: Central Thanet Undulating Chalk Farmland	<ul style="list-style-type: none"> • <i>Gently undulating, agricultural landscape underlain by the Chalk formation.</i> • <i>Large, intensively farmed fields of arable and horticultural crops regular in shape and with few defining boundary features resulting in a large-scale pattern and very open landscape.</i> • <i>Limited structural planting in the landscape with concentrations of woodland at St John's Cemetery and around the perimeter of Quex Park forming key features in views across the open landscape.</i> • <i>Isolated farm buildings along minor roads and rural lanes with some urban fringe influences development near to the built edge including paddocks and occasional large scale industrial units.</i> • <i>Stark exposed residential urban edges about the farmland forming very visible urban boundaries, with fingers of farmland often penetrating the urban area and providing glimpses to the sea beyond. Church spires and towers within the urban areas are landmark features.</i> • <i>Salmestone Grange, a 14th century monastic grange (SM) and chapel formed of distinctive ragstone and situated in gardens.</i> • <i>Largely open landscape with glimpsed sea views across the Margate skyline from the higher ground. Long distance views across the marshes and across to off-shore windfarms in the North Sea from the A28.</i> • <i>Subdivided by a network of minor roads and lanes used as short cut routes and often busy with traffic, adding a further urban influence.</i>
C3: St Peters Undulating Chalk Farmland	<ul style="list-style-type: none"> • <i>Undulating landform characterised by an underlying geology of chalk and an outcrop of sands, dropping in elevation to the east.</i> • <i>Large scale, arable (brassica) fields, regular in form and dissected by a number of transport routes.</i> • <i>Intact roadside hedgerows and mature hedgerow trees contrast with the open internal boundaries creating a generally open landscape.</i> • <i>Well-treed farmsteads and nurseries/glass house complexes interspersed along the roads and throughout the landscape.</i> • <i>Strong urbanising influences in the form of school buildings and fencing edge, views to the abrupt residential edge and roads.</i> • <i>Open fieldscape allowing for views across the landscape but generally limited by the surrounding built edge. Sea views in the east at North Foreland.</i> • <i>Distinctive landscape/seascape at Kingsgate/North Foreland, with rural lanes, flint walls, holm oak and sea views.</i>

Landscape Character Area	Key characteristics
Thanet Landscape Character Assessment 2017	<ul style="list-style-type: none"> • <i>Cultural associations including scheduled monuments and landmarks at North Foreland Lighthouse and Kingsgate Castle.</i> • <i>An Anglo-Saxon cemetery and double ring ditch with enclosures provide cultural links to the past.</i>
C4: Newlands Farm	<ul style="list-style-type: none"> • <i>Small area of arable farmland and educational playing fields encapsulated within the greater urban area of Broadstairs.</i> • <i>Predominantly medium to large scale arable farmland over Grade 1 and 2 soils with few defining boundary features creating a patchwork of different crop types.</i> • <i>Structural vegetation is largely limited with tree planting concentrated around Newlands Farm and the perimeter of the school playing fields.</i> • <i>The Royal Harbour Academy and its recent expansion are delineated by bunding and security fencing.</i> • <i>Strong urban influences from the adjoining settlement edge and in particular the industrial estate in the north.</i> • <i>Views in and out are restricted by the surrounding development but the water tower along Rumfields Road and the church spire at Ramsgate Cemetery form landmark features in the north and south respectively.</i> • <i>A number of public footpaths leading from the built edge dissect the landscape from north to south and east to west.</i>
D1: Quex Park	<ul style="list-style-type: none"> • <i>Flat, plateau landform at 25m AOD underlain by the chalk of central Thanet.</i> • <i>An irregular pattern of small-scale arable fields interspersed with parkland pasture, small circular copses and some mature specimen oaks creating a formal landscape structure.</i> • <i>Grade II Quex House, an early 19th century regency-style mansion, contained by an area of deciduous woodland at the centre of the estate.</i> • <i>A winding track provides the main access to Quex Park through ornamental gates which provide a sense of formality and grandeur.</i> • <i>A well-enclosed and private landscape with limited permeability or intervisibility with adjacent areas, whilst Waterloo Tower, a distinctive bell tower is a local landmark.</i> • <i>Other land uses include farm buildings at Quex Farm and a caravan park and Quex Park Holiday Park.</i> • <i>Appear as a wooded enclosed landscape in contrast to the surrounding open intensively managed arable plateau.</i>
E1: Stour Marshes	<ul style="list-style-type: none"> • <i>Low-lying and flat marshland landscape occupying the former Wantsum river channel.</i> • <i>A vast, open landscape with huge skies, extensive views and a strong rural, even remote, character.</i> • <i>Irregular arable fields defined by straight and meandering drainage ditches representing an ancient enclosure pattern, plus small tributaries of the River Stour and River Wantsum.</i> • <i>Small embanked reservoirs are a feature within the arable fields highly visible by their bunded topography and associated scrub /tree growth.</i> • <i>Limited tree cover with occasional small wooded copses absence of enclosure.</i> • <i>A largely undeveloped landscape, with few roads or buildings, crossed by the railway and two roads at Pluck's Gutter and Marsh Farm Road.</i> • <i>Long uninterrupted views across the marshes and Pegwell Bay and into marshes of neighbouring districts (Dover and Canterbury).</i> • <i>Contained to the north by the slopes of the north shore (LCA B1).</i>

Landscape Character Area

Key characteristics

Thanet Landscape Character Assessment 2017

E2: Wade Marshes

- *Flat and low-lying, open landscape with a coastal influence; underlying geology of Sussex White Chalk and Thanet Sands formations.*
- *Large intensively managed arable fields on former grazing marsh, defined by a complex network of drainage ditches.*
- *Unsettled apart from occasional isolated farmsteads on the marsh edges.*
- *Crossed by the A299 and railway both on embankment, which form prominent linear features. Embanked reservoirs are further structures in this otherwise flat landscape.*
- *Structural planting limited to tree buffers along the A299, railway and around the reservoirs resulting in a very open landscape.*
- *Strong sense of isolation and remoteness experienced within this open, windswept landscape.*
- *Long distance views with big skies across the marshes.*
- *The Northern Sea Wall providing some visual and physical containment from the sea within the marshes, but itself offering long sea views creating an element of contrast and surprise.*
- *To the west, the towers at Reculver create a distinct landmark overlooking the low-lying marshes.*
- *Contained by the rising slopes inland, including the wooded horizon at St Nicholas-at-Wade, emphasising the island quality of Thanet.*

F1: Pegwell Bay

- *Shallow waters with underlying sedimentary sandstone and mudstone partially contained by low chalk and flint cliffs.*
- *Flat expanses of marshes and mudflats. Mudflats at low tides contrast with high tide waters with the slack tide keeping the bay full of sea water for longer.*
- *The estuary of the River Stour enters the Strait in the bay marking the former Wantsum Channel.*
- *Ancient dune pasture and swards of sandy grassland within Pegwell Bay Country Park as well as extensive intertidal mudflats, salt marsh and shingle beach.*
- *High biodiversity value, with internationally significant numbers of waders and wildfowl recognised by SSSI, Ramsar, SAC and SPA designations.*
- *River Stour/Wantsum Channel providing a strategic entry point for successive invasions and landings (Roman, Saxon and reintroduction of Christianity) - events celebrated and commemorated in the landscape today.*
- *Long, panoramic views seaward across the Dover Strait with container ships and ferries forming features on the skyline, with the low white cliffs at Ramsgate forming a distinctive feature in view to the north.*
- *A tranquil and natural area with a strong sense of remoteness prevailing. Exposed and windswept landscape created by sea winds channelled into the bay and across the coast.*

F3: Minnis Bay

- *Embayed coast of intertidal mudflats and chalk reefs backed by low-lying marshes (LCA E2) separated by embanked sea wall.*
- *Wide sandy beaches divided by groynes are uncovered at low tide.*
- *High biodiversity interest reflected in national and international designations, including important colonies of breeding birds.*
- *The Northern Sea Wall provides visual containment to the south and has allowed small salt lagoons to form in front. Access routes on top of the sea wall provide access for walking and cycle route (Viking Coastal Trail).*
- *A popular recreational area attracting for a range of watersports including windsurfing, kitesurfing and sailing.*
- *Extensive views across the Thames Estuary, North Sea and adjacent marshes.*
- *An exposed coast open to the full force of winds and tides from the North Sea.*
- *Distinct landmark in the west created by the towers of Reculver guarding the entrance to the Wantsum Channel.*
- *Offshore windfarms form focal features on the skyline and combined with shipping create a busy dynamic seascape.*

Landscape Character Area	Key characteristics
Thanet Landscape Character Assessment 2017	
G1: Ramsgate and Broadstairs Cliffs	<ul style="list-style-type: none"> • Continuous stretch of low white chalk cliffs containing small sandy bays and the historic harbours and resorts of Broadstairs and Ramsgate. • Cliffs backed by narrow areas of amenity grassland and almost continuous urban development fronting the sea. • Nationally and internationally designated coastal habitats support a rich diversity of marine and terrestrial wildlife. • Popular beaches for recreation and tourism with seaside attractions creating a busy area in summer. • Accessible coastline via the Coastal Path/Viking Trail and the numerous bays and beaches. • Long views across the Dover Strait from the cliff tops and beaches, with inland views restricted by urban development. • Offshore views include the Thanet wind farm and the busy shipping lanes of the Dover Strait.
G2: North Thanet Coast	<ul style="list-style-type: none"> • Distinctive low, white chalk cliffs divided by a series of sandy and shingle bays; • Cliffs backed by narrow areas of cliff top amenity grassland and urban development of Margate, Westgate and Birchington. • A dynamic area that changes with the tides with fully submerged bays contrasting with extensive areas of mudflats, chalk ledges and rock pools exposed at low tide. • Nationally and internationally designated coastal habitats support a rich diversity of marine and terrestrial wildlife, notably over wintering birds including turnstones and golden plover. • Popular beaches for recreation and tourism with seaside attractions creating a busy area in summer. • Sea wall at base of the cliffs provides robust coastal defence, with only a small area of undefended coast. • Accessible coastline via the Coastal Path/Viking Trail. Open and exposed to the sea and winds channelling in from the North Sea. • Long unrestricted views across the Thames Estuary and North Sea from the cliff tops and beaches, with inland views restricted by urban development. • Experience of stunning sunsets over the sea as depicted in Turner's paintings from this part of the coast, and commemorated in the Turner Contemporary Gallery at Margate. • A number of distinct landmarks discernible along the coast including the Margate Pier Lighthouse and high-rise development. • Offshore views to numerous wind farms, traffic on the shipping lanes and ships sheltering on the Margate Roads before joining the shipping lanes of the Channel and North Sea.
Richborough Castle	<ul style="list-style-type: none"> • 'Higher knoll of land • Flint castle remains • Manmade landform features, such as an amphitheatre • Mown grass • Narrow winding lanes • Surrounding arable fields • Native hedgerows • Variety of building types and ages • Open views of surrounding area' (DDC, 2006).
The Sandwich Corridor	<ul style="list-style-type: none"> • 'Flat landscape • Broad native hedgerows and tall metal fencing along roads • Huge, modern buildings with brick and glass dominant • Large car parks • River Stour and boat culture

Landscape Character Area	Key characteristics
Thanet Landscape Character Assessment 2017	
Sandwich Bay	<ul style="list-style-type: none"> • Associated mudflats and bird life • Large lake • Industrial pockets • Straight, wide main road • Limited views due to buildings dominating landscape' (DDC, 2006). <ul style="list-style-type: none"> • 'Flat to gently undulating topography • Dunes • Sand and shingle • Sea kale and sea holly along shingle • Occasional scrub • Birdlife • Wide expanse of sea • Golf courses • Coarse coastal grasses • Some farmland • Large houses in open plan estate • Few roads • Seasonal change • Exposed landscape with extensive views out to sea' (DDC, 2006).

11.4.51 The Proposed Development site is sited within LCA A1: Manston Chalk Plateau. Manston Airport is described in paragraph 4.11 as *'the former Kent International Airport covers a large proportion of the southern area. The airport is no longer operational and comprises a barren landscape of derelict terminal buildings and unmanaged grassland bound by high security fencing'*.

Landscape Designations

11.4.52 There are no landscape designations within the LVIA study area.

11.5 Environmental measures incorporated into the Proposed Development

11.5.1 This section lists the environmental measures relevant to landscape and visual, which have been incorporated into the current design of the Proposed Development.

11.5.2 How these environmental measures influence the assessment of significance is discussed in **Section 11.6**. The broad approach adopted is that where achievable and agreed environmental measures have been identified, these have been incorporated into the Proposed Development, and the effect that those environmental measures have on the significance of potential effects is taken into account during the assessment. In some cases, a potential effect may require no further consideration following incorporation of appropriate mitigation measures.

11.5.3 A summary of the mitigation measures that have been incorporated into the Proposed Development in order to avoid, reduce or compensate for potential adverse landscape and visual effects is provided in **Table 11.11**.

11.5.4 It should be noted that the environmental measures incorporated into the design of the Proposed Development at this stage of design maturity largely take the form of guiding principles and generic measures which have been used to inform the outline design. These design principles are described in the Design and Access Statement (Document TR020002/APP/7.3) accompanying the

DCO submission. The design principles have been subject to a continuous process of refinement that will continue after DCO submission, as detailed designs are developed. These principles will be used to inform the design of any specific mitigation measures that may also need to be embedded into the final design. Design principles and embedded mitigation measures have been informed by the feedback received in response to this statutory consultation.

Table 11.11 Rationale for incorporation of environmental measure

Potential Receptor	Predicated Changes and potential effects	Incorporated Measure
Landscape elements: trees within the site boundaries	Potential loss or damage to valued vegetation (including tree roots as a result of construction activity) and screening elements	<p>Vegetation/tree survey and protection plans considered as part of the design process.</p> <p>Construction activities to be carried out in accordance with <i>BS 5837: 2012 Trees in relation to design, demolition and construction - Recommendations</i> in order to protect trees and other vegetation which is to be retained.</p> <p>New tree planting to be undertaken to replace that lost. The design of new planting has been located to deliver screening and softening of large-scale built form and is proposed along the southern side of Manston Road (north of the Cargo Facilities) and around the Airport Business Park. Further planting is proposed east of Spitfire Way. Typical proposed species are likely to be native and non-berrying so as to reduce bird attraction. The width of the planted buffers along the perimeter of the business park is typically 45m whilst elsewhere it ranges from 25-30m with planting densities at 4m centres in line with recommendations from the Civil Aviation Authority (CAA).</p>
Landscape character	Direct or indirect effects on valued characteristics, special qualities and character.	<p>Incorporation of enhanced landscape/architectural design, the provision of a landscape masterplan and landscape management to reduce effects of landscape character and ensure that the nature of these effects is neutral or positive as far as possible. The use of building materials, detailing and finish for the roofs and facades of proposed buildings that respond in a positive way to the existing landscape context; however, these details are not yet available so cannot be used to inform the assessment.</p> <p>In terms of overflying and the potential effects on tranquillity, the noise mitigation strategy has been developed in line with the CAP 1520: Draft Airspace Design Guidance.</p>
All visual receptors overlapped by the ZTV within the study area	<p>Changes to existing views, visual amenity and scenic quality:</p> <ul style="list-style-type: none"> • Introduction of new largescale features to the view; • Alteration to the landscape character of the view; • Loss of or disruption to existing views of skylines; • Changes to perceptions if movement through increased traffic (including heavy goods vehicles [HGVs]) and air movements; and • Visual effects resulting from light pollution. 	<p>The provision of screening vegetation as detailed above around the Airport Business Park, the southern side of Manston Road (north of the Cargo Facilities) and east of Spitfire Way. Localised bunding offers further visual screening in key locations by raising the ground level for planting.</p> <p>It is anticipated that the design of the buildings will be of high quality and that the design treatment, detailing and materials will be used to mitigate the apparent scale and soften the appearance of the buildings; however, these details are not yet available so cannot be used to inform the assessment.</p>
Landscape character Visual receptors within the study area	Indirect effects on valued characteristics, special qualities and character.	<p>Airport Lighting:</p> <ul style="list-style-type: none"> • The airport lighting has been designed to achieve compliance with the International Commission on Illumination (CIE) Guide: CIE 150:2003 Guide on

Potential Receptor	Predicated Changes and potential effects	Incorporated Measure
	Visual effects resulting from light pollution.	<p>the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations for Environmental Zone E2: Rural low district brightness - village or relatively dark outer suburban locations.</p> <ul style="list-style-type: none"> The luminaires use high efficiently, low energy LED lamps and the luminaires are designed to shine their light down and by carefully controlling cut off angles the luminaires minimise any upward light pollution to less than 2.5% of luminaire flux for the total installation that goes directly into the sky. Lighting levels are minimised with higher lighting levels only used where they are needed to comply with the minimum recommend lighting standards such as for the airport aprons. <p>Northern Grass Lighting:</p> <ul style="list-style-type: none"> The scheme has been designed to achieve compliance with the CIE Guide: CIE 150:2003 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations for Environmental Zone E2: Rural low district brightness - village or relatively dark outer suburban locations. The luminaires use high efficiently, low energy LED lamps and the luminaires are designed to shine their light down and by carefully controlling cut off angles the luminaires minimise any upward light pollution to less than 2.5% of luminaire flux for the total installation that goes directly into the sky. The lighting design will meet a boundary condition of a maximum of 1Lux in order to avoid any obtrusive light into adjoining properties.

11.6 Scope of the assessment

- 11.6.1 This section sets out information on the process by which receptors were identified, the details of the receptors that could potentially be affected by the Proposed Development and the potential effects on receptors that could be caused by the Proposed Development.
- 11.6.2 Whilst the relevant EIA regulations (*The Infrastructure Planning Environmental Impact Assessment Regulations 2017*) require that this assessment focuses upon those receptors most likely to experience significant landscape and visual effects, it is also important that a precautionary approach is adopted in defining the spatial and temporal scope of the assessment, in order that all of the potentially significant landscape and visual effects can be captured by the assessment.
- 11.6.3 The scope of assessment has been informed by:
- ▶ Relevant guidance (in particular that provided by *GLVIA 3*);
 - ▶ Consultee responses to the Scoping Report;
 - ▶ Consultee responses to the 2017 and 2018 PEIRs; and
 - ▶ The professional judgement of the qualified technical specialists who have undertaken the LVIA.

Approach to identifying receptors

- 11.6.4 Within the context of the framework outlined above, the identification of receptors has been informed by the results of the work detailed in **Section 11.4** and the Proposed Development design. In accordance with the guidance provided by *GLVIA 3*, potential receptors are considered

to include those who may reasonably be expected to have the potential to sustain significant adverse effects in relation to:

- ▶ Direct landscape effects (i.e. loss or degradation of landscape elements that may be physically affected by the Proposed Development and changes to the character of the landscape hosting the Proposed Development as a result of alterations to the fabric of that landscape);
- ▶ Indirect landscape effects (i.e. changes to the character of landscape surrounding the Proposed Development as a result of alterations to the appearance or other perceptual characteristics of the wider landscape); and
- ▶ Visual effects (i.e. changes to the views available to people).

11.6.5 The first step in identifying receptors to be included in the LVIA was the definition of the LVIA study area as described in paragraph 11.3.2. This has been defined as encompassing all areas within 5km of the Proposed Development site boundary and represents the maximum spatial scope of the landscape and visual assessment. The following landscape and visual receptors are excluded from the LVIA on the basis of their spatial relationship to the LVIA study area:

- ▶ All nationally or locally designated landscapes located wholly outside the LVIA study area;
- ▶ All nationally or locally defined LCAs located wholly outside the LVIA study area; and
- ▶ All visual receptors located outside the LVIA study area.

11.6.6 The second step in identifying receptors to be included in the LVIA was the establishment of a potential effects pathway. In relation to receptors that might be subject to direct landscape effects, no effects pathway is considered to be present for any landscape elements or character areas that are not located wholly or partly within the boundary of the Proposed Development. In relation to receptors that might sustain indirect landscape effects or visual effect, the potential effects pathway is considered to be visual and dependent upon the availability of views of the Proposed Development. The method used to calculate the ZTVs of the Proposed Development is described in paragraphs 11.3.3 to 11.3.9. The following landscape and visual receptors are excluded from the LVIA on the basis of their spatial relationship to the ZTV:

- ▶ All nationally or locally designated landscapes located wholly outside the ZTV;
- ▶ All nationally or locally defined LCAs located wholly outside the ZTV; and
- ▶ All visual receptors located outside the ZTV.

11.6.7 The third and final step in identifying receptors to be included in the LVIA was a consideration of the sensitivity of the receptors to the changes that are likely to occur. All LCAs included in the LVIA following steps one and two, described above, are considered to be of a sufficiently high sensitivity to have the potential to sustain significant effects as a result of the Proposed Development. In relation to visual receptors, all receptors within the categories: people at their place of residence; people within their community; people engaged in outdoor recreation; and people using the transport network are also considered to be of a sufficiently high sensitivity to have the potential to sustain significant effects as a result of the Proposed Development.

11.6.8 With regards to people at their place of work, *GLVIA 3* states the following within the context of visual receptors likely to be less sensitive to visual change:

'People at their place of work whose attention may be focused on their work or activity, not on their surroundings, and where the setting is not important to the quality of working life (although there may on occasion be cases where views are an important contributor to the setting and the quality of working life).'

11.6.9 People at their place of work are therefore only included in the LVIA where views are an important contributor to the setting and the quality of working life. No such receptors have been identified in relation to the Proposed Development.

Potential receptors

11.6.10 This section identifies the potential receptors that have been identified based on the factors listed above, on the Scoping Opinion received from PINS and responses made by consultees in relation to the 2017 and 2018 PEIRs and other engagement. The receptors listed in **Table 11.12** are considered capable of being significantly affected and are therefore taken forward for further assessment in this chapter.

Table 11.12 Potential receptors

Receptor	Minimum Distance from Manston Airport	Reason for selection
Landscape receptors		
NCA 113: North Kent Plain	Host NCA	Potential for direct and indirect effects upon NCA's key characteristics arising from proposed construction and operational activities.
HLCA 18 Isle of Thanet	Host HLCA	Potential for direct and indirect effects upon HLCA's key characteristics arising from proposed construction and operational phase activities.
LCA A1: Manston Chalk Plateau	Host LCA	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities.
LCA B1: Wantsum North Shore	Adjacent to Manston Airport	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities.
LCA C1: St Nicholas-at-Wade Undulating Chalk Farmland	Approximately 150m	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities.
LCA C2: Central Thanet Undulating Chalk Farmland	Approximately 150m	Potential for direct and indirect effects upon LCA's key characteristics arising from proposed construction and operational activities.
LCA C3: St Peters Undulating Chalk Farmland	Approximately 2.5km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA D1: Quex Park	Approximately 1.8km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA E1: Stour Marshes	Approximately 1.1km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA E2: Wade Marshes	Approximately 2.3km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA F1: Pegwell Bay	Approximately 1.km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA Ash Level	Approximately 2.8km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA Richborough Castle	Approximately 4.7km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.

Receptor	Minimum Distance from Manston Airport	Reason for selection
LCA The Sandwich Corridor	Approximately 2.9km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA Sandwich Bay	Approximately 2.5km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
Visual Receptors		
Residential visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.31 to 11.33.
Recreational visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.34 to 11.36.
Users of the transport network	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities.
LCA Richborough Castle	Approximately 4.7km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA The Sandwich Corridor	Approximately 2.9km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA Sandwich Bay	Approximately 2.5km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
Visual Receptors		
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Recreational visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.34 to 11.36.
Users of the transport network	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities.

Receptor	Minimum Distance from Manston Airport	Reason for selection
LCA Richborough Castle	Approximately 4.7km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA The Sandwich Corridor	Approximately 2.9km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
LCA Sandwich Bay	Approximately 2.5km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities.
Visual Receptors		
Residential visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.31 to 11.33 .
Recreational visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.34 to 11.36 .
Users of the transport network	Up to 5.km	Potential for changes to baseline views as a consequence of construction and operational phase activities.

Spatial and Temporal Scope

Spatial Scope

11.6.11 The spatial scope of the LVIA includes:

- ▶ All national and local LCAs located within the boundary of the Proposed Development;
- ▶ All national and local LCAs located wholly or partly within both the LVIA study area and the ZTV of the Proposed Development; and
- ▶ All visual receptors located wholly or partly within both the study area and the ZTV of the Proposed Development that fall within the following categories:
 - ▶ People at their place of residence;
 - ▶ People within their community, including parks and public open spaces;
 - ▶ People engaged in outdoor recreation; and
 - ▶ People using the transport network.

11.6.12 It is not considered likely that overflying of aircraft in the sky could give rise to significant visual effects due to the intermittent, transitory and small-scale nature of the changes that would arise in views.

Temporal Scope

- 11.6.13 With regard to the timeframe of the assessment, both the construction and operational phases have been considered based on the following timescales:
- ▶ Year 1 which accords with the period when a large proportion of construction activities will be undertaken;
 - ▶ Year 10 (winter to account for any increase in visibility due to seasonal leaf loss) during Phase 3 when operational activities will be well-established but some construction activities will still be taking place and therefore represents a typical 'snap-shot' of the 18-year period over which the airport will be developed; and
 - ▶ Year 20 (summer) is when the completed airport will be operating at its greatest capacity with regard to traffic and aircraft movements and will therefore be the worst-case scenario with regard to perceptual landscape effects.
- 11.6.14 Decommissioning effects have been scoped out of the assessments of landscape and townscape effects as the airport is envisaged to operate in perpetuity.

Potentially Significant Effects

- 11.6.15 The potentially significant effects from the Proposed Development, which are subject to further discussion in this Chapter, are summarised below.
- ▶ Potential effects on landscape character as a result of the construction and operational activity associated with Proposed Development. The assessment has been undertaken upon the limited number of Dover and Thanet LCAs that are completely or partially located within the study area and the development ZTV.
 - ▶ Potential effects upon NCA 113 - North Kent Plain.
 - ▶ Potential effects upon tranquillity, primarily as a result of increased noise and the visual presence of overflying of aircraft have been assessed within the context provided by the defined key characteristics of the different LCAs.
 - ▶ Potential effects upon the views and visual amenity of visual receptors within the LVIA study area and Proposed Development ZTV as a result of construction activity required to reopen Manston Airport. These will be principally the construction activities required for the cargo facility, ATC tower, fuel farm, hangars and new aircraft stands.
 - ▶ Potential effects upon the views and visual amenity of visual receptors within the LVIA study area and the Proposed Development ZTV as a result of the operation of the reopened Manston Airport. These will be principally the operational activities at the cargo facility, fuel farm, hangars and new aircraft stands but will also include the movements of aircraft on the ground and when taking off and landing (air traffic movements - ATMs) and movement of vehicles and planes within and around the Proposed Development.
- 11.6.16 Assessment of each of the following effects has led to the conclusion that they are unlikely to be significant and do not require any further assessment:
- ▶ Potential effects on any LCA within the study area that are entirely outside the development ZTV, as without a visual effects pathway it is highly unlikely that significant effects could be sustained by other potential effects pathways on their own; and
 - ▶ Potential effects on visual receptors that are located within the study area but outside the Proposed Development ZTV. This is because in the absence of a visual effects pathway linking a visual receptor to the Proposed Development it is highly unlikely that significant visual effects could be sustained. It is not considered unlikely that overflying of aircraft in the sky alone could give rise to significant visual effects due to the intermittent, transitory and small-scale nature of the changes that would arise in views.

Lighting Effects

- 11.6.17 Based on the principles outlined in **Table 11.11**, and with particular note to the boundary lighting condition of 1Lux (maximum), it is not expected that there would be any significant effects as a result of the Proposed Development. As noted above, the lighting of the Proposed Development (both airport and Northern Grass) will be the subject of further development and assessment and as this takes place the design should be reviewed and more detailed modelling of the likely impacts undertaken.

Inter-related Effects

- 11.6.18 Visual effects during the construction and operation phase of the proposed development could lead to effects on human receptors. There is potential for inter-related effects to arise in relation to human receptors (for example there could be visual, noise, traffic and dust effects upon the same receptor). Environmental effects that may affect human receptors are described in **Chapter 6: Air Quality**; **Chapter 12: Noise and Vibration**; **Chapter 13: Socio-economics**; **Chapter 14: Traffic and Transportation** and **Chapter 15: Health and Wellbeing**. Consideration of interactive effects on humans as a result of other environmental effects (such as noise, traffic and transport, air quality and socio-economics together with visual), is considered in **Chapter 18: Cumulative Effects**.
- 11.6.19 Changes to views may contribute to effects on the settings of heritage assets and this is considered in **Chapter 9: Historic Environment**. However, it is noted that any adverse visual effects arising as a result of change in valued views would not constitute an inter-related effect because, insofar as they relate to the significance of heritage assets, these views represent a subset of the changes already considered within the historic environment assessment. Change to significance resulting from visibility of the airport infrastructure and aircraft movements has already been considered in the historic environment assessment of effects.
- 11.6.20 Assessment of inter-related effects in relation to landscape receptors is inherent within the assessments of effects on landscape character provided in this chapter, as these assessments consider all factors which could alter the physical fabric or perceived characteristics of the landscape (e.g. the way in which noise may affect tranquillity). It is not considered that there is potential for any additional inter-related effects to arise in relation to landscape receptors other than those considered in this chapter.

Cumulative Effects

- 11.6.21 The potential for cumulative effects to arise as a result of the Proposed Development together with other development proposals is assessed in **Chapter 18: Cumulative Effects**.

11.7 Assessment Methodology

Methodology for Predicted Effects

- 11.7.1 The methodology for the LVIA has been undertaken in accordance with best practice guidance and the methodology as set out here, which is based on the *GLVIA 3*.
- 11.7.2 Additional guidance has been taken from, but not limited to, the following key publications:
- ▶ *Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment*;
 - ▶ *Visual Representation of Wind Farms Version 2.2*;
 - ▶ *Technical Guidance Note 02/17 Visual representation of development proposals*²⁸; and
 - ▶ *Technical Information Note 01/2017 Tranquillity – An overview*²⁹.

- 11.7.3 The assessment of the significance of landscape and visual effects is, according to *GLVIA 3*, 'an evidence-based process combined with professional judgement.' All assessments and judgements must be transparent and capable of being understood by others. Levels of landscape and visual effects are determined by consideration of the nature or 'sensitivity' of each receptor or group of receptors and the nature of the effect or 'magnitude of change' that would result from the reopening and redevelopment of Manston Airport.

Landscape Effects

- 11.7.4 Landscape effects are defined by the Landscape Institute in *GLVIA 3*, paragraphs 5.1 and 5.2 as follows:

'An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner.'

Evaluating Landscape Sensitivity to Change

- 11.7.5 The sensitivity of a landscape receptor (e.g. an LCA) to a particular development is determined by the susceptibility of that landscape receptor and its value. The methodology describes landscape sensitivity as high, medium or low and is assessed by taking into account the landscape receptor's landscape value and landscape capacity or susceptibility to the changes identified as the result of the construction and subsequent operation of a particular proposed development.
- 11.7.6 Further guidance on the evaluation of landscape sensitivity and the criteria for assessing value and susceptibility is set out in paragraphs 5.39 – 5.47 of *GLVIA 3* and summarised below.

Landscape value

- 11.7.7 *GLVIA 3* (Landscape Institute and Institute of Environmental Management & Assessment [LI & IEMA], 2013) defines landscape value as:

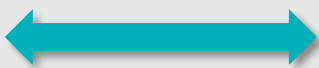
'The relative value that is attached to different landscapes by society'.

- 11.7.8 A consistent approach has been applied to determine the landscape value of the individual landscape character receptors considered in the landscape assessment. This utilises a range of factors to help understand the value of a particular landscape, including:

- ▶ Landscape designations: whether an area of landscape is recognised by statute (i.e. National Parks), is a heritage coast, a locally designated landscape or is undesignated;
- ▶ Landscape quality/condition: a measure of the physical state of the landscape (i.e. the intactness of the landscape and the condition of individual elements);
- ▶ Rarity: the presence of rare elements or features in the landscape or the presence of a rare landscape character type;
- ▶ Conservation interests: the presence of features of wildlife or historical and cultural interest which add value to the landscape;
- ▶ Recreational value: evidence that the landscape is valued for recreational activity where experience of the landscape is important;
- ▶ Perceptual aspects: a landscape may be valued for its perceptual qualities, notably tranquillity; and
- ▶ Associations: some landscapes are associated with particular people, such as artists or writers, or events in history.

11.7.9 **Table 11.13** draws from the advice provided in *GLVIA 3* and provides further guidance and examples of landscape value.

Table 11.13 Assessing value

Landscape Value Criteria	Landscape sensitivity category:		
	High	Medium	Low
Designations:	Internationally or nationally designated landscape.	Non-designated or 'ordinary' landscapes and landscape features.	A 'non-landscape' or area of land-use associated with mineral extraction, heavy industry, landfill, large scale construction (which may be temporary) or dereliction.
Landscape quality, condition and intactness:	A landscape/feature(s) recognised to be of high landscape quality and in excellent or good condition with a 'strong' intact/unified and distinctive character. Constant/mature landscape with strong time depth. Management plans aim for conservation.	A landscape/feature(s) that are of a reasonable or medium quality and condition with an intact and recognisable character. Constant or improving state. Management plans aim for conservation and enhancement.	A landscape/feature(s) that are in a poor condition with a fragmented or indistinct landscape character. The landscape may be in a declining state. Management plans aim for enhancement and restoration.
Scenic quality:	A landscape of high aesthetic appeal supported by recognised tourist/visitor literature. There are little or no detracting features.	A landscape of moderate or 'ordinary' aesthetic appeal. There may be some detracting features.	A landscape of limited or no aesthetic appeal with detracting features, including noise, traffic movement and/or odours.
Rarity and representativeness:	A landscape/feature(s) that are rare and valued in a national or regional context that is supported by designation.	A landscape/feature(s) that are uncommon but, not particularly valued or supported through designation.	A landscape/feature(s) that are common and not rare
Conservation interest and associations:	A landscape with rich and diverse cultural, historic, nature conservation value and recognised literary or artistic associations with international/national designation.	A landscape with some cultural or nature conservation features and interest.	A landscape with few or no cultural or nature conservation features and interest.
Recreation value:	High recreational/tourist value indicated through land use (parks/sports facilities etc.) and the density/hierarchy of recreational routes.	A landscape of moderate recreational value, as indicated by land use and density/hierarchy of recreational routes.	A landscape of limited recreational value, where an appreciation of the landscape has a limited contribution to the public's recreational experience.
Perceptual aspects:	Highest levels of CPRE mapped tranquillity. Strong perceptions of 'wildness' or naturalness and dark skies.		Developed landscapes which are the antithesis of tranquillity 'wildness' or naturalness. Light intrusion occurs.

Landscape susceptibility to change

11.7.10 *GLVIA 3* defines landscape susceptibility to change as follows:

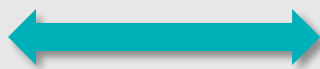
'This means the ability of the landscape receptor to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation...'

11.7.11 *GLVIA 3* also emphasises that susceptibility to change is dependent on the types of development proposed. Paragraph 5.42 states:

'Some of these existing assessments may deal with what has been called "intrinsic" or "inherent" sensitivity, without reference to a specific type of development. These cannot reliably inform assessment of the susceptibility to change since they are carried out without reference to any particular type of development and therefore do not relate to the specific development proposed. Since landscape effects in LVIA are particular to both the specific landscape in question and the specific nature of the development, the assessment of susceptibility must be tailored to the project.'

11.7.12 **Table 11.14** provides further guidance and examples of landscape susceptibility, which considers the capacity or ability of the landscape receptor, by virtue of its particular physical, visual or perceptual characteristics to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

Table 11.14 Assessing susceptibility

Susceptibility criteria	Landscape sensitivity category		
	High	Medium	Low
Generally: Landscape possessing combinations of physical, visual or perceptual characteristics that indicate:			
Landscape	High susceptibility to proposed change and low capacity for the Proposed Development.		Low susceptibility to proposed change and high capacity for the Proposed Development.
Examples of physical elements/characteristics:	Elements or combinations of characteristics such as of small scale landscapes with complex landform, patterns and enclosed spaces, susceptible to development.	Elements or combinations of characteristics such as medium to large scale landscapes with more open, simple landform and patterns with some capacity for development.	Elements or combinations of characteristics such as large scale and simple landscapes, where similar development is already part of the baseline character and there is capacity for development.
Examples of visual characteristics:	Susceptibility to alteration of regionally/locally valued skylines, views, vistas and landmarks. Areas with a strong visual relationship with surrounding landscapes/setting and limited visual/light intrusion.	Combinations of broad and simple skylines with few landmarks and change already present. A landscape where light intrusion and some movement is present.	Combinations of broad and simple skylines lacking in landmarks, where development change movement, light intrusion and/or visual intrusion is present.
Examples of perceptual characteristics:	Perceptions of tranquillity, 'wildness' or naturalness, time depth and/or related special qualities with low levels of light intrusion that would be susceptible to development.	Perceptions of moderate tranquillity, 'wildness' or naturalness with limited time depth, presence of light intrusion and some development capacity.	Landscapes lacking in tranquillity, 'wildness' and/or remoteness, subject to land use change, and with development capacity.

11.7.13 The manner in which the value and susceptibility are combined to determine landscape sensitivity is a matter for informed professional judgement and the following matrix shown in **Table 11.15** has been used as a guide to assist this process. In terms of landscape value, international and national landscape designations are generally accorded the highest assessment value. Sensitivity assessments for all LCAs taken through to the assessment are included in **Appendix 11.2**.

Table 11.15 Overall landscape sensitivity

	Susceptibility		
	High	Medium	Low
> 5 - High	High	High	Medium

Medium	High	Medium	Low
Low	Medium	Low	Low

Magnitude of Landscape Change

11.7.14 The magnitude of landscape change or degree of change resulting from the redevelopment and operation of the Proposed Development is described as high, medium, low or negligible, in accordance with *GLVIA 3* paragraph 3.27 use of ‘word scales.’ In those instances where, due to mitigation, there would be no magnitude of landscape change, then this justification is also recorded in the landscape assessment. The magnitude of landscape change is described by reference to its size and scale, geographical extent and duration/reversibility in accordance with *GLVIA 3*, paragraph 5.48-52 that can be summarised as follows:

- ▶ Size or Scale:
 - ▶ The size or scale of landscape change is described via a simple word scale to describe the extent or proportion of loss or addition of landscape elements, the degree to which the perceptual characteristics of the landscape may be altered and whether the effect changes the key characteristics, critical to its distinctive character overall.
- ▶ Geographical Extent:
 - ▶ The geographical extent of the effect is distinct from the size and scale of effect and there may for example be a medium loss of landscape elements affecting a large geographical area, or a high level addition of new development affecting a very localised area, both resulting in a high magnitude of landscape change. The geographical extent is described at a site level within the development boundary, within the immediate setting of the site, at the scale of the landscape character type or area assessed or on a larger scale, affecting several landscape character types or areas.
- ▶ Duration and reversibility:
 - ▶ In accordance with *GLVIA 3* this is a separate, but linked consideration and the duration of an effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The development may also be considered in terms of whether the effects are reversible.

11.7.15 Examples and further guidance on the evaluation of the magnitude of landscape change are described in **Table 11.16**.

Table 11.16 Magnitude of landscape change

Magnitude of landscape change	Key determining criteria
High	A large scale change that may include the loss of key landscape elements/characteristics or the addition of new uncharacteristic features or elements that would alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may change the overall distinctive landscape quality and character, typically, but not always affecting a larger geographical extent.
Medium	A medium scale change that may include the loss of some key landscape characteristics or elements, or the addition of some new uncharacteristic features or elements that could alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may lead to a partial change in landscape character, typically, but not always affecting a more localised geographical extent.
Low	A small scale change that may include the loss of some landscape characteristics or elements of limited characterising influence, or the addition of some new features or elements of limited characterising influence. They may be a small partial change in landscape character, typically, but not always affecting a localised geographical extent.

Magnitude of landscape change	Key determining criteria
Negligible	A very small scale change that may include the loss or addition of some landscape elements of limited characterising influence. The landscape characteristics and character would be unaffected.

- 11.7.16 The assessment also identifies areas where no landscape change is predicted. In these instances, 'No Change' has been inserted into the magnitude of change column of the assessment tables and the resulting level of effect identified as 'None'. This commonly occurs where no intervisibility (presence of a line of sight between two locations) exists between the landscape receptor and the Proposed Development.
- 11.7.17 In accordance with the relevant EIA Regulations (*The Infrastructure Planning [Environmental Impact Assessment] Regulations 2017*), the level of landscape effect is also described in terms of the effect's duration (permanent/temporary), direct/indirect (as defined by *GLVIA 3* as resulting directly from a Proposed Development or as an indirect consequence), positive (beneficial)/neutral/negative (adverse) and/or whether it is cumulative. In describing the level of landscape effect, the assessment text clearly and transparently sets out the professional judgements that have been made in determining sensitivity and how the value and susceptibility of the receptor has been assessed; and in determining magnitude and how the size and scale, geographical extent and duration of the effect has been taken into account.

Visual effects

- 11.7.18 Visual Effects are concerned wholly with the effect of the Proposed Development on views and the general visual amenity and are defined in *GLVIA 3*, paragraph 6.1 as follows:
- 'An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views.'*
- 11.7.19 Visual effects are identified for different receptors (people) who will experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:
- ▶ Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view; and
 - ▶ Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.
- 11.7.20 The assessment process involves iterative design and the reassessment of any remaining residual effects that could not otherwise be mitigated or 'designed out'.
- 11.7.21 The level of visual effect (and whether this is significant) is determined through consideration of the 'sensitivity' of each visual receptor (or range of sensitivities for receptor groups) and the 'magnitude of change' that would be brought about by the reopening of Manston Airport and operation of the Proposed Development. The visual assessment unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion has been sought through consultation and internal peer review.

Zone of Theoretical Visibility (ZTV) Analysis

- 11.7.22 Plans mapping the ZTV for various components of the Proposed Development have been used to analyse the extent of theoretical visibility of the Proposed Development or part of it, across the LVIA study area and to assist with viewpoint selection. Whilst the ZTVs take account of the screening effects of larger blocks of woodland as identified on OS mapping and buildings, they do

not take account of vertical features such as banks, fences, walls or vegetation such as hedgerows and individual trees which would, in reality preclude visibility of the Proposed Development.

- 11.7.23 The ZTVs provide a starting point in the assessment process and accordingly tend towards giving a 'worst case' or greatest calculation of the likely theoretical visibility.

Viewpoint Assessment

- 11.7.24 Viewpoint locations are shown in **Figures 11.7** and **11.8**. Viewpoint analysis is used to assist the LVIA and is conducted from agreed viewpoints within the study area that have been agreed with consultees, in particular local planning authorities. The purpose of this is to assess both the level of visual impact for particular receptors and to help guide the design process and focus the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur. By arranging the viewpoints in order of distance it is possible to define a threshold or outer limit beyond which there would be no further significant effects. The viewpoint analysis considers seasonally reduced leaf cover and is included in the ES in **Appendix 11.3**.

Evaluating Visual Sensitivity to Change

- 11.7.25 In accordance with paragraphs 6.31-6.37 of *GLVIA 3* the sensitivity of visual receptors takes account of the susceptibility of the receptor to visual change and the value of the baseline view available to them. These are described as high, medium or low. The main factors to consider are the occupation or activity of the receptor (people) at particular locations, the extent to which their attention or interest may therefore be focused on appreciation of the landscape in the view and the importance or popularity of the views and/or typical numbers of viewers. These are assessed by reference to OS maps, observations made during site visits and, where available, to publicly available information on user numbers, for example the number of visitors to a tourist destination. Other factors include the location and context of the viewpoint (in terms of the landscape value, quality, and capacity of the area within the view).
- 11.7.26 The factors that have been considered in defining the levels of visual susceptibility are as follows:
- ▶ Visual receptor: Whilst it is accepted that people will undertake a range of different activities, their visual experience of the Proposed Development and its operation will change according to where they are, and what they are doing. The primary activity of the receptor at the viewpoint is therefore a key determinant of visual sensitivity. Residents and other individuals engaged in outdoor recreation, where the focus of the activity is the enjoyment of the landscape are assessed to be of high sensitivity. People who are travelling are assessed to be less sensitive (medium or low) unless the route is specifically signed as a scenic driving route; and people engaged in sport or recreation which does not involve or depend upon appreciation of views of the landscape and people at work are assessed as the least sensitive (low); and
 - ▶ Frequency: The popularity and/or number of viewers are also important factors to consider. Landmarks/tourist attractions and national trails visited and used by large numbers of people are likely to be more sensitive than those which are less visited. Exceptions include motorways where, although there are large numbers of receptors these are generally considered to be of lower visual sensitivity and appreciation of scenic quality is unlikely to be their primary motivation in undertaking a motorway journey and their high speed will make appreciation of views more difficult.
- 11.7.27 The factors which have been considered in defining the value attached to views by receptors include:
- ▶ Any recognition of the value attached to a particular view in relation to heritage assets or through planning designations; and
 - ▶ Any indications of value provided by guidebooks, tourist literature, provision of car parking and/or provision of interpretation materials.

11.7.28 Examples and further guidance on the evaluation of visual sensitivity are described in **Table 11.17**.

Table 11.17 Visual receptor sensitivity

Visual receptor sensitivity	Key determining criteria
High	<p>The receptors in this category would generally include residents, tourists/visitors, walkers, cyclists and horse riders, either stationary or travelling through the landscape and/or undertaking outdoor recreational activities where the focus of the activity is an appreciation of the landscape.</p> <ul style="list-style-type: none"> ▪ Residential properties or settlements and related community outdoor spaces. ▪ Outdoor tourist and visitor attractions. ▪ Recreational routes (national trails, long distance footpaths and PRoWs; Sustrans national cycle routes (NCR); open access land/beaches and recognised scenic driving routes). <p>People generally, undertaking recreational activity where the focus of the activity is an appreciation of the landscape (outside internationally or nationally designated landscapes).</p>
Medium	<p>This category generally covers: people travelling through the landscape on road, rail or other transport routes as rail passengers and road users and people undertaking recreational and sporting activities where it is likely that their surroundings have some influence upon their enjoyment (e.g. angling and golfing).</p>
Low	<p>This category generally covers: people for whom their surroundings are unlikely to be a primary concern or affect how they undertake their current activity. Receptors are likely to include people at their place of work, people travelling on main roads through built up areas, dual-carriageways or motorways or taking part in activities not involving an appreciation of the landscape (e.g. playing team sports).</p>

Evaluating the Magnitude of Change to the View

11.7.29 The magnitude of visual change is described as high, medium, low or negligible which is in accordance with the guidance on the use of 'word scales' provided in paragraph 3.27 of *GLVIA 3*. In those instances where the Proposed Development would not be visible, due to vegetation screening, then this is also recorded as '*No Change*' in the magnitude of change column of the assessment tables and the resulting level of effect identified as '*None*'.

11.7.30 The magnitude of visual change has been assessed taking into account the baseline presence of the non-operational airport and is described by reference to its size and scale, geographical extent and duration/reversibility in accordance with *GLVIA 3* as follows:

- ▶ **Size and Scale:**
 - ▶ **Scale of change:** The scale of change in the view is determined by the loss or addition of features in the view and changes in the composition and extent of view affected. This can in part be described objectively by reference to the numbers and scale of new objects visible and the horizontal/vertical field of view that these new objects will occupy. Other descriptors such as 'dominant', 'prominent', 'noticeable' and 'negligible' can also be used to describe the scale of change.
 - ▶ **Contrast:** The degree of contrast or integration that will be generated by the introduction of any new features or changes in the landscape that will arise with the existing or remaining landscape elements and characteristics in terms of form, scalar, mass, line, height, colour and texture. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and have a higher magnitude of change.
 - ▶ **Speed:** The speed at which the Proposed Development may be viewed will affect how long the view is experienced (continuously, intermittently, glimpsed or repeatedly and sequentially along a route) and the likelihood of the development being noticed by people travelling in cars or trains compared to those who may be walking/riding/cycling and able to stop and 'take in' a view.
 - ▶ **Screening:** A development may be wholly or partly screened by landform, vegetation (including seasonal effects due to hedgerow management and seasonal variations in

deciduous leaf cover) and/or buildings. Conversely visual receptors with open views, particularly from landscapes where such views are a key characteristic, are likely to be able to see a greater proportion or all of the Proposed Development.

- ▶ Skyline/background: Whether a development would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude, for example skyline developments may appear more noticeable, particularly where they affect open and uninterrupted horizons.
- ▶ Geographical Extent:
 - ▶ Distance: The separation distance from the Proposed Development can be measured objectively. Distance often provides a strong indicator of the magnitude of visual change, subject to any intervening screening of the development by landform, vegetation or buildings.
 - ▶ Angle of view: The angle of view may be considered in terms of whether the development will be seen directly in front of a visual receptor or if it will be seen more obliquely. Road users are generally more aware of the views in the direction of travel, whilst train passengers are more aware of views perpendicular to their direction of travel. Elevated views are likely to reveal more of the Proposed Development, whereas low level views are more likely to be screened by intervening built form and vegetation.
 - ▶ Geographical extent of area over which the changes would be visible: This can be defined by the distance, area and the horizontal and vertical field of view affected.
- ▶ Duration and reversibility:
 - ▶ In accordance with *GLVIA 3* this is a separate, but linked consideration, and the duration of an effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The development may also be considered in terms of whether the effects are reversible.

11.7.31 Further guidance on the evaluation of the magnitude of visual change is provided in **Table 11.18**.

Table 11.18 Magnitude of visual change

Magnitude of Visual Change	Key determining criteria
High	A large and prominent change to the view, appearing in the fore to middle ground and involving the loss/addition of a number of features which is likely to have a strong degree of contrast and involving little screening. The view is likely to be experienced at static or low speed and is more likely to be continuously/sequentially visible from a route.
Medium	A moderate and prominent/noticeable change to the view, appearing in the middle ground and involving the loss/addition of features and a degree of contrast with the existing view. There may be some partial screening. The view is likely to be experienced at static or low to medium speed and is more likely to be intermittently or partially visible from a route.
Low	A noticeable or small change, affecting a limited part of the view that may be obliquely viewed or partly screened and/or appearing in the background landscape. This category may include rapidly changing views experienced from fast-moving road vehicles or trains.
Negligible	A small or negligible change to the view that may be obliquely viewed and mostly screened and/or appearing in the distant background or viewed at high speed over short periods and capable of being missed by the casual observer.

11.7.32 In accordance with the relevant EIA Regulations (*The Infrastructure Planning [Environmental Impact Assessment] Regulations 2017*) the level of visual effect is also described in terms of the effects duration (temporary/permanent), whether it is positive (beneficial)/neutral/negative (adverse) and/or whether it is cumulative. In describing the level of visual effect the assessment

text clearly and transparently sets out the professional judgements that have been made in determining visual sensitivity and how the value and susceptibility of each visual receptor has been assessed and in determining magnitude and how the size and scale, geographical extent and duration of the effect has been taken into account.

Evaluating Positive/Neutral and Negative Effects

- 11.7.33 In describing whether the nature of the effects would be positive (beneficial)/neutral/negative (adverse).
- 11.7.34 However, not all change, including high levels of change, is necessarily negative. The LVIA considers architectural and aesthetic factors such as the visual composition of the landscape in the view together with the Proposed Development, which may or may not be reasonably accommodated within the scale and character of the landscape as perceived from the receptor location as follows:
 - ▶ Positive or beneficial effects would include landscape mitigation and enhancement, combined with good landscape and architectural design quality resulting in a development that can be reasonably well accommodated within the scale and landscape setting or context;
 - ▶ Neutral visual effects include changes that neither add nor detract from the quality and character of an area including development that appears reasonably well accommodated within the scale and setting or context and also includes negligible magnitudes of change; and
 - ▶ Negative effects are likely to result from poor design quality, such as the scale of development relative to the underlying landscape scale and landscape setting or context, or other visual factors that may reduce scenic quality, such that the development may appear dominating, over intrusive, overbearing or oppressive for example.
- 11.7.35 The identification of negative effects can be used to formulate more effective mitigation and lead to the reduction in residual effects.

Significance Evaluation Methodology

- 11.7.36 The level of landscape and visual effects has been determined with reference to landscape or visual sensitivity and the magnitude of landscape or visual change experienced. For each receptor the evaluation process has been informed by use of a matrix as in **Table 11.19**.

Table 11.19 Matrix of EIA Significance

Magnitude of Change	Sensitivity of Receptor		
	High	Medium	Low
High	Significant	Significant	Not significant
Medium	Significant	Not significant	Not significant
Low	Not significant	Not significant	Not significant
Negligible	Not significant	Not significant	Not significant

- 11.7.37 In line with the emphasis placed in *GLVIA 3* upon application of professional judgement, the adoption of an overly mechanistic approach through reliance upon a matrix as presented in **Table 11.19** has been avoided through the provision of clear and accessible narrative explanations of the

rationale underlying the assessment made for each landscape and visual receptor. Such narrative assessments provide a level of detail over and above the outline assessment provided by the use of the matrix alone. Wherever possible cross references are made to baseline figures and/or to photomontage visualisations in order to support the rationale.

11.8 Assessment of Landscape Effects

Effects on NCA 113: North Kent Plain

Landscape Sensitivity

- 11.8.1 A description of this NCA is provided in *National Character Area Profile 113: North Kent Plain*.
- 11.8.2 This NCA covers an extensive, generalised area that is highly varied and diverse. Amongst its key characteristics are the '*[l]arge settlements and urban infrastructure (including lines of pylons) [which] are often visually dominant in the landscape, with significant development around Greater London and the Medway Towns, as well as around towns further east and along the coast. Major rail and road links connect the towns with London.*' The NCA profile also notes how the '*[t]he impact of development is exacerbated by the expansive and open nature of the low lying landscape.*' The value and susceptibility of this NCA are both assessed as being **Medium**. Overall landscape sensitivity is therefore assessed as being **Medium**. Whilst it is recognised that there will undoubtedly be some areas of landscape that are of a higher and lower sensitivity within this extensive NCA, the sensitivity assessment contained within **Appendix 11.2** explores this in more detail at a district LCA level.

Assessment of Landscape Effects (Construction and Operational Effects)

- 11.8.3 The assessment of landscape effects for the three timeframes set out in **Section 11.6** (Year 1, Year 10 and Year 20) is set out in **Table 11.20**.

Table 11.20 Assessment of landscape effects: NCA 113: North Kent Plain

NCA 113: North Kent Plain		
Year 1 (construction)	<p>At the scale of the NCA, construction activities taking place within the Manston Airport site throughout Year 1 are unlikely to have a characterising influence. The two 40m high cranes, which will be deployed, and taller construction elements, such as a concrete batching plant, would have an influence across the greatest geographical area but present above relatively narrow proportions of the skyline that is already characterised by tall vertical pylons and from some directions, large scale built form. Ground level construction activities, associated movement of vehicles, both within the site and using the local road network, and any localised increases in noise levels are unlikely to have a characterising influence at the scale of the NCA. There will be minimal loss of landscape elements from within the site to facilitate the construction activities. The extensive earthworks and emerging built form (the ATC tower, southernmost business units and Cargo Facility 1 being amongst the tallest and therefore the most likely to have the greatest influence beyond the boundary of the site) would not be wholly uncharacteristic in a local landscape which already contains some large scale buildings such as those at Thanet Earth and within the Manston Business Park. The magnitude of change across the proportion of the NCA within the study area is likely to be Low to Negligible and the effects on this receptor are therefore considered Not Significant.</p>	
	Magnitude of change: Low to Negligible	Significance: Not Significant
	Type of effect: Adverse and temporary (construction) and permanent (buildings)	

Table 11.20 (continued) Assessment of landscape effects: NCA 113: North Kent Plain

NCA 113: North Kent Plain		
Year 10 (construction and operation)	<p>A good proportion of the built development proposed for the now operational airport and the business park will be completed by Year 10 and the extent of construction activities being undertaken commensurately reduced. The operational phase will see the operation of a number of large scale cargo facilities, aircraft hangars and the ATC tower which in themselves are unlikely to have a characterising influence given the surrounding landscape context which is already host to a number of large scale developments. The greatest levels of change will be associated with the ATMs; with the likely model showing aircraft arrivals and departures heading from/in an easterly and westerly direction. These ATMs have the potential to disrupt existing levels of tranquillity across the greatest geographical area with intermittent increases in noise levels and the visual presence of overflying aircraft. Ground level movements of aircraft and other vehicles within the site are likely to locally disrupt tranquillity levels. There will also be an increase in lighting and HGVs on the local road network. The magnitude of change across the proportion of the NCA within the study area is likely to be Low to Negligible and the effects on this receptor are therefore considered Not Significant.</p>	
	<p>Magnitude of change: Low to Negligible</p>	<p>Type of effect: Adverse and temporary (construction) and permanent (buildings and operational activities)</p>
		<p>Significance: Not Significant</p>
Year 20 (operation)	<p>All construction activities will have ceased by Year 18. The now fully operational site will be operating at the predicted maximum ATMs (both passenger and freight) of approximately four ATMs per hour with more frequent but still intermittent increases in noise levels and the visual presence of overflying aircraft. The large scale built forms within the site will continue to be present in a landscape which is already host to similar scale developments. The magnitude of change across the proportion of the NCA within the study area is likely to be Low to Negligible and the effects on this receptor are therefore considered Not Significant.</p>	
	<p>Magnitude of change: Low</p>	<p>Type of effect: Adverse and permanent</p>
		<p>Significance: Not Significant</p>

Assessment of Effects on the Host HLCA: 18 – Isle of Thanet

Landscape Sensitivity

- 11.8.4 The assessment of sensitivity with regard to historic landscape character cannot be approached in the same manner as it is with regard to landscape character *per se* as it deals with the value of the historic landscape patterns and the susceptibility of these to physical change.
- 11.8.5 Whilst this HLCA includes a number of HLTs, it is characterised primarily by two HLTs, namely a post-1801 settlement (HLT 9.6) and irregular fields bounded by roads, tracks and paths (HLT 1.14). Other notable HLTs include small patches of orchards (HLT 3.1), pre-1801 settlements (HLT 9.1, 9.7, 9.9) and pockets of industrial activity (HLT 12.1–12.7). Manston Airport itself is categorised as HLT 13.3: Airfields with 20th century origins and defining characteristics of '*large open areas with straight boundaries*'. All of the HLTs within HLCA 18 are considered to be of a high susceptibility to physical change leading to a **High** landscape sensitivity when considering historic landscape character.

Assessment of landscape effects (construction and operational effects)

- 11.8.6 The construction and gradual emergence of built form within the site would be concentrated within the area defined as HLT 13.2: Airfields and as such will not lead to the erosion of neighbouring HLTs, principally HLT 1.14: Irregular fields bounded by roads, tracks and paths or HLT 9.6: Post-1801 settlement which lies adjacent to the northern boundary of the site. The site will still continue to be categorised as 13.3: Airfields although the increase in built form across the site will lead to fewer '*large open areas*' and a more enclosed pattern of built form. There will be no effects on the surrounding HLTs with a low magnitude of change within the site boundary. Given the relatively minor contribution made by HLT 13.2: Airfields to the overall character of the HLCA, landscape effects on the HLCA as a whole will be **Negligible, neutral (permanent) and Not Significant**.

Assessment of Effects on the Host LCA: A1 Manston Chalk Plateau

Construction and Operational Effects

11.8.7 The assessment of effects upon the host LCA is set out in **Table 11.21** for the three timescales set out in **Section 11.6**.

Table 11.21 Landscape assessment: LCA A1 Manston Chalk Plateau

A1: Manston Chalk Plateau		
Receptor sensitivity:	The value of this LCA is assessed as Medium and its susceptibility as Low. The overall landscape sensitivity of this LCA is therefore assessed as Low . Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	<p>The construction activities would be concentrated within the boundaries of the non-operational airport which itself occupies a large, central part of this LCA.</p> <p>Construction activities, including those at ground level are likely to be readily discernible from locations adjacent to the site boundary and from some locations to the north and east, where more open views towards the site are available. By contrast, higher levels of screening are provided by the coalescence of intervening vegetation and built development allied to the relative similarity in the elevation of the site with the landscape to the north west of the site. From across a large proportion the LCA, the presence of more elevated construction activities, such as the use of cranes and the gradual emergence of the taller structures within the site, will become components of the view. These include the first of the cargo facilities, ATC tower and southernmost business units which may be prominent from localised areas in close proximity to the site, particularly to the east and north east with their role within the landscape diminishing to the north west around Woodchurch. These construction and early operational activities will take place in a landscape which is already influenced by existing large scale built form close to the boundary of the LCA, such as Manston Business Park, Thanet Earth and Westwood Cross Shopping Area, as well the remaining buildings within the non-operational airport, all of which exert an urban influence across this fragmented agricultural landscape. Vertical structures, such as the occasional masts and transmitter towers, within and close to the site also already play a role in the landscape thereby limiting the characterising influence of any additional vertical structures introduced within this LCA.</p> <p>The level of activity and disturbance within the Manston Airport site, allied with increased numbers of vehicle through the landscape, have the potential to affect perceptual characteristics such as tranquillity although current moderate to moderately low levels are already influenced by the A299 and busy local road network. High levels of change are expected within the boundary of the site itself; the magnitude of change across the LCA as a whole is likely to be Medium. The effects on this receptor are therefore considered Not Significant.</p>	
	Magnitude of Change: High to Medium	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	<p>A good proportion of the built development proposed for the now operational airport and the business park will be completed by Year 10 and the extent of construction activities being undertaken commensurately reduced. The periodic presence of the two cranes and the continued emergence of new structures will continue to play an urbanising role in the landscape most notably from locations to the north and east, with less of a role played by these structures from locations to the west and north west.</p> <p>In addition to the role played by the proposed buildings, operational activities focused within the boundaries of the site will result in the increased presence of vehicles using the local road network, both cars (passengers and workers) and HGVs. This will introduce additional movement into the landscape but within a LCA which is already busy from baseline traffic flows. Likewise, levels of tranquillity are already locally disrupted along these main transportation routes as a result of baseline traffic.</p> <p>The visual and audible presence of aircraft moving around the Manston Airport site and on take-off and landing will disturb existing moderate to moderately low levels of tranquillity within this LCA. This disruption will be periodic and transient with approximately two flights an hour at Year 10.</p>	
	Magnitude of change: High to Medium	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant

A1: Manston Chalk Plateau

Year 20 (operation)

Landscape effects are likely to be similar to those described for Year 10 although construction activities will have ceased by Year 18 with a small increase in built form within the site when operating at Year 20 and a corresponding reduction in openness. The gradual maturation of planting introduced in earlier phases along Spitfire Way, Manston Road and around the business park will begin to soften and reduce the urbanising influence of the large scale built form.

Other landscape effects during Year 20 will be an increase in both cars (passengers and workers) and HGVs with a 30-35% increase in the latter along the B2190 (against baseline flows) reducing to a 9-10% increase on the A299 as it passes through this LCA west of the airport and a 3-4% increase along the A299 to the south.

There will also be an increase in ATMs by Year 20 with approximately four flights an hour between 0700 and 2300. These movements will create a more frequent disruption to the baseline moderate to moderately low levels of tranquillity.

Magnitude of change: High to Medium	Type of effect: Adverse and permanent	Significance: Not Significant
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Assessment of Effects on other Thanet LCAs

Construction and Operational Effects

11.8.8 **Tables 11.22 to 11.29** set out the assessment of landscape effects on the remaining eight Thanet LCAs within the study area as follows:

- ▶ B1: Wantsum North Shore - **Table 11.22**;
- ▶ C1: St Nicholas-at-Wade Undulating Chalk Farmland - **Table 11.23**;
- ▶ C2: Central Thanet Undulating Chalk Farmland - **Table 11.24**;
- ▶ C3: St Peters Undulating Chalk Farmland - **Table 11.25**;
- ▶ D1: Quex Park - **Table 11.26**;
- ▶ E1: Stour Marshes - **Table 11.27**;
- ▶ E2: Wade Marshes - **Table 11.28**; and
- ▶ F1: Pegwell Bay - **Table 11.29**.

11.8.9 Full details of the sensitivity assessment are provided in **Appendix 11.2**. The distribution of the Thanet LCAs is shown in **Figure 11.37**.

Table 11.22 Landscape assessment: LCA B1 Wantsum North Shore

B1: Wantsum North Shore

Receptor sensitivity: The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium indicating a **Medium** overall sensitivity. Full details of the sensitivity assessment are provided in **Appendix 11.2**.

Assessment of landscape effects

Year 1 (construction)

The ZTVs in **Figures 11.2 to 11.8** show occasional intervisibility between the Proposed Development and this LCA. From locations to the south of Manston Airport, the upper sections of the two mobile cranes would create some skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau as indicated by Vpts 11 and 12 (**Appendix 11.1, Figures 15 and 16**). These small scale additional urban influences, and the context within which they are viewed, are highly unlikely to alter the existing landscape character of this LCA. It is unlikely that any new built components will be visible in outward views towards the site.

Magnitude of change: Low	Type of effect: Adverse and temporary	Significance: Not Significant
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Year 10 (construction and operation)	Additional built form within the Site will introduce some skyline intrusion from localised areas of this LCA to the south as shown in Vpt 12 (Appendix 11.1, Figure 16) although the majority of the large scale built form is set back from the edge of the plateau and only the tallest, southernmost buildings of the development will become components of northerly views, as well as the tail fins of planes when stationary at stands. Landscape effects are more likely to be associated with the visual and audible presence of overhead aircraft on flight paths to and from the east and west which will periodically and transiently disrupt the moderate baseline levels of tranquillity. The noise and movement of aircraft on the runway will also disturb the lower levels of tranquillity (due to the A299) immediately south of the site.	Magnitude of change: Medium	Type of effect: Adverse and temporary (construction) and permanent (operation)	Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and a greater proportion of built form (that of the recycling hangars) will be visible above the horizon. An increase in ATMs to four an hour will create more frequent disturbances to the baseline moderate levels of tranquillity found within this landscape.	Magnitude of change: Medium	Type of effect: Adverse and permanent (operation)	Significance: Not Significant

Table 11.23 Landscape assessment: LCA C1 St Nicholas-at-Wade Undulating Chalk Farmland

C1 St Nicholas-at-Wade Undulating Chalk Farmland				
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .			
Assessment of landscape effects				
Year 1 (construction)	The upper sections of the two mobile cranes deployed within the Site during Year 1 are likely to become components of easterly and south easterly views from within this landscape, although viewed beyond the vertical structures of the 132kV pylons from the northern and western parts of the LCA. The gradual emergence of the rooflines of the taller structures within the Site will also be evident beyond the closer large scale structures within the Manston Business Park and only from those parts of the LCA to the east and north of Thanet Earth. As such they, and skyline intrusion from the cranes, will have limited characterising influence on the character or key characteristics of this LCA.	Magnitude of change: Low	Type of effect: Adverse and temporary (construction), permanent (buildings)	Significance: Not Significant

Table 11.23 (continued) Landscape assessment: LCA C1 St Nicholas-at-Wade Undulating Chalk Farmland

C1 St Nicholas-at-Wade Undulating Chalk Farmland		
Year 10 (construction and operation)	The additional built elements present within the Site at Year 10 and the occasional views of cranes will continue to be components in views from within the LCA, primarily from locations to the north and east of Thanet Earth. Any south easterly views which are available already feature the large scale structures within Manston Business Park and the occasionally the vertical structures of the 132kV line, thereby limiting their urbanising influence. Landscape effects will also be associated with the brief and intermittent audible influence of overhead planes particularly those arriving from or departing to the west (and branching north or south), with aircraft on flight paths immediately above the LCA representing a proportion of the two ATMs an hour forecasted for Year 10. This is an LCA where tranquillity levels are moderately high and the periodic disturbance to this perceptual characteristic will not be of a duration or frequency that leads to a significant change to the character or key characteristics.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction), permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in outward easterly and south easterly views which are available from within this LCA. The ZTV in Figure 11.7 shows fragmented visibility of the fully operational structures from within this LCA with available views concentrated north and east of Thanet Earth. The operational structures will often be viewed alongside or beyond those already present within the Manston Business Park and, as a consequence, their urban influence on this primarily rural landscape will be reduced. Aircraft numbers are forecast to increase in comparison with Year 10 and, as a consequence, there will be an increase in the number of visible and audible planes on flight paths to the west of Manston Airport. ATMs are forecast to be approximately four an hour by Year 20, with only a proportion of these heading west above the LCA. The combination of these visual and perceptual changes will not significantly alter the key characteristics or character of this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.24 Landscape assessment: LCA C2 Central Thanet Undulating Chalk Farmland

C2: Central Thanet Undulating Chalk Farmland		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Low indicating a Low overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Year 1 construction effects will primarily be the upper sections of the two mobile cranes becoming new components of southerly views and the emergence of the ATC and roofline of the first cargo facility. The cranes will be minor components creating some skyline intrusion above narrow sections of the horizon and often beyond other vertical structures such as masts and telegraph poles or the 132kV line which crosses this LCA. As such they, and the lower lying rooftops will have limited characterising influence on the character or key characteristics of this LCA	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction), permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	The occasional views of cranes will continue to be components from within the LCA, whilst the additional built elements present within the Site at Year 10 is likely to be screened by intervening vegetation or landforms as demonstrated in the wirelines for Vpts 8, 9, 10, 13, 14 and 15 (see Appendix 11.1). Landscape effects will also be associated with the brief and intermittent visual and audible influence of overhead planes with two ATMs an hour forecasted for Year 10. This is an LCA where tranquillity levels are already moderately low as a consequence of the high levels of neighbouring built form and by the busy road network which crosses this landscape. The additional disturbance to this perceptual characteristic will not significantly alter the character or key characteristics of the LCA.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction), adverse and permanent (operation) Significance: Not Significant

Table 11.24 (continued) Landscape assessment: LCA C2 Central Thanet Undulating Chalk Farmland

C2: Central Thanet Undulating Chalk Farmland		
Year 20 (operation)	Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in outward southerly views which are available from within this LCA. Aircraft numbers are forecast to increase in comparison with Year 10 and, as a consequence, there will be an increase in the numbers of visible and audible planes on flights path to the east and west of Manston Airport. This change, together with the distant presence of the rooflines of the taller structures within the Proposed Development, will not significantly alter the key characteristics or character of this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.25 Landscape assessment: LCA C3 St Peters Undulating Chalk Farmland

C3: St Peters Undulating Chalk Farmland		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Low indicating a Low overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Year 1 construction effects will primarily arise as a result of the upper sections of the two mobile cranes becoming new components of south westerly views and the gradual emergence of the rooflines of the taller structures within the Site. These cranes will be minor components at distances in excess of 3km, creating some skyline intrusion above narrow sections of the horizon and often beyond the vertical structures of the 132kV line which cross the intervening landscape. As such they, and the lower lying rooftops, will have limited characterising influence on the character of this LCA and none of the key characteristics will be affected.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction), permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	The additional built elements present within the Site at Year 10 and the occasional views of cranes will continue to be components from within the LCA. Any south westerly views which are available already feature the surrounding urban development and the vertical structures of the 132kV line, thereby limiting their urbanising influence. Landscape effects will also be associated with the brief and intermittent audible influence of distant overhead planes particularly those arriving from or departing to the east with aircraft on these flight paths representing only a proportion of the two ATMs an hour forecasted for Year 10. This is an LCA where tranquillity levels are already moderately low as a consequence of the high levels of neighbouring built form and by the busy road network and railway which bisect the area. The additional disturbance to this perceptual characteristic will not significantly alter the character of the LCA and none of its key characteristics will be affected.	
	Magnitude of change: Low	Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in outward south westerly views which are available from within this LCA. Aircraft numbers are forecast to increase in comparison with Year 10 to approximately four ATMs an hour and, as a consequence, there will be an increase in the numbers of audible planes on flights path to the east of Manston Airport. This change, together with the distant presence of the rooflines of the taller structures within the Proposed Development, which will be present in the views from a small proportion of this LCA as indicated by the ZTV in Figure 11.7 , will not significantly alter the character of this LCA and none of its key characteristics will be affected.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.26 Landscape assessment: LCA D1 Quex Park

D1: Quex Park	
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Low indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .
Assessment of landscape effects	
Year 1 (construction)	<p>The ZTVs in Figures 11.2 to 11.8 show very little intervisibility with the development from within the LCA. The mature tree belts which line the southern side of the park limit the availability of outward views with the consequence that elevated construction activity and the gradual emergence of the rooflines of the taller structures within the Site will have very limited characterising influence on this LCA and none of its key characteristics will be affected.</p> <p>Magnitude of change: Negligible Type of effect: Neutral and temporary (construction), permanent (buildings) Significance: Not Significant</p>
Year 10 (construction and operation)	<p>The additional built elements present within the site at Year 10 and the occasional views of cranes will again be highly limited from within the LCA and any occasional south easterly views which are available already feature the much closer buildings within the Manston Business Park. Landscape effects are more likely to be associated with the brief and intermittent audible influence of overhead planes particularly those arriving from the west or departing to the west and branching north. This is an LCA where tranquillity levels are moderate given the nearby influence of Birchington, Margate and the A28 and the addition disturbance to this perceptual characteristic will not significantly alter the character of this LCA or affect any of its key characteristics.</p> <p>Magnitude of change: Low Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant</p>
Year 20 (operation)	<p>Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in the few outward views which are available from within this small LCA. Aircraft numbers are forecast to increase in comparison with Year 10 to approximately four ATMs an hour and, as a consequence, there will be an increase in the numbers of audible planes on flights path to the west and northwest of Manston Airport. With this likely to be the only landscape change to this LCA as a result of the Proposed Development, its character will not be significantly altered and none of its key characteristics will be affected.</p> <p>Magnitude of change: Low Type of effect: Adverse and permanent Significance: Not Significant</p>

Table 11.27 Landscape assessment: LCA E1 Stour Marshes

E1: Stour Marshes	
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .
Assessment of landscape effects	
Year 1 (construction)	<p>The presence of two mobile cranes will introduce some skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau in northerly and north-easterly views from this low lying LCA. Of the emerging built development within the site, only the ATC tower is likely to become a partial component in outward views, rising above a narrow section of the horizon and having a minor distant urbanising influence in a landscape which is described as having a '<i>strong rural, even remote, character</i>'. This change, however, is unlikely to rise above a low magnitude of change and the character and key characteristics associated with the vast open landscape will not be significantly altered.</p> <p>Magnitude of change: Low Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant</p>

Table 11.27 (continued) Landscape assessment: LCA E1 Stour Marshes

E1: Stour Marshes		
Year 10 (construction and operation)	<p>The wirelines from Vpts 17 and 20 (Appendix 11.1 Figures 21 and 24 respectively) show that the emergence of a proportion of the proposed aircraft recycling hangars above the crest of the chalk plateau will introduce further skyline intrusion and an increase in distant urban influence above a small section of the horizon. The majority of the large scale built form is set back from the edge of the plateau and only the tallest, southernmost buildings of the development will become components of northerly views. The visual and audible presence of ascending and descending aircraft to the east and west of the Site will introduce some periodic and transient disruption to the baseline high levels of tranquillity currently experienced within this LCA, which along with the strong sense of remoteness and absence of development, is noted in the published assessment as one of the key sensitivities of this landscape.</p> <p>It is unlikely that these changes will be sufficient in scale to significantly alter the character and key characteristics of this LCA.</p>	<p>Magnitude of change: Low Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant</p>
Year 20 (operation)	<p>Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and some additional built form will be present above the horizon in the long, open northerly and north-easterly views from this low lying LCA. An increase in ATMs will result in more frequent disturbances to the high levels of tranquillity currently present within this LCA although these will still be intermittent and transient and unlikely to significantly alter the existing character of the landscape. The combined effects of these distant urban influences are unlikely to significantly alter the existing character and key characteristics of this LCA.</p>	<p>Magnitude of change: Low Type of effect: Adverse and permanent (operation) Significance: Not Significant</p>

Table 11.28 Landscape assessment: LCA E2 Wade Marshes

E2: Stour Marshes		
Receptor sensitivity:	<p>The overall value of this LCA is Medium. The overall susceptibility is judged to be High indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2.</p>	
Assessment of landscape effects		
Year 1 (construction)	<p>The presence of two mobile cranes may introduce some distant skyline intrusion above narrow sections of the horizon formed by the rising topography of Thanet in views to the south east from this low lying LCA. The rooflines of the emerging built development within the Site may become partial components of outward views, rising above a narrow section of the horizon and at distances in excess of 4km will have a very minor urbanising influence in a landscape which possesses a key sensitivity described as '<i>open, horizontal character with absence of development and vertical structures</i>'. This change however, is unlikely to rise above a negligible magnitude of change during Year 1 and the character and key characteristics associated with the expansive landscape will not be significantly altered.</p>	<p>Magnitude of change: Negligible Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant</p>

Table 11.28 (continued)

Landscape assessment: LCA E2 Wade Marshes

E2: Stour Marshes		
Year 10 (construction and operation)	<p>An increase in large scale built development within the Site may lead to an increase in the minor urbanising influence introduced in Year 1 but at distances in excess of 4km this will play a minor role upon the character of this LCA.</p> <p>The visual and audible presence of ascending and descending aircraft on flight paths to the west of the Site, in particular on departures which head west and then branch north, will introduce some periodic and transient disruption to the baseline high levels of tranquillity currently experienced within this LCA which along with the strong sense of remoteness and absence of development is noted in the published assessment as one of the key sensitivities of this landscape. ATMs during Year 10 will be approximately two flights an hour with only a proportion of those aircraft on a flight path which flies directly over this LCA.</p> <p>It is unlikely that these changes will be sufficient in scale to significantly alter the character and key characteristics of this LCA.</p>	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	<p>Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and some additional built form may be present above the horizon in some of the long, open south-easterly views from this low lying LCA. An increase in ATMs to four flights an hour will result in more frequent disturbances to the high levels of tranquillity currently present within this LCA although these will still be intermittent and transient since only a proportion of these flights will be on flightpaths over this LCA. As a consequence, these changes are unlikely to significantly alter the existing character. The combined effects of these distant urban influences are unlikely to significantly alter the existing character and key characteristics of this LCA.</p>	
	Magnitude of change: Low	Type of effect: Adverse and permanent (operation) Significance: Not Significant

Table 11.29 Landscape assessment: LCA F1 Pegwell Bay

Pegwell Bay LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Medium indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	<p>Whilst reference to the ZTVs in Figures 11.2 to 11.8 show that potential for intervisibility between the elevated construction activities and emergence of the taller components of the development (the ATC tower and cargo hangars) and the landscape within the southern part of this LCA, the screening provided on the landward side by scrub within the Country Park and tree cover along Sandwich Road and within St Augustine's Golf Course reduces levels of intervisibility. Year 1 construction activities will therefore have very limited characterising influence of this LCA, the character of which is more influenced by its coastal setting and processes than by the landscape on its landward side.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction), permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	<p>The additional built elements present within the site at Year 10 and the occasional views of cranes will again be highly limited from within the LCA. Landscape effects are more likely to be associated with the brief and intermittent visual and audible influence of the overhead planes arriving from or departing to the east. This will result in periodic and transient disruption to levels of tranquillity but this will not be of a magnitude which will significantly alter the key characteristics or character of this LCA.</p>	
	Magnitude of change: Low	Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant

Table 11.29 (continued) Landscape assessment: LCA F1 Pegwell Bay

Pegwell Bay LCA		
Year 20 (operation)	Landscape effects at Year 20 as a result of built development within the Manston Airport site will be comparable to that experienced at Year 10 with limited intervisibility. An increase in the number of ATMs to a forecasted four an hour will result in more frequent disruption to baseline tranquillity levels as a result of the audible and visual presence of aircraft when using flight paths to the east of the airport although this disruption will again be periodic and brief and will not in itself significantly alter the key characteristics or character of this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and permanent (operation) Significance: Not Significant

Assessment of Effects on Dover LCAs

Construction and Operational Effects

- 11.8.10 **Tables 11.30 to 11.33** set out the assessment of landscape effects on the Dover LCAs within the study area and for the three timescales set out in **Section 11.6** as follows:
- ▶ Ash Level: **Table 11.30**;
 - ▶ Richborough Castle: **Table 11.31**;
 - ▶ The Sandwich Corridor: **Table 11.32**; and
 - ▶ Sandwich Bay: **Table 11.33**.
- 11.8.11 Full details of the sensitivity assessment are provided in **Appendix 11.2**. The distribution of the Dover LCAs is shown in **Figure 11.37**.

Table 11.30 Landscape assessment: Ash Level

Ash Level LCA		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be High indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	The upper sections of the cranes and upper part of the ATC tower will introduce some distant skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau and beyond the locally prominent pylons which cross this LCA. Vpts 17 and 18 and the nearby Vpt 20 (Appendix 11.1, Figures 21, 22 and 24) provide a guide to the potential changes to open northerly views from this LCA. The key characteristics of this LCA will continue to be present and will be unaffected by the Proposed Development.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant

Table 11.30 (continued) Landscape assessment: Ash Level

Ash Level LCA		
Year 10 (construction and operation)	<p>Additional built form within the site will introduce further distant skyline intrusion although the majority of the large scale built form is set back from the edge of the plateau and only the taller, most southern buildings of the development will become components of northerly or north easterly views as shown in the wirelines in Appendix 11.1, Figures 21, 22 and 24. Ascending or descending aircraft, predominantly on flight paths to the west, will become small distant components of northerly views with a distant transient and occasional audible presence possible. The built form above the horizon will represent an incremental increase in urban influence with the flight paths of planes introducing movement into views that are often across a low lying static landscape.</p> <p>The key characteristics of this LCA will continue to be present and will be unaffected by the Proposed Development.</p>	<p>Magnitude of change: Low Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant</p>
Year 20 (operation)	<p>Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and some additional built form will be present above the horizon in northerly and north easterly views. An increase in ATMs will result in more frequent disturbances to the high levels of tranquillity currently present within this LCA but these will still be intermittent and transient and unlikely to significantly alter the existing character. The combined effects of these distant urban influences are unlikely to significantly alter the character and key landscape characteristics as defined by the extant Dover assessment.</p>	<p>Magnitude of change: Low Type of effect: Adverse and permanent. Significance: Not Significant</p>

Table 11.31 Landscape assessment: Richborough Castle

Richborough Castle LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be High indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	<p>Construction phase effects during Year 1 would be limited to the distant presence of taller construction activities associated with the use of cranes sited close to the tallest components of the development, including the ATC tower, Cargo Facility 1, the southernmost business units, FBO hangars and the gradual emergence of the upper sections and rooflines of these buildings as indicated in the wireline from Vpt 22 (Appendix 11.1, Figure 26).</p> <p>At distances in excess of 5km, these activities would intrude above a small section of the wide distant horizon formed by the edge of the chalk plateau and beyond a series of tall vertical elements present within the intervening landscape and as such would have limiting characterising influence upon this tightly defined LCA.</p>	<p>Magnitude of change: Negligible Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant</p>
Year 10 (construction and operation)	<p>Construction activities will continue into Year 10 with upper crane activity a periodic component of northern views along with the aircraft recycling hangars, FBO hangars and three of the four cargo facilities which will increase the distant skyline intrusion compared to Year 1. Whilst the ground level movement of aircraft will theoretically be visible from this LCA, at a separation distance in excess of 5km this is likely to be of limited characterising influence whilst ascending or descending arrival and departures will become small distant components of northerly views. This is a LCA whose character is partly dependent upon the inherent views over the surrounding landscape and the presence of the built form above the horizon will represent an incremental increase in urban influence with the flight paths of planes introducing movement into views across a low lying static landscape.</p>	<p>Magnitude of change: Low Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant</p>

Table 11.31 (continued) Landscape assessment: Richborough Castle

Richborough Castle LCA		
Year 20 (operation)	Operational phase effects at Year 20 will largely be associated with the distant presence of the rooflines and upper sections of the buildings shown in Vpt 22 (Appendix 11.1, Figure 26) above a narrow section of the wide distant horizon formed by the edge of the chalk plateau. Other landscape effects will be associated with the distant audible and visual influence of ascending and descending aircraft (up to four per hour) although this intermittent and brief disturbance to the moderately high levels of tranquillity currently present within this LCA is unlikely to alter the existing character. The combined effects of these distant urban influences are unlikely to significantly alter the key landscape characteristics and character of this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.32 Landscape assessment: The Sandwich Corridor

The Sandwich Corridor LCA		
Receptor sensitivity:	The overall value of this LCA is Low. The overall susceptibility is judged to be Low indicating a Low overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Construction effects during Year 1 would be limited to the distant presence of cranes and the gradual emergence of built form above the horizon of the ATC tower, Cargo Facility 1 and FBO hangars. However, this is a landscape which is already influenced by the industrial units within it and the busy A256; external views are limited as a consequence of this built form. This limited intervisibility with the distant landscape to the north means that effects on the character of this LCA as a result of Year 1 of the development at Manston Airport would be highly limited.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	Effects would be similar to Year 1 whereby any effects arising from the distant periodic presence of cranes and the operational structures would be very limited. This is an LCA which already possesses limited levels of tranquillity and high levels of movement associated traffic flows along the A256 and the distant intermittent audible and visual influence of planes is unlikely to disturb this further.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	There will be a small increase in the proportion of built form within the fully operational Manston Airport site with an increase in ATMs compared to Year 10 together with the cessation of construction activities. The baseline characteristics of limited intervisibility and low levels of tranquillity of this LCA means that these distant changes will not alter the baseline character of this narrow LCA.	
	Magnitude of change: Negligible	Type of effect: Neutral and permanent. Significance: Not Significant

Table 11.33 Landscape assessment: Sandwich Bay

Sandwich Bay LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Medium indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	This is a flat coastal landscape where views are primarily focussed east out to sea. A review of the ZTVs in Figures 11.3 to 11.8 indicates that the initial operation of the ATC tower, Cargo Facility 1 and FBO hangars, and the elevated construction activity associated with these structures, will become components of inland northerly views at minimum separation distances in excess of 3km. This is likely to represent an incremental increase in the urban influence exerted from the surrounding landscapes which already contain the urban conurbation of Ramsgate and the neighbouring industrial land uses of the Sandwich Corridor, one or both of which are often baseline components in outward views from this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	Additional built form within the site has the potential to represent a further incremental increase in the urban influence already exerted from the surrounding landscapes. Similarly, any lighting within the site will lead to an incremental increase to that already present in northerly views towards the ridgeline. Other landscape change will be associated with the transient visual and audible influence of aircraft on flight paths to the east of Manston Airport which will periodically and briefly disturb the high levels of tranquillity found across this LCA. These changes will not alter the key characteristics of this landscape as defined in the extant Dover assessment.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	There will be a small increase in the proportion of built form which is present within northern views compared to Year 10 together with the cessation of construction activities. An increase in ATMs will result in more frequent disturbances to levels of tranquillity but these will still be transient and not continuous with four ATMs an hour forecast, only a proportion of which will be in or from an easterly direction. The key characteristics of this LCA will continue to be present and will not be significantly affected by the Proposed Development.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Inter-related Effects

- 11.8.12 Assessment of inter-related effects in relation to landscape receptors is inherent within the assessments of effects on landscape character provided in this chapter, as these assessments consider all factors which could alter the physical fabric or perceived characteristics of the landscape (e.g. the way in which noise may affect tranquillity). It is not considered that there is potential for any additional inter-related effects to arise in relation to landscape receptors other than those considered in **Tables 11.20 to 11.33**.

Cumulative Effects

- 11.8.13 The potential for cumulative effects to arise as a result of the Proposed Development together with other development proposals is assessed in **Chapter 18: Cumulative Effects**.

11.9 Assessment of Effects on Visual Receptors

Residential Receptors Located in Principal Settlements

- 11.9.1 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.34 to 11.48**. The distribution of the principal settlements is shown in **Figure 11.31**.

Table 11.34 Residential Receptor Group 1: Ramsgate - Chilton (Nethercourt and Pegwell)

Ramsgate – Chilton (Nethercourt and Pegwell)		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Existing views toward the Proposed Development are largely screened by intervening landforms, an existing adjacent bund and mature vegetation. The ZTV illustrated in Figure 11.7 indicates that only residents in a very small central part of the settlement may potentially have views of the rooflines of some of the emerging buildings, with views from dwellings along the western periphery limited to those of the two mobile cranes operating across the site at this time with the upper sections of the cranes visible on the skyline. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening elements and the relatively small proportion of available views that would be affected.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus an additional business aviation hanger, recycling hanger and cargo facility at distances of between approximately 1.7 and 2.5km. The additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	Views of the operational airport would include an additional cargo facility, a further recycling hanger, a further business aviation hanger and an increase in aircraft activity on flight paths to the east of the airport (although the latter would still be transitory and intermittent). The additional elements would increase the density of buildings but would not increase the horizontal extent of the Proposed Development, therefore, the magnitude of change is likely to remain the same as Year 1.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.35 Residential Receptor Group 2: Ramsgate - Newington

Ramsgate – Newington		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development would be experienced from dwellings on the western edge of the area where there are existing mid to long range views towards the Proposed Development across open agricultural fields interspersed with mature tree belt and farm/agricultural buildings. The Proposed Development would be partially screened behind mature trees in the mid-ground of the views to the west (towards the proposed business park) and behind mature garden vegetation and roadside hedgerows in the foreground in views to the south west (towards the ATC tower and runway). This would result in the visibility of the construction cranes and of the potential visibility of the upper parts of the proposed business park buildings, at a distance of approximately 1.5km from upper stories of dwellings, and views of the upper parts of the ATC tower from upper stories of dwellings, at a distance of approximately 2.7km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and existing farm buildings and the relatively small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant

Year 10 At Year 10, views towards the Proposed Development would include all of the elements described in Year 1 plus additional business units which would slightly increase the horizontal spread of the Proposed Development in views from the upper stories of dwellings on the western edge of the area. The additional business units would be visible at a distance of approximately 1.4km. The additional elements would be limited to a very small proportion of the view from upper stories of dwellings and would be seen in the context of existing farm buildings in the mid-ground of the view, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction)
Permanent Adverse (operation) Significance: **Not Significant**

Year 20 There would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity, which would still be transitory and intermittent. Mitigation planting around the western side of the business park would be gradually maturing and would provide additional screening and filtering of views of the lower facades of the units in westerly views. The magnitude of change is likely to remain as Year 1.

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.36 Residential Receptor Group 3: Ramsgate - Northwood

Ramsgate – Northwood	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views toward the Proposed Development would be experienced from a very small selection of dwellings oriented to the south west with existing mid to long range views across open recreational fields. Existing views in the direction of the Proposed Development are heavily screened by a combination of rising landforms, belts of mature trees and hedging, large commercial buildings, dwellings at Haine and movement along the A256. Views of the Proposed Development are likely to be restricted to upper floors of receptors and are likely to include visibility of the construction cranes and of the upper parts of the ATC tower at distances of between approximately 2.7 and 3.4km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and existing farm buildings and the very small proportion of the Proposed Development visible.
	Magnitude of change: Negligible Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the Manston Airport site from Year 1. There would be some intermittent and transitory views of aircraft (up to two an hour in Year 10). The magnitude of visual change experienced by residents would remain as Year 1.
	Magnitude of change: Negligible Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity with up to four flights an hour. The magnitude of visual change experienced by residents would remain as Year 1.
	Magnitude of change: Negligible Type of effect: Permanent Adverse Significance: Not Significant

Table 11.37 Residential Receptor Group 4: Broadstairs

Broadstairs		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be experienced from a very small selection of dwellings at the northern edge of the settlement and restricted further to those oriented to the south west with existing mid to long distance views across open agricultural fields. Existing views in the direction of the Proposed Development are heavily screened by a combination of rising landforms, belts of mature trees and hedging in the mid-ground of the view, large commercial buildings at Nash Court Industrial Estate and movement along the B2053. Views of the Proposed Development are likely to include visibility of the construction cranes and of the upper parts of the ATC tower at distances of between approximately 4.6 and 5.8km, as well as the emerging roofline of the cargo facility and southern business units as shown in the photowire for the nearby Viewpoint 21 (Appendix 11.1) and described in the viewpoint assessment in Appendix 11.3 . The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening, existing industrial buildings in the mid-ground and the very small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)
		Significance: Not Significant
Year 10	By Year 10 the ATC tower, the upper sections and rooflines of three of the four proposed cargo units, the aircraft recycling hangars and a proportion of the business units would be visible above intervening tree and building cover. As with Year 1, there would be periodic views of the two mobile cranes when they are used to construct the remaining elevated built elements in the western part of the Airport. There would be some distant, intermittent and transitory views of aircraft potentially on flight paths both to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)
		Significance: Not Significant
Year 20	There would be no cranes visible by Year 20 with the rooflines of the fully operational airport nestled low on the distant horizon. There would be an increase in aircraft activity of up to four planes an hour with views remaining distant, transitory and intermittent. The magnitude of change is likely to reduce with the absence of the more elevated cranes from south westerly views.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse
		Significance: Not Significant

Table 11.38 Residential Receptor Group 5: Margate

Margate		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development would be limited to those available from dwellings on the southern edge of the settlement and which are oriented towards the Proposed Development. Existing views in the direction of the Proposed Development are over a gently rising landform and across open agricultural fields. The existing radar tower is partially visible on the skyline of the view. Views are filtered in some locations by close range trees and there is a degree of screening afforded by a belt of trees on the skyline of the view. The Proposed Development would be visible on the skyline of the view and would include visibility of the construction cranes, the roofs and upper facades of units within the southern half of the Northern Grass Area, the first easternmost cargo facility (depending on the precise construction programme during Year 1) and of the upper parts of the ATC tower at distances of between approximately 2 and 3.5km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect:
		Significance: Not Significant

	Temporary Adverse (construction) Permanent Adverse (built elements)	
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business units within the northern half of the Northern Grass Area, which would be visible to the fore of the Year 1 business units and would screen the additional cargo units. The additional units would be visible at a distance of approximately 2-2.4km. It is anticipated that mitigation planting around the business park units would be gradually maturing and providing some screening of the facades of the buildings. The additional elements would increase the horizontal proportion of the view which is occupied by the Proposed Development a very small portion of the view although not to the degree which would increase the magnitude of visual change experienced by residents when compared to Year 1. There will also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths which extend both to the east and west of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be a very limited increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units which may be visible in partial views between the business units and an increase in aircraft activity. There would also be a decrease in visibility due to the maturation of planting around the business park, which would soften and filter views of building facades. Although there would be a slight increase in massing, the Proposed Development would appear as a more integrated element in the landscape with increased screening therefore the magnitude of change would remain the same when compared to the baseline view.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.39 Residential Receptor Group 6: Westgate on Sea

Westgate on Sea		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development would be experienced from dwellings on the southern edge of the area and those oriented towards the Proposed Development. Existing views in the direction of the Proposed Development are over a gently rising landform, across open agricultural fields. The existing radar tower is partially visible on the skyline of the view. Views are filtered in some locations by garden vegetation and there is a degree of screening afforded by belts of trees around dwellings and settlements in the mid-ground of the view and on the skyline of the view. The Proposed Development would be visible on the skyline of the view and would include visibility of the construction cranes, the roofs and upper facades of the southern business park units and first cargo facility and of the upper parts of the ATC tower at distances of between approximately 2.5 and 3km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional northern business park units which would be visible to the left of the Year 1 business park units, slightly increasing the horizontal spread of the Proposed Development. Additional cargo units would also be visible. The additional units would be visible at a distance of approximately 2.3 to 3km. Mitigation planting introduced along the eastern edge of the northern business units introduced in Year 1 would be maturing and would provide some screening of the lower facades of the buildings. The additional elements would be limited to a small portion of the view and would only marginally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths which extend both to the east and west of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant

Year 20 There would be a slight increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units and an increase in aircraft activity, although with the latter views would still be distant, intermittent and transitory. There would also be a decrease in visibility due to the maturation of mitigation planting along the eastern edge of the business park units. Although there would be a slight increase in massing, the Proposed Development would appear as a more integrated element in the landscape with increased screening therefore the magnitude of change would remain the same.

Magnitude of change: **Low**

Type of effect: **Permanent Adverse**

Significance: **Not Significant**

Table 11.40 Residential Receptor Group 7: Birchington

Birchington		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development will be experienced from dwellings on the southern and eastern edge of the area as indicated by the ZTV (Figure 11.7) and restricted further to those oriented towards the Proposed Development. Existing views in the direction of the Proposed Development are across agricultural fields. The Proposed Development would be visible on the skyline of the view and would include visibility of the construction cranes and the upper parts of the ATC tower and potentially the first cargo facility for residents on the southern edge of the settlement at a distance of approximately 3km. Residents on the eastern edge of Birchington may experience views of the rooflines and upper facades of business units introduced within the Northern Grass Area. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	The additional central cargo facilities and northern most business units are likely to become distant components of a limited number of residents' views by Year 10. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity, views of ascending or descending planes would still be intermittent and transitory. As such the magnitude of change would remain unchanged.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.41 Residential Receptor Group 8: Woodchurch

Woodchurch		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development would be experienced from dwellings across the small settlement. Existing views in the direction of the Proposed Development are across small scale fields, commercial hardstanding areas and larger scale agricultural fields. Views are screened in places by mature trees around buildings, field boundaries, dwellings and large agricultural and commercial buildings. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include visibility of the construction cranes, first cargo unit roofline and the upper parts of the ATC tower at a distance of approximately 1-1.5km. The rooflines and upper facades of some of the units proposed in the southern half of the business park would also become components of residents' views through and above the top of the intervening tree cover. Views of the cargo unit roof would be visible from upper stories of dwellings. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units, visible at a distance of approximately 1.3km, and business units introduced into the northern half of the business park. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths which extend both to the east and west of Manston Airport. There would be very little increase in the extent of elements visible, thus the magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be a limited increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units and an increase in aircraft activity although views of ascending or descending planes would still be intermittent and transitory. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.42 Residential Receptor Group 9: Acol

Acol		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	It is considered that there would be potential views of the Proposed Development from the upper stories of dwellings to the north and southern edges of the settlement. Existing views in the direction of the Proposed Development are across agricultural fields and are screened in the direction of the Proposed Development by large industrial units at Columbus Avenue and belts of trees both around the industrial units and around field boundaries and dwellings beyond. The landform in the view gently rises towards the industrial units at Columbus Avenue in the mid-ground of the view and then falls away towards the airport such that views of the existing and Proposed Development are largely screened at ground level. As described in the Viewpoint Assessment (Appendix 11.3) for Viewpoint 9 only the top of the mobile cranes would be visible on the skyline of the view above the mid-ground vegetation/industrial unit and at a distance of approximately 2.5-3km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	The photowire in Appendix 11.1 Figure 13 shows the views of elements that would be fully operational by Year 20. Due to the dense tree cover situated on the edge of Manston Business Park located off Columbus Avenue and the large-scale units themselves, there would be no visual evidence of any built elements, aircraft on the ground or ground level operational activities resulting from the presence of the fully operational airport in comparison to the baseline view. There would however be some intermittent and transitory views of aircraft (increased up to four an hour in Year 20), most notably those on flight paths which extend to the west of Manston Airport.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.43 Residential Receptor Group 10: St Nicholas-at-Wade

St Nicholas-at-Wade		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be experienced from dwellings on the south eastern edge of the settlement. Existing views in the direction of the Proposed Development are extensive across large, open agricultural fields. The landform very gently rises in the direction of the Proposed Development. In the distant mid-ground of the view, the large scale commercial greenhouses at Thanet Earth span much of the view to the fore of the existing airport and Proposed Development, screening views in this direction. It is considered that the construction cranes would be visible on the skyline of the view above the mid-ground commercial greenhouses and commercial warehouse units from upper floors of dwellings at a distance of approximately 6.2-7km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant

Year 10 There would be no increase in the visibility of the Proposed Development from Year 1. The photowire in **Appendix 11.1 Figure 23** shows that even the taller elements of the proposed airport such as the ATC tower would be screened by the greenhouses at Thanet Earth. As at Year 1, there may be periodic views of the two mobile cranes when they are used to construct the taller built elements in the eastern part of the Airport although construction activities would be much less extensive than in Year 1. There would be no views of aircraft on the ground or any other ground level operational activities although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction)
Permanent Adverse (operation) Significance: **Not Significant**

Year 20 There would be no visual evidence of any built elements, planes or ground level operational activities resulting from the presence of the fully functional Airport or Business Park. There would however be some intermittent and transitory views of aircraft (increased up to four an hour in Year 20), most notably on flight paths which extend to the west of Manston Airport.

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.44 Residential Receptor Group 11: Monkton

Monkton	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views towards the Proposed Development from Monkton would be highly limited and are likely to be restricted to views of the construction cranes. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.
	Magnitude of change: Negligible Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.
	Magnitude of change: Negligible Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity although views would still be intermittent and transitory. The magnitude of change is likely to remain the same as Year 10.
	Magnitude of change: Negligible Type of effect: Permanent Adverse Significance: Not Significant

Table 11.45 Residential Receptor Group 12: Minster

Minster		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Many of the views from within the settlement are short range and screened by surrounding built development and garden vegetation. Views to the north towards the Proposed Development are theoretically possible from dwellings in a small number of locations within the eastern half of the settlement as indicated by the ZTV in Figure 11.7 . It is considered that the upper sections of the construction cranes and the upper parts of the ATC tower may be visible from upper floors of dwellings at a distance of approximately 2.4-3.6km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the very limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the site from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in overhead aircraft activity. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.46 Residential Receptor Group 13: Manston (central and east)

Manston (central and east)		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	From the centre of Manston village, and from properties located to the north of the B2050 on the eastern side of the village (east of Preston Road), most views toward the Proposed Development would be screened by multiple layers of built form and tree cover with very limited views to the west indicated by the ZTV in Figure 11.7 . Where gaps in the surrounding built form and vegetation allow, the upper sections of the mobile construction cranes, operating across the Site in Year 1 may become occasional components of residents' westerly views and given their proximity, may be prominent when visible. There are unlikely to be any views to activity within the Site at ground level, due to screening by intervening built form and vegetation.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would continue to include occasional glimpsed views of the mobile cranes. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the east of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant

Year 20 There would be no views of cranes at Year 20 with construction activity having ceased by Year 18. here would be an increase in aircraft activity on flight paths to the east of the airport but views of plans would continue to be intermittent and transitory therefore the magnitude of visual change experienced by residents would remain as Year 1 and Year 10.

Magnitude of change: **Low** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.47 Residential Receptor Group 14: Cliftonville

Cliftonville		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development would be experienced from properties on the southern edge of the settlement and restricted further to those oriented to the southwest with existing mid to long distance views across open agricultural fields similar to that shown in Vpt 21. Views of the Proposed Development from this small group of dwellings are likely to include visibility of the construction cranes and of the upper parts of the ATC tower as well as the emerging roofline of the cargo facility and southern business units as shown in the photowire for Vpt 21 (Appendix 11.1) and described in the viewpoint assessment in Appendix 11.3 . This new built form would sit low on the distant horizon in the same field of view as other large scale buildings and tall vertical elements thereby reducing their contrast with other components of the view.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	By Year 10 the ATC tower, the upper sections and rooflines of three of the four proposed cargo units, the aircraft recycling hangars and a proportion of the business units would be visible above intervening tree and building cover. As with Year 1, there would be periodic views of the two mobile cranes when they are used to construct the remaining elevated built elements in the western part of the airport. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no cranes visible by Year 20 with the rooflines of the fully operational airport nestled low on the distant horizon. There would be an increase in aircraft activity of up to four planes an hour with views remaining distant, transitory and intermittent. The magnitude of change is likely to reduce with the absence of the more elevated cranes from south-westerly views.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.48 Residential Receptor Group 15: Westwood

Westwood	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views toward the Proposed Development will be experienced from dwellings at the southern edge of the area. Existing views in the direction of the Proposed Development are over large, open agricultural fields with some mature tree belts forming the skyline of the view and providing some screening in the direction of the Proposed Development. The landform gently rises towards the mid-ground of the view in the direction of the Proposed Development and then gently falls towards the airport thus providing a degree of screening. Views of the Proposed Development would include visibility of the construction cranes, business park units and of the upper parts of the ATC tower at distances of between approximately 1.9 and 3.1km. The magnitude of visual change experienced by

residents would be limited due to a combination of separation distance, the presence of screening and the small proportion of the Proposed Development visible.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units within the northern half of the business park. The additional units would be visible at a distance of approximately 1.7km. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper facades and rooflines of the units would be visible. There would also be some intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 At Year 20 there would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity. The magnitude of change is likely to remain the same as Year 1.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Residential Receptors Located in Groups of Properties

11.9.2 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.49 – 11.66**. The distribution of the groups of properties considered in the assessment is shown in **Figure 11.32**.

Table 11.49 Residential Receptor Group 16: Gore Street

Gore Street		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views of the Proposed Development would be limited from this group of properties but may be possible from the upper stories of dwellings oriented towards the Proposed Development. Existing views in the direction of the Proposed Development are heavily screened by tall, mature trees and hedgerows in the foreground of the view. Views are therefore only available during winter months when there would be filtered views towards the Proposed Development across large, open agricultural fields. It is considered that the construction cranes, and the upper parts of the ATC tower may be visible at a distance of approximately 5.6-6.6km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity of up to four aircraft an hour. These views would continue to be intermittent and transitory and the magnitude of change is therefore likely to remain the same as Year 10.	

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.50 Residential Receptor Group 17: Brooks End

Brooks End

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 It is considered that there would be very few views of the Proposed Development from this settlement due to a combination of rising landform in the fore and mid-ground of the view and large industrial units and belts of trees in the fore and mid-ground. It is considered that there may be views from the upper stories of dwellings in elevated areas of the Canterbury Road and in the southern group of dwellings along Seamark Road. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and industrial units and would include potential visibility of the construction cranes and the upper parts of the ATC tower at a distance of approximately 3.8-5.2km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction) **Permanent Adverse** (built elements) Significance: **Not Significant**

Year 10 There would be no increase in the visibility of the Proposed Development within the airport from Year 1 although there would be some intermittent and transitory views of aircraft, most notably those on flight paths to the west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction) **Permanent Adverse** (operation) Significance: **Not Significant**

Year 20 There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity, views would still be intermittent and transitory. The magnitude of change is likely to remain the same as Year 10.

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.51 Residential Receptor Group 18: Lydden

Lydden

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 Views of the Proposed Development would be very limited being mostly screened by a belt of mature trees forming the skyline to the fore of the airport and by garden planting. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include potential visibility of the construction cranes, at a distance of approximately 2km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction) **Permanent Adverse** (built elements) Significance: **Not Significant**

Year 10 There would be no increase in the visibility of the Proposed Development within the airport from Year 1 although there would be some intermittent and transitory views of aircraft. The magnitude of visual change experienced by residents would remain as Year 1.

	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity (up to four aircraft an hour), views would still be intermittent and transitory. The magnitude of change would remain the same as Year 10.		
	Magnitude of change: Negligible	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.52 Residential Receptor Group 19: Properties on Haine Road

Properties on Haine Road			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Views towards the Proposed Development would available from dwellings along Haine Road, particularly from dwellings to the west of the settlement area that are oriented towards the Proposed Development. Views would be across open agricultural fields and would be mostly screened by a belt of mature trees forming the skyline to the fore of the airport and by garden planting. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include potential visibility of the construction cranes and the upper parts of the ATC tower at a distance of approximately 1.8-2.3km. There are potential views of the business park units in gaps through existing intervening tree belts. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units introduced into the northern half of the Business Park. The additional units would be visible at a distance of 1.5km approximately. It is anticipated that mitigation planting introduced along the western edge of the business park units in Year 1 would be gradually maturing and would be providing a degree of screening of the lower facades of the buildings, aiding integration into the surrounding landscape. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the east of Manston Airport.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, it is anticipated that the mitigation planting to the west of the business park units would have gained sufficient height to almost completely screen the business units. There would be no increase in the visibility of the Proposed Development within the airport from Year 10, although there would be an increase in aircraft activity. The magnitude of change is likely to remain the same as Year 10.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.53 Residential Receptor Group 20: Properties alongside and east of A254 between Margate and Westwood

Properties alongside and east of A254 between Margate and Westwood		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views of the Proposed Development from these locations would be limited with the exception of Updown House due to screening and industrial units in the foreground. The upper sections of the mobile cranes operating across the Site, as well as the top most section of the ATC tower, may be discernible in glimpsed winter views. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant
Year 10	The upper facades and rooflines of business units introduced into the northern half of the business park may be discernible in glimpsed winter views from Updown House, alongside more distant views of mobile crane activity. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) from this group of properties, most notably those on flight paths which extend to the east of Manston Airport.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	Views would be comparable to those described for Year 10 with the exception that mobile cranes would no longer be deployed across the Site. There would be an increase in aircraft activity of up to four flights an hour in Year 20 although views would continue to be intermittent and transitory.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.54 Residential Receptor Group 21: Alland Grange Lane properties

Alland Grange Lane properties		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be mostly screened by intervening garden trees, buildings and tree belts such that the main views of the Proposed Development would be visible from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and buildings and would include visibility of the earthworks and roundabout along Spitfire Way, the roofline of the first easternmost cargo facility, fire station, FBO hangers, construction cranes and the upper parts of the ATC tower at a distance of approximately 0.8-1.3km. The magnitude of visual change experienced by residents would vary due to the varying presence of screening and heights of property and the proportion of the Proposed Development visible.	
	Magnitude of change: Medium (residents of four two-storey properties in north of group) Low (residents of bungalows and residents in south of group)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant (residents of four two-storey properties in north of group) Not Significant (residents of bungalows and residents in south of group)
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units and aircraft recycling hangers. The additional units would be visible at a distance of approximately 1.4-1.9km. There would also be additional earthworks and planting along Spitfire Way, which would provide a degree of screening and integration into the surrounding landscape. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be	

some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway.

Magnitude of change: Medium (residents of four two-storey properties in north of group) Low (residents of bungalows and residents in south of group)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant (residents of four two-storey properties in north of group) Not Significant (residents of bungalows and residents in south of group)
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Year 20 At Year 20, the Proposed Development would include all of the elements described in Year 10 (with the exception of the construction cranes) plus an additional cargo hanger, recycling hanger, stands and a storage area along the realigned Spitfire Way. It is anticipated that the mitigation planting on the earthworks at Spitfire Way would have matured and would provide a degree of filtered screening. There would also be an increase in aircraft activity. The additional units would not increase the horizontal spread of the Proposed Development and the magnitude of change is likely to remain as Year 10.

Magnitude of change: Medium (residents of four two-storey properties in north of group) Low (residents of bungalows and residents in south of group)	Type of effect: Permanent Adverse	Significance: Significant (residents of four two-storey properties in north of group) Not Significant (residents of bungalows and residents in south of group)
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Table 11.55 Residential Receptor Group 22: Cheeseman's Farm properties

Cheeseman's Farm properties				
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.			
Assessment				
Year 1	Views towards the Proposed Development would be mostly screened by intervening garden/boundary trees, buildings and tree belts such that the main views of the Proposed Development would be visible from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and buildings and would include visibility of the roofline of the cargo hanger, FBO hangers, construction cranes and the upper parts of the control tower at a distance of approximately 0.8-1.3km. The proposed business units would not be visible behind intervening vegetation and buildings. The magnitude of visual change experienced by residents would be limited due to the presence of screening and the proportion of the Proposed Development visible. The highest magnitude of change would be experienced from the rear upper-storey windows of the two southernmost properties in the group only.			
	<table border="1"> <tr> <td>Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)</td> <td>Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)</td> <td>Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)</td> </tr> </table>	Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)
Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)		
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units, visible at a distance of 1.2km approximately. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway. The magnitude of visual change experienced by residents would remain as Year 1.			
	<table border="1"> <tr> <td>Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)</td> <td>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</td> <td>Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)</td> </tr> </table>	Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)
Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)		
Year 20	At Year 20, the Proposed Development would include all of the elements described in Year 10 (with the exception of the construction cranes) plus an additional cargo hanger and an increase in aircraft activity. The additional cargo hanger would be visible as a slight increase in the roofline and would not increase the horizontal expanse of the Proposed Development, thus the magnitude of change would remain the same as in Year 10.			

Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Permanent Adverse	Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)
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Table 11.56 Residential Receptor Group 23: Vincent Road, Vincent Farm, Flete Farm

Vincent Road, Vincent Farm, Flete Farm		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be mostly screened by intervening garden/boundary trees, buildings and tree belts such that the main views of the Proposed Development would be visible from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above and through the intervening vegetation and buildings and would include visibility of the southern most business units, the roofline of the cargo hanger, construction cranes and the upper parts of the control tower at a distance of 0.8-2km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening close to properties in this group and the proportion of the Proposed Development visible. The exception relates to residents in properties at Vincent Farm, towards the western end of this grouping, where more open views to the south are available. For these residents the change to their views would be similar to that described for Viewpoint 7 (Appendix 11.3) and the magnitude of change is likely to be medium.	
	Magnitude of change: Medium (Vincent Farm only) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)
		Significance: Significant (Vincent Farm only) Not Significant (all other residents)
Year 10	At Year 10, views toward the Proposed Development would include additional business park units close to the northern boundary of the site which would screen the majority of the additional cargo facility beyond. The additional units would be visible to the fore of the Year 1 business park units at a distance of 0.5-0.7km approximately and would become prominent new components above the horizon. It is anticipated that views would be filtered through foreground vegetation close to the majority of properties in the group. As such the magnitude of visual change experienced by the majority of residents would remain as Year 1. The exception relates to residents in properties at Vincent Farm, where more open views to the south are available. For these residents the change to their views would be similar to that described for Viewpoint 7 (Appendix 11.3) and the magnitude of change is likely to rise to medium. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway.	
	Magnitude of change: Medium (Vincent Farm only) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)
		Significance: Significant (Vincent Farm only) Not Significant (all other residents)
Year 20	At Year 20, it is anticipated that the mitigation planting to the fore of the business park units will have matured and would heavily filter views of the business units. All ground level operational activity and ground level aircraft movements will be screened by the intervening built form although there would be an increase in overhead aircraft activity. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.57 Residential Receptor Group 24: Chalkhole Farm, Flete and Fleetcourt Farm

Chalkhole Farm, Flete and Fleetcourt Farm	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	

Year 1	<p>Within this cluster of dwellings there are few that are oriented towards the proposed development. Views would be restricted to those with upper story windows facing south to south-west. Views towards the Proposed Development would be mostly screened by the coalescence of intervening garden/boundary trees, buildings and tree belts. The landform rises in the mid-ground of the view and views are further screened by planting and farm buildings along the mid-ground 'ridge' in the direction of the Proposed Development such that the eastern half of the Proposed Development would be screened. It is anticipated that in Year 1 views of the Proposed Development would be visible on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the construction cranes, and the upper parts of the southernmost business park units at a distance of approximately 1.6-2.0km. The magnitude of visual change experienced by residents would be limited due to the presence of foreground screening and the proportion of the Proposed Development visible.</p>	<p>Magnitude of change: Low</p>	<p>Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)</p>	<p>Significance: Not Significant</p>
Year 10	<p>At Year 10, views toward the Proposed Development would include the northern most business park units which are likely to screen the cargo facilities and other operational buildings located further to the south. It is anticipated that the upper facades and rooflines of the units would be visible above the intervening landform and though foreground vegetative screening. This would add new elements to the middle ground of filtered views. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport.</p>	<p>Magnitude of change: Low</p>	<p>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</p>	<p>Significance: Not Significant</p>
Year 20	<p>At Year 20, it is anticipated that all ground level operational activity and ground level aircraft movements would be screened by the intervening built form of the northern most business units which would remain as components of southern views along with an increase in aircraft activity on flight paths extending to the east and west of the airport. The magnitude of change is likely to remain the same as Year 10.</p>	<p>Magnitude of change: Low</p>	<p>Type of effect: Permanent Adverse</p>	<p>Significance: Not Significant</p>

Table 11.58 Residential Receptor Group 25: Preston Road properties, Preston Farm and Coldswood Farm

Preston Road properties, Preston Farm and Coldswood Farm				
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.			
Assessment				
Year 1	<p>Views would be mainly from upper story windows, particularly those facing south to south-west and would be across a solar farm. Views would be screened during the summer months by intervening garden/boundary trees from a number of properties in this group with more open southerly and south-westerly views available from Garden Cottage and Leo Cottage on the southern edge of this grouping. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the business park units, construction cranes, the first, eastern most cargo facility and the upper parts of the ATC tower at a distance of 0.9-2.4km approximately. The magnitude of visual change experienced by residents would vary due to the presence of varying degrees of screening and the proportion of the Proposed Development visible.</p>	<p>Magnitude of change: Medium (Garden Cottage and Leo Cottage only) Low (all other residents)</p>	<p>Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)</p>	<p>Significance: Significant (Garden Cottage and Leo Cottage only) Not Significant (all other residents)</p>
Year 10	<p>At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units within the northern half of the Business Park in oblique views and the rooflines of cargo units beyond at a distance of 0.6-1.7km approximately. It is anticipated that mitigation planting along the western side of the business units introduced in Year 1 would be gradually maturing and would provide partial screening of the lower façades of the units. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport. The magnitude of visual change experienced by residents would remain as predicted for Year 1.</p>			

	Magnitude of change: Medium (Garden Cottage and Leo Cottage only) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant (Garden Cottage and Leo Cottage only) Not Significant (all other residents)
Year 20	At Year 20, it is anticipated that mitigation planting along the western edge of the business park units would have matured and would heavily filter views of the business units. Although there would be an additional cargo unit in the view, extending the roofline, this would present a minor addition to views. There would also be an increase in aircraft activity. The magnitude of change is likely to reduce as a result of the screening provided by the mitigation planting.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.59 Residential Receptor Group 26: Properties on Spratling Street near Spratling Court Farm

Properties on Spratling Street near Spratling Court Farm			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Views would be mainly from upper story windows, particularly those facing to west and south west, and would be across agricultural fields and gardens. Views would be mostly screened by intervening garden/boundary trees, buildings and tree belts. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings and would include visibility of the construction crane, the roofline of the cargo building and the upper parts of the control tower at a distance of 0.8-2.3km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening and the proportion of the Proposed Development visible.		
	Magnitude of change: Low to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the rooflines of aircraft recycling hangers at a distance of 1.2km approximately. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) most notably those on flight paths extending to the east of the airport. The magnitude of visual change experienced by residents would increase slightly due to the presence of new elements in the view at closer proximity.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus the rooflines of additional aircraft recycling hangers at a distance of 1.2km approximately. There would also be an increase in aircraft activity. The additional hangers would extend the existing roofline marginally in the view and would not introduce any additional elements into the view, therefore magnitude of change would remain the same as Year 10.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.60 Residential Receptor Group 27: Properties east of Quex Park

Properties east of Quex Park		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Properties in this group are primarily orientated north-south with views largely interrupted by vegetation in close proximity to the properties. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view through and above the intervening vegetation and buildings and would include visibility of the construction cranes, the roofline of the cargo building and the upper parts of the ATC tower at a distance of approximately 2.2-3km. The magnitude of visual change experienced by residents would be limited due to the presence of screening, orientation of the dwellings, separation distance, existing large industrial features in the view and the proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the roofline of additional cargo units at a distance of 2.4km approximately and some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus the rooflines of an additional cargo unit at a distance of 1.1km approximately. There would also be an increase in aircraft activity although views would remain intermittent and transitory. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.61 Residential Receptor Group 28: Two properties in Hoo including Sherrif's Court

Two properties in Hoo including Sherrif's Court		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be over agricultural fields and the settlement of Minster which would form the mid-ground of the view. The Proposed Development would be visible on the elevated crest of the plateau which forms the skyline of the view in this direction. Views would be screened by foreground vegetation comprising garden/boundary trees and hedges, as well as mid-ground built elements and tree belts. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings and would include visibility of the construction cranes and the upper parts of the ATC tower at a distance of 2-2.6km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening, separation distance and the proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, there would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight	

paths extending to the west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: **Negligible** Type of effect: **Temporary Adverse** (construction)
Permanent Adverse (operation) Significance: **Not Significant**

Year 20 At Year 20, there would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity. The magnitude of visual change experienced by residents would remain the same as Year 10.

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.62 Residential Receptor Group 29: Properties along Richborough Road and the southern edge of the LVIA study area

Properties along Richborough Road and the southern edge of the LVIA study area	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views towards the Proposed Development would be over the River Stour valley to the north-east of the dwellings. Views from this location are extensive and include the settlement of Minster. The Proposed Development would be visible on the opposing valley edge forming the skyline of the view in this direction. A proxy to the type of view available from this location and the changes that may be brought about by the Proposed Development can be seen in the photowire for Viewpoint18 in Appendix 11.1 . Views from properties would be screened by foreground vegetation comprising garden/boundary trees and hedges in some instances, as well as mid-ground built elements and tree belts. It is anticipated that in Year 1 views of the Proposed Development would include visibility of the construction cranes, and the upper parts of the ATC tower and first cargo facility at a distance of 5km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening, separation distance and the very small proportion of the Proposed Development visible.
	Magnitude of change: Low to Negligible Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the introduction of an aircraft recycling hanger and additional cargo facilities at a distance of 5km approximately. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending both to the east and west of the airport. The additional components would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.
	Magnitude of change: Low to Negligible Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus an additional cargo facility and additional aircraft recycling hangers at a distance of 5km approximately. There would also be an increase in aircraft activity. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.
	Magnitude of change: Low to Negligible Type of effect: Permanent Adverse Significance: Not Significant

Table 11.63 Residential Receptor Group 30: Properties in Stonelees area

Properties in Stonelees area	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment		
Year 1	Views towards the Proposed Development from this location are heavily screened by foreground vegetation comprising garden/boundary trees and hedges, as well as mid-ground hedges and tree belts. Views would therefore be mainly filtered, winter views. The Proposed Development would be visible to the north. It is anticipated that in Year 1 views of the Proposed Development would include visibility of the construction cranes, and the upper parts of the ATC tower, and first, eastern most cargo facility at a distance of approximately 3.5-4km. The magnitude of visual change experienced by residents would be very limited due to the screening from foreground vegetation/filtering of views in the winter, separation distance and the small proportion of the Proposed Development visible.	
	Magnitude of change: No change to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the introduction of an aircraft recycling hangar and additional cargo facilities at a distance of approximately 3.5km. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending both to the east and west of the airport. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.	
	Magnitude of change: No change to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus an additional cargo facility and aircraft recycling hangars at a distance of approximately 5km. There would also be an increase in aircraft activity. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.	
	Magnitude of change: No change to Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.64 Residential Receptor Group 31: Manston – Properties on Preston Road

Manston – Properties on Preston Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	<p>Preston Road extends north from the junction with the B2050 in the centre of Manston village, to the open countryside to the north of the village.</p> <p>This receptor group also includes properties located to the west of the junction with the B2050, including the residential cul-de-sac The Green, and a detached residence at Manston Green Farmhouse on the western edge of the group. These westernmost properties are likely to have oblique and rear elevation views to the site and Proposed Development from their upper-storey windows facing west or north west, likely taking in the northern end of the site in the background of views. These views are likely to be similar in composition to those illustrated in Viewpoint 6 B2050 Western edge of Manston. Views to the Proposed Development may be framed, partially screened or filtered by hedgerow vegetation and mature trees and neighbouring built form in the middle ground of views. Background views would have a notable intensification of built form on the horizon, where the proposed business park, airport business hangars and cargo facility would be partially visible. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Travelling north from the B2050 junction, along Preston Road, properties are located on the eastern side of the road, facing a belt of mature trees lining the western side of the road. These properties are substantial two-storey terraced houses, with west-facing windows on both ground floor and first floor elevations. Views to the site and Proposed Development are likely to be heavily filtered by tree cover; however, in winter, when deciduous trees are not in leaf, it is likely that there may be discernible views to the Site and Proposed Development (business park), the upper portions of which may be silhouetted against the skyline.</p> <p>Properties at the northern end of this group, just to the south of the junction with Spratling Street, are likely to have unobstructed westerly views across an arable field in the foreground, with hedgerows and tree cover in the middle ground of views, with the Site and Proposed Development likely to be visible on the horizon, in the background of views. Background views would have a notable intensification of built form on the horizon, where the proposed</p>

business park and cargo facility would be partially visible. Construction cranes are also likely to be partially visible at some points during Year 1, potentially drawing the eye with notable movement silhouetted against the skyline.

Despite the presence of screening elements, it is likely that there will be large scale changes in the background of views from some properties, giving rise to a Medium magnitude of change.

Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10

Additional built development introduced within the eastern side of the Site by Year 10 includes the passenger terminal and an aircraft recycling hangar, as well as two central cargo facilities and business units within the northern half of the Northern Grass Area. Planting within the buffer zone to the east of the business park would be gradually maturing and would begin to soften and filter views of the lower facades of the business units. Any additional elements would be discernible in filtered views and would only slightly add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20

At Year 20, views toward the Proposed Development would be largely the same as those described in Year 10. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development. Planting within the buffer zone to the east of the business park would be of sufficient height to play a greater screening role of the buildings within the Northern Grass area. The magnitude of visual change experienced by residents would remain as predicted for Year 1.

Magnitude of change: Medium	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.65 Residential Receptor Group 32: Manston – Properties in northern section of High Street

Manston – Properties in northern section of High Street

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1

This residential receptor group includes properties on both sides of High Street, on the southern side of the B2050, and those accessed via Daigor Lane, to the east of High Street.

Properties on the western side of High Street are a mix of one- and two-storey residences, which have rear elevation views facing west. These views are likely to be similar in composition to those illustrated in Viewpoint 6 B2050 Western edge of Manston. Views to the Proposed Development may be framed, partially screened or filtered by hedgerow vegetation and mature trees and neighbouring built form in the middle ground of views. Background views would have a notable intensification of built form on the horizon, where the proposed business park, airport business hangars and the cargo facility would be partially visible. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.

Properties on the eastern side of High Street, including those on Daigor Lane, have principal views from the properties facing west, taking in the curtilage of the road and the built form of facing properties. Any views to the Proposed Development are likely to be very minor framed background views available between built forms in the foreground of views.

Despite the presence of screening elements, it is likely that there will be large scale changes in the background of views from some properties on the western side of High Street, giving rise to a Medium magnitude of change.

Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10

Additional built development introduced within the eastern side of the Site by Year 10 includes the passenger terminal and an aircraft recycling hangar, as well as two central cargo facilities and business units within the northern half of the Northern Grass Area. Planting within the buffer zone to the east of the business park would be gradually

maturing and would begin to soften and filter views of the lower facades of the business units. Any additional elements would be discernible in filtered views and would only slightly add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: **Medium** Type of effect: **Temporary Adverse** (construction)
Permanent Adverse (operation) Significance: **Significant**

Year 20 At Year 20, views toward the Proposed Development would be largely the same as those described in Year 10. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development. Planting within the buffer zone to the east of the business park would be of sufficient height to play a greater screening role of the buildings within the Northern Grass area. The magnitude of visual change experienced by residents would remain as predicted for Year 1.

Magnitude of change: **Medium** Type of effect: **Permanent Adverse** Significance: **Significant**

Table 11.66 Residential Receptor Group 33: Manston – Properties in southern section of High Street

Manston – Properties in southern section of High Street	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	<p>This residential receptor group includes properties on the eastern side of High Street, to the south of Daigor Lane. The southern end of High Street adjoins the site boundary at the eastern end of the existing runway.</p> <p>Properties in this location are a mix of detached bungalows and two storey detached residences, with driveways or small front gardens facing west. A chapel, possibly converted to a residence, is located at the southern end of High Street. The western side of High Street is lined by an overgrown hedgerow with emergent mature trees and notable gaps along its length. Between the hedgerow and the site boundary to the west is a flat, arable field.</p> <p>Foreground views to the west are largely screened and filtered by the hedgerow along the western side of High Street. Where gaps in the hedgerow allow, middle ground views take in the arable field, which is bounded on its western edge by a hedge. There are currently no notable views to the Site or existing built form. At Year 1, the contractor's main compound will be located along the eastern site boundary, approximately 550m west of the properties, and activity may be perceived in the background of filtered or framed views available from ground level. An intensification of built form on the horizon to the north west, in the vicinity of the business park site, may also be notable in background views. Upper storey windows facing west may have potential for clearer views to the site. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Due to the screening and filtering of views, it is unlikely that there will be any large-scale changes to foreground or middle ground views experienced from these properties; however, given their close proximity to the site it is likely that the Proposed Development will be a new, large scale feature in filtered views, giving rise to a Medium magnitude of change.</p>
	<p>Magnitude of change: Medium Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant</p>
Year 10	At Year 10, views toward the Proposed Development would be largely the same as those described in Year 1, with the addition of an aircraft recycling hangar in filtered or framed views. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as year 1.
	<p>Magnitude of change: Medium Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant</p>
Year 20	Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1 and Year 10 when compared to the baseline view.
	<p>Magnitude of change: Medium Type of effect: Permanent Adverse Significance: Significant</p>

Residential Receptors Located in Properties in the immediate Vicinity of the Proposed Development

11.9.3 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.67 – 11.81**. The distribution of the groups of properties considered in the assessment is shown in **Figure 11.33**.

Table 11.67 Residential Receptor Group 34: Mount Pleasant, properties west of Minster Road

Mount Pleasant, properties west of Minster Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group covers an isolated detached house at Mount Pleasant and approximately 40 No. properties at Smuggler's Leap Residential Park Home Estate, an approximately 1ha development located on the north-western side of the A299 and B2190 Minster Road roundabout. The site boundary extends to the north of the receptor group, with the main development area to the east of Minster Road. Viewpoint 4: B2190, Minster Road is located at the north eastern edge of the receptor group, along the B2190; however, this viewpoint is not considered likely to be representative of views experienced from these properties, due to the effects of screening by topography and vegetation, described below.</p> <p>The property at Mount Pleasant appears to be a substantial two- to three-storey home, surrounded by a large garden and benefitting from substantial screening by surrounding tree and hedge cover. The property's front elevation faces north, with ground level views likely to be largely screened by foreground vegetation. Upper storey views may extend northwards over arable fields and gable end upper storey views may take in the existing runway to the east.</p> <p>Properties at Smuggler's Leap are static caravans and chalets, arranged around internal roads and surrounded by hedges. The properties are located at a slightly lower elevation than the surrounding terrain in what appears to be a former quarry and this topography, combined with the hedges, limits views in or out of the site. All foreground views experienced at these properties are likely to be limited to the neighbouring built form and surrounding vegetation, with very limited potential for occasional, oblique framed views to the A- and B-roads.</p> <p>For both Mount Pleasant and Smuggler's Leap, it is unlikely that any portion of the Proposed Development would form a notable part of principal views from properties.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral Significance: Not Significant
Year 10	<p>At Year 10, views toward the Proposed Development would be largely the same as those described in Year 1. The exception would be the presence of overhead aircraft on arrival or departure flight paths to the west although these changes would be transitory and intermittent.</p>	
	Magnitude of change: Low	Type of effect: Temporary Neutral (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	<p>At Year 20, views toward the Proposed Development would be largely the same as those described in Year 10 although with an increase in ATMs.</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.68 Residential Receptor Group 35: Rose Farm and Pounces Cottages

Rose Farm and Pounces Cottages	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group includes an isolated farm property and a terrace of 8 No. properties on the northern side of Spitfire Way. The site boundary is located to the south of Spitfire Way.

Rose Farm is an isolated farmhouse surrounded by outbuildings and mature trees to the north, south and east. The farmhouse appears to have principal views facing west, which are likely to include partial views to the western end of the Site and runway; however, there is no new built form proposed in this part of the site. Rear elevation views from upper storey windows may take in the main development area within the site, including the cargo facilities, ATC tower and new taxiways. Activity on site may also include views to construction cranes, which may potentially draw the eye with notable movement silhouetted against the skyline.

Pounces Cottages is a stand-alone terrace of properties and small, walled front gardens or driveways facing Spitfire Way, with principal views oriented to the south, looking across the existing runway. An approximately 90m long section of mature hedgerow on the southern side of Spitfire Way partially screens ground level views to the east. Upper storey windows of the properties are likely to take in unobstructed direct views across the runway and oblique easterly views to the main development area within the site.

Rose Farm is likely to have very limited views to the Proposed Development, due to its orientation to the west and its surrounding screening by vegetation and built form. Changes to the road layout along Spitfire Way in front of the property is likely to be the most noticeable change associated with the Proposed Development. The magnitude of change experienced by residents at this property is considered likely to be Low.

Pounces Cottages would have clear fore to middle ground views to the runway and to the proposed new taxiways and gatehouse, as well roadworks along Spitfire Way. The main Development Site is part of oblique and gable end views from these properties and construction activity and the emerging built form of the ATC tower and the first of the cargo facilities is likely to be highly visible in the middle and background of easterly views, giving rise to a High magnitude of change.

	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
Year 10	At Year 10, proposed landscaping measures on the southern side of Spitfire Way would be introduced during Phase 3, although are likely to be too small in scale and fragmented to provide any substantial screening at this time. As such, the large-scale structures within the western part of the Site including the additional two central cargo facilities would continue to be prominent elements in residents' views. Ground level aircraft movements along the runway and taxiways would also be highly visible in eastern, western and southern views from these properties.		
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
Year 20	At Year 20, proposed landscaping measures on the southern side of Spitfire Way, would be gradually maturing and would begin to provide some filtering of ground level views. However, increased aircraft movements along the runway and taxiways are still likely to be highly visible in eastern, western and southern views from these properties, as the larger aircraft are likely to be partially visible above any vegetative screening. The ATC tower and cargo facilities, including the closest westernmost fourth facility, would continue to be prominent components in residents' views.		
	Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant

Table 11.69 Residential Receptor Group 36: Properties on Bell Davies Drive

Properties on Bell Davies Drive	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group includes 12 No. semi-detached properties located around a cul-de-sac development to the north of Spitfire Drive and to the south east of Manston Road. The Proposed Development is located to the south of Spitfire Way. Properties at Bell Davies Drive are arranged around the cul-de-sac, taking in the curtilage of the road and facing properties. The gardens are well-enclosed by fencing and hedges, limiting views to the surrounding countryside. Properties on the southern side of Bell Davies Drive have upper storey views to the existing built form on the site and are likely to have views to construction activity in the vicinity of the proposed aircraft stands and ATC tower. Properties on the north eastern side of Bell Davies Drive with east facing upper storey windows may have partial filtered oblique views to the proposed business park development in the background of views.

Despite their close proximity to the Proposed Development, it is unlikely that most properties on Bell Davies Drive would experience any changes to foreground views, due to the orientation and screening surrounding the properties. Middle ground partial views from windows on south east facing rear elevations may feature substantial construction activities and emerging built form, while the majority of properties would experience minor changes to background views, giving rise to a Medium magnitude of change.

	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
Year 10	Planting along the southern side of Spitfire Way would be introduced during Phase 3, although is likely to be too small in scale to provide any substantial screening at this time. As such, the large scale structures within the western part of the Site, most notably the ATC tower, would continue to be prominent elements in a small proportion of residents' oblique, filtered or framed views through the entrance to Bell Davies Drive. Ground level aircraft movements along taxiways and at stands would also be a component of these views.		
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, proposed landscaping measures on the southern side of Spitfire Way would be gradually maturing and would provide a degree of visual screening at ground level foreshortening or filtering any available views towards the fully operational airport.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.70 Residential Receptor Group 37: Properties on the western side of Manston Road

Properties on the western side of Manston Road			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	This residential receptor group covers properties located in an estate to the west of Manston Road, arranged around cul-de-sac developments on Esmonde Drive, Musgrave Close, Beamont Close and Tollemache Close. The properties are generally two-storey semi-detached or terraced houses, with small front gardens or driveways facing the road and enclosed rear gardens. The perimeters of the estate are well-enclosed by mature trees on all sides, with substantial blocks of woodland to the north, south east and south west.		
	Despite their close proximity to the proposed development, it is unlikely that most properties in this group would experience any changes to foreground views, due to the orientation and screening by built form and mature trees surrounding the properties. Middle ground views, where available, are likely to take in surrounding built form. The majority of properties are unlikely to experience more than minor changes to background views available from upper storey windows, giving rise to a Low magnitude of change.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, as at Year 1, it is considered likely that the only changes to views would be minor changes to background views available from upper storey windows of some properties, which would give rise to a Low magnitude of change.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, as at Year 1, it is considered likely that the only changes to views would be minor changes to background views available from upper storey windows of some properties, which would give rise to a Low magnitude of change.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.71 Residential Receptor Group 38: Terraced and semi-detached properties on the eastern side of Manston Court Road

Terraced and semi-detached properties on the eastern side of Manston Court Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	This residential receptor group covers 5 No. properties located on the eastern side of Manston Court Road. These properties are traditional, two-storey houses, with large front gardens generally containing car parking and low-level amenity planting. The properties all have principal views facing west, currently taking in an unenclosed view of the northern end of the site, which includes an existing tower and telecoms mast. In Year 1, there is no built form proposed directly to the west of the properties, however groundworks and vehicular movements are likely to be highly visible, as stockpiling activity would take place at the northern end of the site. Oblique south-westerly views are likely to take in the construction activity across the southern half of the business park site, including potentially crane movements visible on the skyline and the emerging large scale built form. A bund and planting would also be introduced along the western side of Manston Court Road opposite these properties during Year 1 foreshortening the currently open ground level views. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.	
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	At Year 10 the business park site would be fully developed, with built form extending north and south in the middle ground of views. The landscaping proposals introduced along the western side of Manston Court Road in Year 1 would be gradually maturing and their location on an elevated landform means that the planting would be of sufficient height to soften and filter views of the lower facades of the large scale units within the northern half of the business park.	
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	At Year 20, as at Year 10, the business park site would be fully developed, with built form extending north and south in the middle ground of views. The landscaping proposals along the western side of Manston Court Road would have had the opportunity to mature. This planting, whilst screening and softening views of the large scale built form, would in itself foreshorten the existing open views available to residents from the rear windows and gardens of these properties hence the continued high magnitude of change.	
	Magnitude of change: High	Type of effect: Permanent Adverse Significance: Significant

Table 11.72 Residential Receptor Group 39: Properties around Manston Court on eastern side of Manston Court Road

Properties around Manston Court on eastern side of Manston Court Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers a mix of architectural styles, including detached cottages, semi-detached houses and converted farm buildings. The most northern two properties in the group have principal views facing west, currently taking in an unenclosed view of the northern end of the site, which includes an existing tower and telecoms mast. In Year 1, there is no built form proposed directly to the west of the properties, however groundworks and vehicular movements are likely to be highly visible, as stockpiling activity would take place at the northern end of the site. Oblique south westerly views are likely to take in the construction activity within the southern half of the business park site, including potentially crane movements visible on the skyline and the emerging large scale built form. A bund and planting would also be introduced along the western side of Manston Court Road opposite these properties during Year 1 foreshortening the currently open ground level views. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.

For properties to the south, in and around Manston Court, they are unlikely to have any notable views to the site, due to their varying orientations and substantial screening by intervening built form and mature trees on the western side of Manston Court Road. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where construction activity and the Proposed Development may be partially visible.

Magnitude of change: High (Northern-most properties) Low (Manston Court properties)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant (Northern-most properties) Not Significant (Manston Court properties)
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Year 10

For the northernmost properties, at Year 10 the business park site would be fully developed, with built form extending north and south in the middle ground of views. The landscaping proposals introduced along the western side of Manston Court Road in Year 1 would be gradually maturing and their location on an elevated landform means that the planting would be of sufficient height to soften and filter views of the lower facades of the large scale units within the northern half of the business park.

For properties to the south, in and around Manston Court, the effects are likely to be largely similar to those described for Year 1. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where continuing construction activity and Proposed Development may be partially visible.

Magnitude of change: High (Northern-most properties) Low (Manston Court properties)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant Not Significant
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Year 20

At Year 20, as at Year 10, the business park site would be fully developed, with built form extending north and south in the middle ground of views. The landscaping proposals along the western side of Manston Court Road would have had the opportunity to mature. This planting, whilst screening and softening views of the large scale built form, would in itself foreshorten the existing open views available to residents from the rear windows and gardens of these properties hence the continued high magnitude of change.

For properties to the south, in and around Manston Court, the effects are likely to be largely similar to those described for Years 1 and 10. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where the Proposed Development and aircraft movements may be visible.

Magnitude of change: High (Northern-most properties) Low (Manston Court properties)	Type of effect: Permanent Adverse	Significance: Significant Not Significant
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Table 11.73 Residential Receptor Group 40: Northern semi-detached properties on western side of Manston Court Road

Northern semi-detached properties on western side of Manston Court Road

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1

This residential receptor group covers 6 No. large, semi-detached properties located on the western side of Manston Court Road. These properties are surrounded by large gardens, which are bounded by high, trimmed hedges. The properties all have principal views facing Manston Court Road to the east and rear elevation views facing the Proposed Development to the west. Although ground level views to the west are likely to be partially screened by hedges and built form associated with the properties' back gardens, upper storey windows facing west would have clear views across the Northern Grass area. In Year 1, the business park construction would be underway directly to the west and south west of the properties. In addition, groundworks and vehicular movements are likely to be highly visible to the west, with stockpiling activity taking place at the northern end of the site. Oblique south westerly views are likely to take in the construction activity across the southern half of the business park site, including potentially crane movements visible on the skyline and emerging built form. Planting proposed within a 45m wide buffer immediately west of the properties' back gardens would be implemented during Year 1 and despite being planted on a 4.5m high bund where feasible, would be of insufficient height at this time to provide substantive screening of the activities and emerging large scale built form. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.

Magnitude of change: High	Type of effect:	Significance: Significant
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	Temporary Adverse (construction) Permanent Adverse (built elements)		
Year 10	At Year 10 the business park site would be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals surrounding the properties' back gardens would be gradually maturing and given their placement on 4.5m high bunding, where possible, it is likely that the planting would be of a height to soften and filter views of the lower facades of the built form.		
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
Year 20	At Year 20, as at Year 10, the business park site would be fully developed, with built form extending north and south in the middle ground of views. The landscaping proposals along the western side of Manston Court Road would now be fully mature and would be likely to provide substantial screening of views to the built form within the business park. This planting, whilst screening and softening views of the large scale built form, would in itself foreshorten the existing open views available to residents from the rear upper storey windows of these properties hence the continued high magnitude of change.		
	Magnitude of change: Medium	Type of effect: Permanent Adverse	Significance: Significant

Table 11.74 Residential Receptor Group 41: Southern terraced properties on western side of Manston Court Road

Southern terraced properties on western side of Manston Court Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers 12 No. terraced properties located on the western side of Manston Court Road. These properties have small front gardens, some of which are paved for car parking, facing Manston Court Road and small enclosed back gardens backing onto the Proposed Development. There is little vegetative screening associated with these properties, and views are likely to be clear and unobstructed from most locations within the properties' curtilage. The properties all have principal views facing Manston Court Road to the east and rear elevation views facing the business park site to the west. In Year 1, the business park construction will be underway directly to the west of the properties. In addition, groundworks and vehicular movements are likely to be highly visible to the west, with stockpiling activity taking place at the northern end of the site. Direct westerly views would take in the construction activity on the business park site, including crane movements visible on the skyline and emerging large scale built form. Planting proposed within a 45m wide buffer immediately west of the properties' back gardens would be implemented during Year 1 and despite being planted on a 4.5m high bund where feasible, would be of insufficient height at this time to provide substantive screening of the activities and emerging large scale built form. In addition, residents in these properties may also have some middle-distance views of groundworks associated with the attenuation ponds and the construction of the first easternmost cargo facility and the ATC tower, depending on the precise construction programme during Year 1. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 would be High.
	Magnitude of change: High Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	At Year 10 the business park site would be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals surrounding the properties' back gardens would be gradually maturing and given their placement on bunding, where possible, it is likely that the planting would be of a height to soften and filter views of the lower facades of the built form. During the operational phase, these properties may have oblique views towards the passenger terminal and the associated movements of aircraft close to it.
	Magnitude of change: High Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	At Year 20, as at Year 10, the business park site would be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road would

now be fully mature and would be likely to provide substantial screening of views to the built form of the business park. This planting, whilst screening and softening views of the large scale built form, would in itself foreshorten the existing open views available to residents from the rear windows and gardens of these properties hence the continued high magnitude of change

Magnitude of change: **High**

Type of effect: **Permanent Adverse**

Significance: **Significant**

Table 11.75 Residential Receptor Group 42: Jubilee Cottages on Manston Road

Jubilee Cottages on Manston Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers 4 No. semi-detached properties located on the northern side of Manston Road. These properties have small front gardens enclosed by low walls, facing Manston Road, and small back gardens, which are generally surrounded by mature vegetation. The properties' principal views face south west, taking in the curtilage of the B2050 road in the foreground, an unenclosed arable field in the middle ground of views and the Proposed Development site in the background of views. These views are likely to be largely similar to those illustrated in Viewpoint 6: B2050 western edge of Manston and described in the Viewpoint Assessment for Viewpoint 6 in Appendix 11.3 . In Year 1, there would be substantial construction activity taking place in the background of views and on the horizon, including crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 would be High.
	Magnitude of change: High Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	At Year 10 the main airport site would be largely developed, with built form extending north to the business park and covering much of the horizon with substantial built form. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. These properties may also have views to the movements of aircraft on the runway and taxiways, creating additional activity in views.
	Magnitude of change: High Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	At Year 20, the main airport site would be fully developed, with built form extending north to the business park and covering much of the horizon with substantial built form. These properties may also have views to the movements of aircraft on the runway and taxiways, creating additional activity in views.
	Magnitude of change: High Type of effect: Permanent Adverse Significance: Significant

Table 11.76 Residential Receptor Group 43: Properties in northern Cliffs End, north of Canterbury Road West

Properties in northern Cliffs End, north of Canterbury Road West	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers approximately 60 No. detached bungalows located on three side streets (King Arthur Road, Arundel Road and Windsor Road) on the northern side of Canterbury Road West. The northernmost properties in this group abut the airport boundary at the eastern end of the runway and the westernmost properties abut the proposed fuel farm in the south eastern corner of the Proposed Development site. These properties are all oriented east/west and have small front gardens enclosed by low walls, facing the minor road, and small back gardens, which are generally enclosed by fences and/or vegetation. The properties' principal views face the minor road, taking in the curtilage of the road and facing properties. Properties on the western side of King Arthur Road,

particularly at the southern end of the road, benefit from well-vegetated western boundaries, which would provide substantial screening and filtering of views to the proposed fuel farm development. The properties at the northern end of King Arthur Road have little screening between the properties and the runway to the north. Although these properties would not have principal views facing the proposed development, it is considered likely that due to their close proximity to the site, they would be aware of activity on the site in the periphery and background of most views. In Year 1, there would be substantial construction activity taking place in the background of views to the north and west, including potential for crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 would be High.

NB: Although **Viewpoint 3: Canterbury Road West PRoW** is located within approximately 250m of this group, it is not considered to be representative of views experienced from these properties.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10 the construction to the immediate north and west would be completed, with built form notable on much of the horizon. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. Residents at these properties would also have very close range views to the movements of aircraft on the runway, directly to the north of the receptor group.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20 At Year 20, as in Year 10, the construction to the immediate north and west would be completed, with built form notable on much of the horizon. These properties would also have very close range views to the movements of aircraft on the runway, directly to the north of the receptor group.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.77 Residential Receptor Group 44: Properties in western Cliffs End, south of Canterbury Road West

Properties in western Cliffs End, south of Canterbury Road West

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers approximately 100 No. properties, primarily detached bungalows, located on two side streets (Cliff View Road and Foads Lane), on the southern side of Canterbury Road West. These properties are all oriented east/west, and have small front gardens enclosed by low walls, facing the minor road, and small back gardens, which are generally enclosed by fences and/or vegetation. The properties' principal views face the minor road, taking in the curtilage of the road and facing properties. Any views to the Proposed Development are likely to be oblique background views located to the north and north west. Although these properties would not have principal views facing the Proposed Development, it is considered likely that they would be aware of activity on the site in the periphery and background of northerly and north westerly views. In Year 1, there would be substantial construction activity taking place in the background of views to the north and west; the most obvious of which being crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be Low, as construction activity will be taking place in the background of peripheral views, would be largely screened by the rising landform to the north of Canterbury Road West. **Viewpoint 3: Canterbury Road West PRoW** is located within approximately 200m of this group and is considered to be generally representative of the relationship between the Proposed Development and these properties.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10 the construction to the north and west would be completed, with the now operational built form largely screened from view by landforms and surrounding built form and vegetation. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. Some properties at the northern end of this group may have partial views to structures within the fuel farm, located directly to the north west of this receptor group. It is likely that aircraft

movements on the runway located approximately 350m to the north of this group may be perceived in the background of northerly views.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 It is unlikely that any of the operational structures within the Proposed Development would be visible being set back from the southern edge of the plateau and screened by the bund along the northern side of Canterbury Road West. Some properties at the northern end of this group may have partial views to structures within the fuel farm, located directly to the north west of this receptor group. It is likely that aircraft movements on the runway located approximately 350m to the north of this group may be perceived in the background of northerly views.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.78 Residential Receptor Group 45: Properties north of Way on Ivy Cottage Hill

Properties north of Way on Ivy Cottage Hill		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	This residential receptor group covers approximately 6 No. properties located on the eastern side of a minor road, Ivy Cottage Hill, which is located to the south of the A299, and a roadside bund (approximately 2.5m high with immature planting) which runs along the southern side of the A299. This road is accessed from the south and does not connect to the A299. Properties in this group are large, detached houses surrounded by large and well-treed gardens. These properties have a variety of orientations, but it appears as though the properties' principal views are likely to face south, with views onto gardens, and are limited by surrounding tree cover. Any views to the Proposed Development are likely to be background views available from north facing upper storey windows. Although these properties would not have principal views facing the Proposed Development, it is considered likely that residents would be aware of activity on the site in the periphery and background of northerly views. In Year 1, there would be substantial construction activity taking place in the background of views to the north and west, with the most obvious being crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be Low, as construction activity would be taking place in the background of peripheral views, and is likely to be largely screened and filtered by mature trees surrounding the properties.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)
		Significance: Not Significant
Year 10	At Year 10 and where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. It is likely that closer aircraft movements on the runway located approximately 350m to the north of the northernmost property may be perceived in the background of northerly filtered views.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)
		Significance: Not Significant
Year 20	At Year 20, construction activities will have been completed and operational structures are unlikely to be readily discernible through the mature trees surrounding the properties. It is likely that the closer aircraft movements on the runway located approximately 350m to the north of the northernmost property may be perceived in the background of northerly filtered views.	
	Magnitude of change: Low	Type of effect: Permanent Adverse
		Significance: Not Significant

Table 11.79 Residential Receptor Group 46: Properties north of Way on Wayborough Hill

Properties north of Way on Wayborough Hill		
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Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers approximately 4 No. properties located on the eastern side of a minor road, Wayborough Hill, located to the south of the A299. Properties in this group are large, detached houses surrounded by large and well-treed gardens. These properties have a variety of orientations, but it appears as though the properties' principal views are likely to face south, with foreground views onto gardens, and are limited by surrounding tree cover. Any views to the Proposed Development are likely to be background views available from north facing upper storey windows. Although these properties would not have principal views facing the Proposed Development, it is considered likely that they would be aware of activity on the site in the periphery and background of northerly views. In Year 1 there would be substantial construction activity taking place in the background of views to the north and west, including crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 would be Low, as construction activity would be taking place in the background of peripheral views, and is likely to be largely screened and filtered by mature trees surrounding the properties.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10 and where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. Other operational built form is likely to be screened by the crest of the plateau. It is likely that the closer aircraft movements on the runway located approximately 350m to the north of the northernmost property may be perceived in the background of northerly views.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 At Year 20, as in Year 10, operational built form within the site is likely to be screened by the crest of the plateau. It is likely that the closer aircraft movements on the runway located approximately 350m to the north of the northernmost property may be perceived in the background of northerly views.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.80 Residential Receptor Group 47: Properties west of Manston Road

Properties west of Manston Road

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers approximately 12 No. properties located on the western side of Manston Road, directly opposite the northern end of the site boundary. Properties in this group are generally detached bungalows set back from Manston Road, behind front gardens enclosed by low walls, with parking to the front of most residences. These properties' principal views all face east, with foreground views taking in the curtilage of Manston Road, which is lined on the eastern side by a single row of mature trees, providing partial screening and filtering of easterly views. **Viewpoint 2: Manston Road** is taken from the northern end of the group of properties and represents views experienced where gaps in tree cover or between tree trunks, under the canopy, allow clearer views to the east. Middle ground views take in an arable field (within the site boundary), with background views bounded by built form and tree cover along Manston Court Road.

At Year 1, there would be substantial construction activity taking place in the field to the east of Manston Road, with groundworks and stockpiling taking place in the northern end of the field, within approximately 150m of the nearest residence. In oblique southerly views from the properties, the construction of the business park buildings would be underway, with emerging large scale built form and mobile cranes in use. Further construction activities within the main airport site may also be perceived in oblique views to the south, with the upper portions of built form and construction cranes partially visible in background views. During Year 1, a landscaped bund and planting would be introduced within the 45m wide buffer along the eastern side opposite this group of properties. Depending on the precise timing of its construction, this would screen views of the activities described above for all except the four

southernmost properties in this group, where the open radar zone restricts the construction of the new landform and planting. The landform would foreshorten the current partially open views to the east.

It is considered likely that the Proposed Development will give rise to a High magnitude of change.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10

At Year 10 the construction of business units within the northern half of the business park would be completed, with the substantial built form partially screened and filtered by the bund and associated planting opposite the properties. This planting, whilst screening and softening views of the large scale built form, would in itself foreshorten the existing open views available to residents from the front windows and gardens of these properties hence the continued high magnitude of change. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon to the south. Residents in the four southernmost properties would have views across the open radar zone towards the large scale built form.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20

At Year 20, as in Year 10, the construction in the northern end of the site would be completed, with a greater degree of screening and filtering of the large scale built form provided by the now mature planting introduced along the western boundary of the business park in Year 1. Built form to the west and south west would be visible in the middle ground of views from the four southernmost properties.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.81 Residential Receptor Group 48: Properties on Canterbury Road West, south of Jentex site

Properties on Canterbury Road West, south of Jentex site

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1

This residential receptor group covers approximately 8 No. properties located on the southern side of Canterbury Road West, directly opposite the northern end of the site boundary. Properties in this group are generally detached and semi-detached, two-storey properties set back from the road, with parking to the front of most residences. These properties' principal views face north, with foreground views taking in the curtilage of Canterbury West Road and the built form of the Jentex site in the middle ground of views, with occasional mature trees along the road boundary. The Jentex site is an existing fuel farm, surrounded by security fencing, with built form comprising several low-rise buildings and large fuel storage tanks. The land rises slightly to the north, with bunding to the south of the existing runway screening long distance views to the north. The runway is located approximately 300m north of the properties, but is not visible from ground level due to the intervening topography which results in a 'table top' effect. Upper storey windows are likely to have more expansive northerly views across the site.

Viewpoint 3: Canterbury Road West PRow is taken from the western end of this group of properties, from a public footpath which runs south along the westernmost rear garden boundary. Although taken from the vicinity of these properties, the viewpoint is unlikely to be representative of views experienced from the front elevations of the properties, along Canterbury Road West.

At Year 1, there would be substantial construction activity taking place in the fore and middle ground of views, as the existing Jentex site is refurbished as a new fuel farm. In addition, the airport access road running along the airport boundary fence line would be refurbished/constructed in the middle ground of views. Although the runway itself is not visible, it is likely that vehicles working on the runway may be partially visible from these properties, particularly from upper storey windows, and the mobile construction cranes may also be occasionally partially visible on the skyline.

It is considered likely that the Proposed Development will give rise to a Medium magnitude of change, due to the close proximity of construction activities taking place at the fuel farm and runway to the north of the properties. There is likely to be considerable vehicle movement and large machinery in view.

Magnitude of change: Medium	Type of effect: Temporary Adverse (construction)	Significance: Significant
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Permanent Adverse (built elements)		
Year 10	At Year 10 the construction of the fuel farm and runway would be completed, giving rise to only minor changes to the built form in residents' views. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon to the north. Movements of aircraft on the runway to the north are likely to be discernible although these would be intermittent and transient.	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	At Year 20, as in Year 10, the construction of the fuel farm and runway would be completed, giving rise to only minor changes to the built form residents' views. There would be an increase in movements of aircraft on the runway to the north although these would still be intermittent and transient.	
	Magnitude of change: Medium	Type of effect: Permanent Adverse Significance: Significant

Recreational Receptors Travelling along Long-distance Routes

11.9.4 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.82 - 11.89**. The distribution of the long-distance routes considered in the assessment is shown in **Figure 11.34**.

Table 11.82 Recreation Receptors travelling along the England Coast Path

England Coast Path	
Receptor sensitivity:	High: Receptors include people undertaking walking, cycling or horse riding along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.
Assessment	
Year 1	<p>Within the study area the path runs between Princes Golf Club and Ramsgate. From the southern section of the path views are of coastal marshland and golf courses and to the north towards Cliffs End and Ramsgate views are of a built-up coastline. The Proposed Development would not significantly affect the views from the path and they would remain similar to those of the baseline. Users of the path would not experience any views of ground level construction activities and much of the Proposed Development would be screened; however, there are some sections of the path where upper portions of some of the taller buildings of the Proposed Development, such as the ATC tower and cargo facilities, may be visible. When visible, the upper portions of the taller buildings would only extend marginally above the distant horizon.</p> <p>The southern section of the path between Princes Golf Club and Richborough Port is primarily within the ZTV (Figure 11.34). Most views of the Proposed Development would be screened by the crest of the plateau and scattered foreground and mid-ground vegetation. However, where vegetation is less dense, northbound users of the path may experience partial views of the upper sections of the two mobile construction cranes, the first cargo unit (most eastern) and the ATC tower at a minimum separation distance of approximately 3.8km.</p> <p>Between Richborough Port and the southern edge of Cliffs End, the path passes intermittently through the ZTV for the Proposed Development. There would be no views of the Proposed Development for southbound travellers and the majority of views of the Proposed Development would be screened for northbound travellers by (sequentially) roadside trees and built form in the foreground along the A256, vegetation within Pegwell Bay Country Park, hedgerow along Sandwich Road and vegetation within St. Augustine's Golf Club. At sections of the path where vegetation cover is less dense, there may be partial views of the upper portions of the two mobile construction cranes, the first cargo unit (most eastern) and the ATC tower.</p> <p>Between Cliffs End and where the path finishes in Ramsgate, the path is outside the ZTV for the Proposed Development.</p> <p>The magnitude of change would be no change for the sections of path outside the ZTV. For the remainder of the path within the ZTV, the magnitude of change would not exceed low as a result of the separation distance and screening provided by the crest of the plateau.</p>
	Magnitude of change: Type of effect: Significance: Not Significant

	Low (sections of path within the ZTV)	Permanent Adverse (built elements) Temporary Adverse (construction)	
Year 10	<p>From the majority of the path there would be no changes from the Year 1 views. In those areas where vegetation is less dense and there are views of the elements present at Year 1 (identified above) there may be the addition of partial views of the upper portions of the two central cargo units and aircraft breakdown hangars. Where visible, these buildings would only extend marginally above the screening provided by the crest of the plateau. This addition would represent a small change to the background of northerly views and consequently the magnitude of change would remain the same as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.</p>		
	Magnitude of change: Low (sections of path within the ZTV)	Type of effect: Permanent Adverse (operation) Temporary Adverse (construction)	Significance: Not Significant
Year 20	<p>In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. From the majority of the path there would be no changes from the Year 10 views. Where vegetation is less dense, northerly views are available and in addition to the elements present in the Year 10 view there would be the partial views of upper section of the fourth cargo unit (most western) and the completed aircraft recycling hangar. Similar to the other built elements of the Proposed Development these components would only extend marginally above the horizon in the background of the view. There would also be an increase in ATMs (up to four an hour), although views would continue to be distant, intermittent and transitory. The magnitude of change would remain as low because the combined effect of all elements now present would not constitute a prominent change in the view.</p>		
	Magnitude of change: Low (sections of path within the ZTV)	Type of effect: Permanent Adverse (built elements)	Significance: Not Significant

Table 11.83 Recreation Receptors travelling along National Cycle Route 1

National Cycle Route 1			
Receptor sensitivity:	High: Receptors include people undertaking walking and cycling along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.		
Assessment			
Year 1	<p>Within the study area the cycle route runs between Lower Goldstone and Richborough Farm and views from the route are of a rural character with built form intermittently visible. The vast majority of the path that lies within the study area falls within the ZTV (Figure 11.34) for the Proposed Development. Users of the path would not experience any views of ground level construction activities and most of the proposed built elements would be screened by the landform (the crest of the plateau), vegetation along field boundaries and vegetation in the foreground along the Richborough Road. Where vegetation is less dense there may be oblique views for travellers in either direction of the two mobile cranes, upper portions of the first most eastern cargo unit and the ATC tower, at a separation distance of approximately 5km. The magnitude of change would be low with the Proposed Development representing a small change affecting a limited part of the view.</p>		
	Magnitude of change: Low	Type of effect: Temporary Adverse (Construction) Permanent Adverse (Built elements)	Significance: Not Significant
Year 10	<p>There would be no changes from the Year 1 views from much of the route. The exception is where views were previously available along the Richborough Road where vegetation is less dense. At these locations and in addition to the elements present in the Year 1 view may be partial views of the upper sections of the aircraft recycling hangars and two central cargo units. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low because the combined effect of all elements present in the background would not constitute a prominent change in the view.</p>		
	Magnitude of change: Low	Type of effect: Temporary Adverse (Construction) Permanent Adverse (Built elements)	Significance: Not Significant

Year 20 In contrast to previous periods crane activity would not be visible as construction activity would cease by Year 18. The only new built elements visible from intermittent sections of the route (where vegetation is less dense) compared to the Year 10 view would be the fourth (most western) cargo facility and extension to the aircraft recycling hangars. Similar to the other cargo facilities, the roof of the final cargo facility would only extend marginally above the horizon in the background of the view, whilst the recycling hangars would sit slightly more prominently above the horizon. Any other structures introduced between Year 10 and Year 20 would be screened by the crest of the plateau and it is unlikely that there would be views of ground level plane activity or other ground level operational activity given the separation distance. There would however be an increase in ATMs (up to four an hour), although views would continue to be distant, intermittent and transitory. Although cranes will no longer be present the magnitude of change would remain as low because where views are available there would be an increase in built mass on the distant horizon leading to some skyline intrusion.

Magnitude of change: **Low** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.84 Recreation Receptors travelling along the Saxon Shore

Saxon Shore Way		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.	
Assessment		
Year 1	<p>The section of path between where the path enters the study area (to the south) and where the path crosses the railway line is predominately outside of the ZTV but a small portion dips within the ZTV of the Proposed Development as shown in Figure 11.34. For the majority of this section there would be no views of the Proposed Development or any related construction activities with northerly views screened by vegetation along field boundaries and vegetation in the foreground adjacent the path. Where vegetation is less dense there may be partial views of the two mobile cranes, the upper sections of the first cargo unit (most eastern) and ATC tower at a minimum separation distance of approximately 3.5km for northbound travellers only.</p> <p>The majority of the remaining section of the path within the study area between the intersection of the railway line and west of Plucks Gutter is within the ZTV for the Proposed Development (as shown in Figure 11.34). For the majority of this section of the path views would not change with screening provided by vegetation along field boundaries and vegetation in the foreground along the River Stour. Where vegetation is less dense (such as at Viewpoint 17) there may be oblique views for travellers in either direction of the upper portions of the two mobile cranes, the first most eastern cargo unit and the ATC tower above the crest of the plateau at a minimum separation distance of approximately 3km.</p> <p>The magnitude of change will be Low because there will be an increase in built form along the background horizon.</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse (built elements) Temporary Adverse (construction) Significance: Not Significant
Year 10	<p>From the majority of the path there would be no changes from the Year 1 views. In those areas where vegetation is less dense and there are views of the elements present at Year 1 there would be the addition of oblique partial views of the upper facades and rooflines of the two central cargo units and aircraft recycling hangars. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. These additions would represent a small change for a limited part of the view in the background, consequently the magnitude of change would remain the same as Year 1.</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse (built elements) Temporary Adverse (construction) Significance: Not Significant
Year 20	<p>In contrast to previous periods there would be no cranes visible as construction activity would cease by year 18. As described for Vpt 17 in Appendix 11.3, where vegetation is less dense and in addition of the elements present in the Year 10 view would be the partial views of upper section of the fourth cargo unit (most western) and an extension to the recycling hangar visible above the distant horizon as well as an increase in ATMs (up to four an hour) although views of the latter would continue to be distant, intermittent and transitory. The magnitude of change would remain as low because the combined effect of all elements now present would not constitute a prominent change in the view.</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.85 Recreation Receptors travelling along the Stour Valley Walk

Stour Valley Walk		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.	
Assessment		
Year 1	All of the length of the path that lies within the study area falls within the ZTV (Figure 11.34) for the Proposed Development and there is minimal foreground screening along this coastal section of the route. Northbound users of the path would not experience any views of ground level construction activities and the majority of the proposed built elements would be screened by the crest of the plateau. There is likely to be distant views (minimum separation distance of approximately 2.7km) of the upper sections of the two mobile construction cranes, the first cargo unit, the ATC tower and southern business units of the business park above the horizon. The magnitude of change would be low. For southbound users of the path there would be no views of the Proposed Development which would be behind the viewer.	
	Magnitude of change: Low (northbound travellers) No Change (southbound travellers)	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	In addition to the elements present in the Year 1 view, there would be views of the upper sections of the aircraft recycling hangars and two central cargo units from northbound receptors. The cargo facilities are likely to extend marginally above the current screening of the crest of the plateau whilst the first of the aircraft recycling hangars may sit slightly more prominently above the horizon. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low because the combined effect of all elements now present would not constitute a prominent change in the view.	
	Magnitude of change: Low (northbound travellers) No Change (southbound travellers)	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there would be no views of cranes as construction activity would cease by Year 18. In addition to the elements present in the Year 10 view, there would be the upper section of the fourth (most western) cargo facility and extension to the recycling hangars extending above the distant horizon. There would also be an increase in ATMs to four an hour, although views would continue to be distant, intermittent and transitory. The magnitude of change will continue to be Low because of the skyline intrusion brought about by these buildings. For southbound users of the path there will be no views of the Proposed Development which would be behind the viewer.	
	Magnitude of change: Low (northbound travellers) No Change (southbound travellers)	Type of effect: Permanent adverse Significance: Not Significant

Table 11.86 Recreation Receptors travelling along the Thanet Coastal Path

Thanet Coastal Path	
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.
Assessment	
Year 1	<p>This path runs alongside the coast between Cliffs End and west of Birchington. In general views from the path will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.</p> <p>Walkers between the southern edge Cliffs End and the western side of Birchington would not experience views of the Proposed Development as indicated by the ZTV (Figure 11.34).</p> <p>For eastbound receptors travelling along the stretch of path to the west of Birchington, there is the potential for the top of the two mobile cranes and uppermost section of the emerging ATC tower and first cargo facility to become minor components in southeasterly views. At separation distances of approximately 5km, these components are likely to be too small in scale to generate more than a negligible magnitude of change from this section of the route.</p>

Views of the Proposed Development would also be available between Stonelees and Cliffs End, only for northbound travellers. From this section no ground level construction activities would be visible; however, there may be views of the upper sections of two mobile canes (40m tall), the first cargo unit and the ATC tower on the skyline. The remaining built development emerging during this time would not be visible from this section of path as it would be screened by the crest of the plateau. The magnitude of change would be low, comparable with that for the England Coast Path with which this section of the route coincides.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between Stonelees and Cliffs End)	Permanent adverse (built elements)	
Negligible (west of Birchington)	Temporary adverse (construction)	
No Change (remainder)	Mostly Neutral	

Year 10 There would be no changes from the Year 1 views from along much of the path. The exception is the small section of the path between Stonelees and Cliffs End from which (and in addition to the elements present in the Year 1 view), there would be views of the upper sections of the aircraft recycling hangar and two central cargo units, as well as the intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. From the route west of Birchington there may also be views of the additional built form and overhead aircraft. The magnitude of change would remain as predicted for Year 1.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between Stonelees and Cliffs End)	Permanent adverse (operation)	
Negligible (west of Birchington and remainder)	Temporary adverse (construction)	

Year 20 In contrast to previous periods there would be no views of cranes as construction activity would cease by Year 18. From sections of path within the ZTV and in addition to the elements present in the Year 10 view, there would be potential views of the upper sections of the fourth (most western) cargo unit and an extension to the recycling hangars. There would also be an increase in ATMs, although these would continue to be intermittent and transitory in views. The magnitude of change would remain as predicted for Year 1.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between Stonelees and Cliffs End)	Permanent adverse (operation)	
Negligible (west of Birchington)		

Table 11.87 Recreation Receptors travelling along the Turner and Dickens Walk

Turner and Dickens Walk		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.	
Assessment		
Year 1	The route of this path falls outside of the ZTV for the Proposed Development as shown in Figure 11.34 .	
	Magnitude of change: No Change	Type of effect: Neutral Significance: Not Significant
Year 10	The route of this path falls outside of the ZTV for the Proposed Development as shown in Figure 11.34 . There would be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.	
	Magnitude of change: Negligible	Type of effect: Adverse Significance: Not Significant
Year 20	There would be an increase in ATMs (up to four an hour), although views will continue to be distant, intermittent and transitory. The magnitude of change would remain as predicted for Year 10.	
	Magnitude of change: Negligible to Negligible	Type of effect: Adverse Significance: Not Significant

Table 11.88 Recreation Receptors travelling along the Viking Coastal Trail Cycle Route

Viking Coastal Trail Cycle Route			
Receptor sensitivity:	High: Receptors include people cycling along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.		
Assessment			
<p>This path runs west to east from St Nicholas-at-Wade to Cliffs End and then alongside the coast between Cliffs End and West of Birchington. In general, between St. Nicholas-at-Wade and Cliffs End views will be of a rural character with built form visible in the distance. Alongside the coast views will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.</p> <p>The section of path between the west of Birchington and the edge of the study area the path falls within the ZTV for the Proposed Development. In the views of travellers heading eastbound, there is the potential for the top of the two mobile cranes and uppermost section of the emerging ATC tower and first cargo facility to become minor components in south-easterly views. At separation distances of approximately 5km, these components are likely to be too small in scale to generate more than a negligible magnitude of change from this section of the route.</p> <p>Travellers on the section of the route between west of Birchington and the southern edge Cliffs End would not experience views of the Proposed Development with inland views being foreshortened by intervening built development along the coast.</p> <p>Heading westwards between Cliffs End and St Nicholas-at-Wade the path passes intermittently through the ZTV of the Proposed Development as shown in Figure 11.34. No ground level construction activities would be visible and most of the development would be screened by the crest of the plateau to the north or by screening vegetation along the roadside. Where very occasional oblique views are available, the upper sections of the two mobile cranes and upper most sections of the cargo units and ATC tower may be discernible for users travelling along the section of path between the underpass of the A256 and Sevenscore.</p> <p>Within and to the east of Minster the path falls intermittently into the ZTV however there is unlikely to be views of the Proposed Development as there is screening from dense roadside vegetation (east of Minster).</p> <p>The magnitude of change would be low for the section of route between the underpass of the A256 and Sevenscore and be negligible for the affected views identified to the the west of Birchington. From the remainder of the cycle path there would be no visual change.</p>			
	<p>Magnitude of change: Low (between the underpass of the A256 and Sevenscore) Negligible (west of Birchington) No Change (remainder of the route)</p>	<p>Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Mostly Neutral</p>	<p>Significance: Not Significant</p>
Year 10	<p>For the vast majority of the path the views would not alter from the Year 1 views with the exception of intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. For the small section of the path between the underpass of the A256 and Sevenscore and in addition to the elements visible in Year 1, there would be oblique partial views of upper sections of the proposed aircraft recycling hangars and central two cargo units. The magnitude of change for the respective sections of the path would remain the same.</p>		
	<p>Magnitude of change: Low (between the underpass of the A256 and Sevenscore) Negligible (remainder of the route)</p>	<p>Type of effect: Permanent adverse (operation) Temporary adverse (cranes)</p>	<p>Significance: Not Significant</p>
Year 20	<p>In contrast to previous periods cranes would no longer be visible because construction activity would cease by Year 18. For the small section of the path identified between the underpass of the A256 and Sevenscore, in addition to the elements visible in Year 10 there may be oblique partial views of upper sections of the fourth cargo facility (most western) and an extension to the recycling hangars for users of the route as well as an increase in ATMs although views of the latter would continue to be intermittent and transitory. The magnitude of change for this section of the path would remain low. The magnitude of change for the respective sections of the path would remain the same.</p>		
	<p>Magnitude of change: Low (between the underpass of the A256 and Sevenscore) Negligible (remainder of the route)</p>	<p>Type of effect: Permanent adverse (operation)</p>	<p>Significance: Not Significant</p>

Table 11.89 Recreation Receptors travelling along the Wantsum Walk

Wantsum Walk		
Receptor sensitivity:	High: Receptors include people cycling along a promoted route where a key component of the activity is an appreciation of the landscape and the likelihood that these receptors attach at least a medium value to the views.	
Assessment		
Year 1	<p>This path runs from St Nicholas-at-Wade to Birchington and then alongside the coast towards Margate. In general, between St Nicholas-at-Wade and Birchington views will be of a rural character with built form visible in the distance. Alongside the coast views will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.</p> <p>Only a short section of this route, between north of Shuart and the western edge of Birchington, passes through the ZTV for the Proposed Development as shown in Figure 11.34. Views for both westbound and eastbound travellers would be restricted further depending on their direction of travel with eastbound receptors only potentially experiencing views from the route as it passes along the coastline and westbound travellers only potentially experiencing views as they head south from the coastline to cross Wade Marshes towards Shuart. For both sets of travellers there is the potential for the top of the two mobile cranes and uppermost section of the emerging ATC tower and first cargo facility to become minor components in south-easterly views. At separation distances of approximately 5km, these components are likely to be too small in scale to generate more than a negligible magnitude of change from this section of the route.</p>	
	<p>Magnitude of change: Negligible (between Shuart and the western edge of Birchington) No Change (remainder)</p>	<p>Type of effect: Temporary adverse (construction) Permanent adverse (built elements)</p>
	Significance: Not Significant	
Year 10	<p>There would be minor changes to Year 1 views from the path as a result of the introduction of the central two cargo facilities and aircraft recycling hangar as well as the of intermittent and transitory views of aircraft (up to two an hour in Year 10), primarily those on flight paths to the east of Manston Airport. Consequently the magnitude of change would remain the same as the Year 1 view.</p>	
	<p>Magnitude of change: Negligible</p>	<p>Type of effect: Temporary adverse (construction) Permanent adverse (operation)</p>
	Significance: Not Significant	
Year 20	<p>In contrast to previous periods there would be no visible cranes as construction activity would cease by Year 18. There would be an extension to the aircraft recycling hangars discernible as a very minor component and an increase in ATMs which would continue to be intermittent and transitory. As a consequence, the magnitude of change will remain as predicted for Year 10.</p>	
	<p>Magnitude of change: Negligible</p>	<p>Type of effect: Permanent adverse</p>
	Significance: Not Significant	

Recreational Receptors Visiting Recreational Destinations

11.9.5 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.90 - 11.102**. The distribution of the recreational destinations considered in the assessment is shown in **Figure 11.35**.

Table 11.90 Recreational Receptor Group 1: Manston Golf Club

Manston Golf Club	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	

Year 1	<p>There would be some views of ground level construction activities, particularly any movements of machinery associated with the asphalt overlay in the eastern part of the site. There would also be views of the upper sections of two mobile cranes (40m tall), which would be most prominent when constructing eastern elements of the airport, such as the most eastern cargo facility.</p> <p>Most of the built elements of the proposed airports would be screened by intervening perimeter vegetation and infrastructure, and vegetation in Manston which is sited on a slightly raised area of land and situated between the golf course and the Proposed Development. However, there would be views of upper sections of the ATC tower, southern units of the business park and the first, easternmost cargo facility. The height of the radar tower that may already be visible would be extended by an estimated 5m by the introduction of new radar equipment slightly increasing the visual prominence of the radar tower. Although a large proportion of outward views towards the Proposed Development are screened, the magnitude of change would be medium because where views are available, there would be prominent changes to the view due to an increase in building mass in the middle distance.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>
Year 10	<p>In Year 10 there would continue to be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible at the Year 1 view, would be the upper portions of the northern units of the business park, the central two cargo units and the aircraft recycling hangars. Views of the business units would be softened by the landscaping works introduced to the east of the business park in Year 1. Taxiing planes would be visible with the highest magnitudes of change occurring when aircraft are at the eastern end of the runway. The magnitude of change would remain as medium there would be a prominent change to the view in the middle distance.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Permanent adverse (operation) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>
Year 20	<p>In contrast to previous periods there would be no ground level construction activity present as this and periodic crane activity would cease by Year 18. In addition to the built elements and taxiing planes visible in the Year 10 view, there would be the fourth most western cargo unit visible. Planting implemented in Year 1 along the eastern edge of the business park would be of a height that would filter and soften views of the upper portions of the business units. The magnitude of change would remain as medium as collectively there would be a prominent change to the view in the middle distance.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Permanent adverse</p> <p>Significance: Not Significant</p>

Table 11.91 Recreational Receptor Group 2: Hartsdown Park

Hartsdown Park

Receptor sensitivity: **Medium:** People undertaking recreational activities (walking) where their surroundings have some impact on their enjoyment.

Assessment

Year 1	<p>There would be no views of any ground level construction activities, although there may be distant filtered views of upper sections of the two mobile cranes. There may be filtered, very distant views of upper portions of the first cargo facility, the ATC tower and southern business units. The magnitude of visual change experienced by receptors in the park would be negligible due there being only be a very small change to long distance views that would be mostly screened.</p>	<p>Magnitude of change: Negligible</p> <p>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>
Year 10	<p>As with the view at Year 1 there may be distant views of two mobile cranes but no other ground level construction activities would be discernible. In addition to the built elements present in the Year 1 view, there may be filtered distant views of the upper portions of the northern business units and the central two cargo facilities. There would be no views of taxiing planes or other ground level operational activities, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of visual change experienced by receptors in the park would remain as negligible.</p>	<p>Magnitude of change: Negligible</p> <p>Type of effect: Permanent adverse (operation) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>

Year 20 In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the view at Year 10, there may be filtered distant views of the upper portion of the fourth cargo unit as well as an increase in ATMs although the latter would continue to be intermittent, distant and transitory. The magnitude of change will remain as negligible.

Magnitude of change: **Negligible** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.92 Recreational Receptor Group 3: St Augustines Golf Club

St Augustines Golf Club	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	
Year 1	There would be no views of any ground level construction activities; however, there would be partial views of the upper sections of the two mobile cranes that would be periodically present on site. Most of the built elements would be screened by the landform, as the proposed buildings are set back from the southern edge of the plateau. However, there may be distant views of upper portions of the first eastern most cargo facility, the ATC tower and southern units of the business park. The magnitude of change would be low as there would be a small increase in built form and skyline intrusion on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there would be no views of ground level construction activities, but there would be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, there would be view of the upper sections of the proposed recycling hangar, business aviation hangars and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities would be visible, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low because the change to the view would not be prominent and only affect a limited part of the view on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the built elements present in the Year 10 view, there would be view of the upper portions of the fourth cargo facility (most western) and the extension to the recycling hangar, as well as an increase in ATMs, although views of the latter would still be intermittent and transitory. The magnitude of change would remain as low because although there is an increased massing of built elements and skyline intrusion, the change to the view would not be prominent and would only affect a limited part of the view on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse Significance: Not Significant

Table 11.93 Recreational Receptor Group 4: Stonelees Golf Centre

Stonelees Golf Centre	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	
Year 1	There would be no views of any ground level construction activities; however, there would be partial views of the upper sections of the two mobile cranes that would be periodically present on the airport site. Most of the built elements would be screened by the landform, as the proposed buildings are set back from the southern edge of the plateau and roadside hedges in views towards the Proposed Development. There may be distant views of upper portions of the first eastern most cargo facility, the ATC tower and southern units of the business park. The magnitude of change would be low as where views are available there would be a small increase in built form and skyline intrusion on the horizon to the north.

	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	As with the view at Year 1 there would be no views of ground level construction activities, but there would be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, there would be views of the upper sections of the proposed breakdown hangar, business aviation hangars and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities would be visible, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low because the change to the view would not be prominent and only affect a limited part of the view in the distance.		
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the built elements present in the Year 10 view, there would be visibility of the upper portions of the fourth cargo facility (most western) and the extension to the recycling hangar, as well as an increase in ATMs, although views of the latter would still be intermittent and transitory. While there would be an increased massing of built elements on the skyline to the north, the change to the view would not be prominent and would only affect a limited part of the view on the distant horizon, hence the magnitude of change would remain as low.		
	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant

Table 11.94 Recreational Receptor Group 5: Prince's Golf Club

Prince's Golf Club	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	
Year 1	There would be no views of any ground level construction activities; however there may be partial views of the upper portions of the two mobile cranes. Built elements of the Proposed Development such as the first cargo facility, the ATC tower and southern business units, would be discernible as minor components creating some skyline intrusion above the horizon to the north. The magnitude of visual change experienced by receptors at the golf course would be low.
	Magnitude of change: Low Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1, there is likely to be distant partial views of the two mobile cranes and no views of other ground level construction activities. In addition to the built form present at Year 1, there would now be the central two cargo facilities and aircraft recycling hangar. There will be no views of taxiing planes or other ground level operational activities, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of visual change experienced by receptors in the park would remain as low.
	Magnitude of change: Low Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the built elements present in the Year 10 view, there would be views of the upper portions of the fourth cargo facility (most western) and the extension to the recycling hangar, as well as an increase in ATMs, although views of the latter would still be intermittent and transitory. Whilst there would be an increased massing of built elements on the skyline to the north, the change to the view would not be prominent and would only affect a limited part of the view on the distant horizon, hence the magnitude of change would remain as low.
	Magnitude of change: Low Type of effect: Neutral Significance: Not Significant

Table 11.95 Recreational Receptor Group 6: Manston Court Caravan Site.

Manston Court Caravan Site		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	<p>There would be some views of ground level construction activities such as views of the northern construction compound, stockpile area and the movement of construction machinery to and from this area. There would also be views of the two mobile cranes (40m tall), which would be most prominent when constructing the first business units within the southern half of the business park. Most of the built elements of the proposed airport would be visible to some extent due to the proximity of the receptor to the Proposed Development (at its closest 150m). The upper sections of the southern units of the business park and the first eastern most cargo unit would be prominently visible. The height of the radar tower that may already be visible would be extended by an estimated 5m by the introduction of new radar equipment thereby slightly increasing its visual prominence. The magnitude of change will be high due to there being large prominent changes to the view in the middle ground.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 10	<p>As with the view at Year 1 there would be views of two mobile cranes and other ground level construction activities. In addition to the built elements visible in the Year 1 view, there would be upper sections of the new passenger terminal, the central two cargo facilities, the aircraft recycling hangar and the northern units of the business park also visible. The northern units of the business park would appear more prominent than the southern units due to the proximity and open nature of the views from some areas of the site set back from perimeter vegetation. At 10 years after planting, the vegetation proposed along the eastern edge of the business park would begin to soften and filter views of the lower facades of the business units. There may be views of ground level taxiing aircrafts on the eastern side of the airport runway. The magnitude of change would remain high due to the close proximity of the site to this group of receptors and the large proportion of views that would be affected in different directions from the receptor site.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Significant
Year 20	<p>In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the built elements visible in the Year 10 view, there would be views of an additional cargo facility, recycling hanger, business aviation hangar and an increase in taxiing planes visible along the eastern side of runway. The planting introduced in Year 1 along the eastern side of the business park would play a greater role in screening and filtering views of the large scale built form within the Northern Grass area. The magnitude of change is likely to remain high because of increased massing of built elements within the view and increased aircraft activity introducing movement, resulting in a prominent change to the view in the middle ground.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse Significance: Significant

Table 11.96 Recreational Receptor Group 7: Preston Parks

Preston Parks	
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.
Assessment	
Year 1	<p>There would be views of the two mobile cranes (40m tall), some ground level construction activities, the northern construction compound stockpile area and the movement of construction machinery to and from this area. Views of the ground level construction activities would be heavily filtered by surrounding vegetation and discernible in filtered views in winter months when vegetative screening is minimal. A proportion of the built elements of the proposed airport would also be screened by intervening vegetation surrounding Preston Park. Howeverc the upper sections of the ATC tower, southern units of the business park and first easternmost cargo unit may be visible from locations within Preston Parksc including the area to the west of Preston Road where screening is reduced. The height of the radar tower that may already be visible will be extended by an estimated 5m by the introduction of new radar equipment, slightly increasing its visual prominence. The magnitude of change would be medium because where views are available there would be prominent changes due to the increase in the amount of building mass in the view.</p>

	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Year 10	As with the view at Year 1, there may be views of ground level construction activities and of the two mobile cranes from occasional locations within Preston Parks. In addition to the built elements visible in the Year 1 view, the northern units of the business park, the central two cargo unit and aircraft recycling hangars would be visible. At 10 years after planting the vegetation proposed along the eastern edge of the business park would begin to soften and filter views of the lower facades of the business units although they would still be prominent in the views of a small proportion of residents within Preston Parks, more so for the small proportion of residents whose caravans are oriented west. There would be no views of ground level taxiing aircrafts or other ground level operational activities, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport. The magnitude of change would remain as medium as where views are available the proposed built development would remain as prominent in the view at a middle distance.		
	Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
Year 20	In contrast to previous periods there would be no construction activity present and periodic crane activity would cease by Year 18. In addition to the built elements in the Year 10 view, the fourth most western cargo unit would be visible; however, this would be mostly screened by the closest first built cargo facility, present at Year 1. Planting around the eastern edge of the business park would make more of a contribution in screening and softening views of the facades of the northern most business units. The magnitude of change is likely to remain as medium given their prominence at distances of 0.6km. There would also be an increase in ATMs on flight paths to the east of the airport, although these would still be intermittent and transitory.		
	Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant

Table 11.97 Recreational Receptor Group 8: Birchington Vale Holiday Park

Birchington Vale Holiday Park			
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.		
Assessment			
Year 1	There would be no views of any ground level construction activities; however, there would be partial views of the upper sections of the two mobile cranes that would be periodically present on the airport site. There may be distant views of upper portions of the southern business units, the first cargo facility and the ATC tower. The magnitude of change would be low only a small increase in built form in the background of the view may be discernible.		
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	As with the view at Year 1 there would be no views of ground level construction activities, but there would be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, the upper sections of the northern business units and central two cargo facilities would be visible. No stationary or taxiing aircraft or ground level operational activities will be visible although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. Whilst there would be an increase in built form in the view the magnitude of change would remain as low since the change to the view would not be prominent and would only affect a limited part of the view in the distance.		
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. In addition to the built elements present in the Year 10 view would be the upper portions of the fourth cargo facility (most western) and an increase in ATMs, although views of the latter would still be intermittent and transitory. The magnitude of change would remain as low.		
	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant

Table 11.98 Recreational Receptor Group 9: Quex Holiday Park and Campsite

Quex Holiday Park and Campsite		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	The ZTV in Figure 11.7 indicates that views of the Proposed Development would be highly limited and fragmentary from within this campsite. There would be no views of any ground level construction activities; however, there would be partial views of the upper sections of the two mobile cranes that would be periodically present on the airport site. The only components of the Proposed Development that would be discernible in Year 1 would be the upper sections of the southern business units in heavily filtered views through the boundary trees which line the southern boundary of the campsite. The magnitude of change would be negligible as these would represent only a small increase in built form potentially discernible in the background of filtered view.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there would be no views of ground level construction activities, but there would be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, there would be filtered views of the rooflines and upper facades of the northern business units. No stationary or taxiing aircrafts or ground level operational activities would be visible, although there would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low because the change to the view would not be prominent and only affect a limited part of the view in the distance.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. There is unlikely to be any additional built form introduced into the view compared to Year 10 and whilst there would be an increase in ATMs, views of these would still be intermittent and transitory. The magnitude of change is likely to be negligible.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse Significance: Not Significant

Table 11.99 Recreational Receptor Group 10: Bradgate Holiday Park

Bradgate Holiday Park		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	There would be no views of any ground level construction activities, but there would potentially be views of upper section the mobile cranes. Most of the built elements of the Proposed Development would be screened due to dense hedge vegetation on the perimeter of the receptor site and mature individual trees boarding residential properties off Vincent Road. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Permanent neutral (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there would be views of two mobile cranes but no ground level construction activities discernible. There would be no views of built development, taxiing planes or other ground level operational activities, although there would be some intermittent and transitory views of aircraft on flights paths to the east and west of Manston Airport. The magnitude of visual change experienced by residents would remain as negligible.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant

Year 20 In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. There would be no new built elements present with the only discernible changes to views resulting from an increase in ATMs, although these would remain intermittent and transitory. The magnitude of change is likely to remain as negligible.

Magnitude of change: **Negligible** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.100 Recreational Receptor Group 11: Frost Farm

Frost Farm		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	There will be no views of any ground level construction activities, but there may be distant filtered views at a separation distance of approximately 5km of the upper sections the mobile cranes when constructing built elements to the west of the airport and in the southern sections of the airport. Although views are relatively open from the receptor site in the direction of the airport the built elements of the proposed airport such as the first cargo facility and southern business units would be screened by intervening landform, vegetation and built development. The magnitude of visual change experienced by receptors at Frost Farm would be negligible due to a combination of separation distance and the presence of screening elements.	
	Magnitude of change: Negligible	Type of effect: Adverse and temporary (construction) Permanent and neutral (built elements)
		Significance: Not Significant
Year 10	As with the view at Year 1 there may be distant views of two mobile cranes but no views of ground level construction activities. No built elements of the proposed airport would be visible. There would be no views of taxiing planes or other ground level operational activities, although there would be some intermittent and transitory views of aircraft, most notably those on flights paths to the west of Manston Airport. The magnitude of visual change experienced by receptors in the park would remain as negligible	
	Magnitude of change: Negligible	Type of effect: Adverse and temporary (construction) Permanent and adverse (operation)
		Significance: Not Significant
Year 20	In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. There would be no new built elements present with the only discernible changes to views resulting from an increase in ATMs, although these would remain intermittent and transitory. The magnitude of change is likely to remain as negligible.	
	Magnitude of change: Negligible	Type of effect: Adverse and permanent
		Significance: Not Significant

Table 11.101 Recreational Receptor Group 12: Dog and Duck Caravan Park

Dog and Duck Caravan Park		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	There would be no views of any ground level construction activities, however there may be distant filtered views of the upper portions of the two mobile cranes. Views towards the Proposed Development are primarily screened by dense perimeter vegetation and as a consequence there would be no views of emerging built form across the Site. The magnitude of visual change experienced by receptors would be negligible due to a combination of separation distance and the presence of screening elements.	
	Magnitude of change: Negligible	Type of effect:
		Significance: Not Significant

and for groups of PRowWs in **Tables 11.115 = 11.122**. The distribution of these local PRowWs is shown in **Figure 11.36**.

Table 11.103 Recreational Receptors: PRow Receptor TE16

PRow TE16		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRow TE16, a public footpath approximately 1.4km in length, which extends from Cleve Court Farm on Minster Road in the south, to Manston Road in the north and passes to the west of the Columbus Avenue Industrial Estate. The southern end of the footpath is located approximately 300m north of the site boundary, at the western end of the runway. However, due to tree cover and built form to the south and east of the footpath in this location, it is unlikely that there would be notable views towards the Proposed Development from the southerly approximately 700m of the path, as confirmed by the ZTV. Viewpoint 10: Pumping station south of Quex Park is located at the northern end of the path and is representative of views experienced by users of the footpath heading south from Manston Road.</p> <p>Currently, as users of the footpath leave Manston Road they cut across two large scale arable fields for approximately 550m. An approximately 50m long belt of young, deciduous trees is located at the northern end of the footpath, briefly limiting views from the path to the south east. Vpt 10 is taken from just beyond this tree belt and takes in expansive south easterly views across arable fields, extending from the fore to middle ground of view. In the background of views, a hedgerow and mature trees surrounding Cheeseman's Farm, on Alland Grange Lane is visible. The rooftops of farm buildings are also discernible. From this location, there are no views to the Site at ground level; however, in Year 1 there may be potential for partial views to construction activities visible in the background of views, beyond the treeline. Upper portions of taller buildings on site, including the proposed business park located approximately 2km to the east, cargo facilities located approximately 2km southeast, the proposed ATC tower, and mobile cranes in use across the Site at various points during the construction phase, may be partially visible above the treeline in oblique views. Whilst the upper sections of the Proposed Development would be notable in views, the oblique nature of views towards the Proposed Development and presence of existing and closer large scale built form within the Manston Business Park means that the magnitude of change to views experienced by users of this footpath is considered likely to be Low.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	<p>In Year 10, as at Year 1, there may be potential for partial views to construction activities visible in the background of views, beyond the treeline. Upper portions of taller buildings on site, including the additional northern units within the business park located ~ 2km to the east, central two cargo facilities located ~ 2km south-east, and mobile cranes in use across the site at various points, may be partially visible above the treeline in background views. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the west of Manston Airport. The magnitude of change to views experienced by users of this footpath is considered likely to be Low, as whilst the Proposed Development would give rise to notable changes in the background of views, these views would be oblique and the presence of other closer large scale built form within the Manston Business Park would reduce the contrast of the operational buildings.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	<p>In Year 20, construction activity on site would be complete. Upper portions of taller buildings on site, including the proposed business park located approximately 2km to the east, cargo facilities located approximately 2km south east, and the ATC tower, may be partially visible above the treeline in background views. There would also be an increase in ATMs although views of these would still be intermittent and transitory. The magnitude of change to views experienced by users of this footpath is considered likely to remain Low.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.104 Recreational Receptors: PRow Receptor TE18

PRow TE18		
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Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRoW TE18, a public footpath approximately 1.6km in length, which extends from Plumstone Road in the west to Minster Road in the east and follows a farm access track for the majority of its length. The eastern end of the footpath is located approximately 90m north west of the site boundary and the western end of the runway. Views to the south east take in the curtilage of the B2190 and roundabout, with Minster Road in the foreground of views. In the middle ground of views, the security fencing surrounding the site's western end is visible with the flat grassed field to the west of the runway visible in the background of views, extending to the horizon. The existing built form of the airport is visible in the background of easterly views, looking east along the B2190.

From the western end of the footpath, at Plumstone Road, foreground and middle ground views take in arable fields, with a block of mature trees present around Plumstone Farm, located midway along the footpath. The large scale built form within Manston Business Park on Columbus Avenue and The Loop are features of notable height on the skyline in an otherwise flat, arable landscape.

At Year 1, the western end of the Proposed Development includes the reinstatement/construction of the airport access road and the upgrading of approach lights within the fenceline, which may potentially involve earthworks and vehicular movements in the middle ground of views, as experienced from the closest eastern end of the footpath. Construction of the built form in the centre of the site (aircraft stands, cargo facilities and the ATC tower) is likely to be partially visible in the background of easterly views above and between the built form within the Manston Business Park, with the movement of cranes on the skyline drawing the eye. The emerging built form itself is likely to be visible above and between the existing large scale buildings in the view. These changes are likely to increase the density of built form clustered centrally within easterly views leading to a low magnitude of change.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, works to the western end of the site would be completed, with the majority of construction activity taking place within the centre of the site, including extensions to the cargo facilities and aircraft recycling facilities and continuing earthworks. Construction activity is likely to be partially visible in the background of easterly views, with the movement of cranes on the skyline drawing the eye. The built form associated with the Proposed Development, including that within the Northern Grass area, would be discernible above and between the built form within Manston Business Park leading to an increase in the density of built form clustered centrally within the view and giving rise to a low magnitude of change. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the west of Manston Airport as well as views of aircraft on the runway from the most eastern section of the route.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site would be complete. The operational built form across the central and northern parts of the Site would continue to be viewed above and between the existing large scale built form within Manston Business Park. Ground level movement of aircraft on the runway would be discernible from the eastern end of the PRoW and there would also be an increase in ATMs, although views of both of these would continue to be intermittent and transitory. The magnitude of change to views experienced by users of this footpath is considered likely to remain Low.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.105 Recreational Receptors: PRoW Receptor TR8

PRoW TR8

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRoW TR8, a public bridleway which extends approximately 350m west from High Street, Manston, then enters from the eastern end of the site boundary, then turns north at a field

boundary to extend approximately 520m north to join the B2050. Approximately 600m of this bridleway is located within the site boundary, in the vicinity of the proposed airport carpark.

Currently, as users of the bridleway leave High Street Manston, they enter an arable field, bounded by airport security fencing directly to the south and to the west of the field boundary. At Year 1, the existing arable field will be the site of the proposed contractor's main compound (a temporary diversion of this PRoW during the construction period is likely). Foreground views in all directions would take in construction activity, including groundworks, earth moving, welfare facilities and many vehicular movements. The existing airport carpark is located to the west of the footpath. The middle ground of northerly and westerly views would likely take in the construction of the airport's built form, including the ATC tower, first easternmost cargo facility, aircraft stands, fire station and business units to the north. Mobile cranes would also be visible at various points during the construction period. At the northern end of the footpath an area of mature trees and shrubs surrounds a derelict building on the western side of the path. At the junction with the B2050 foreground views take in the road curtilage, with middle ground views to terraced properties along Manston Court Road and background views to the construction of the proposed business park. The predicted magnitude of change is considered likely to be High, due to the receptor's location within the Proposed Development site.

Magnitude of change: High	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10

In Year 10, as in Year 1, foreground views would take in the contractor's main compound for the approximately 600m of the bridleway which falls within the site boundary. Middle distance views would take in the large scale built form of the aircraft recycling hangar, the aircraft stands, cargo facilities and terminal building as well as the movement of aircraft on the runway and taxiing around the Site. Construction may still be on-going in limited areas within the site (such as the extensions to the recycling hangar and cargo buildings) and mobile cranes may still be occasionally visible. The proposed business park to the north of the B2050 would be complete. The proximity of this route to the large scale changes taking place within northerly and westerly would give rise to a continued high magnitude of change.

Magnitude of change: High	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
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Year 20

In Year 20, foreground views would take in an overflow carpark and an extension to the main carpark for the approximately 600m of the bridleway which falls within the site boundary. Middle distance views would take in the large scale built form of the aircraft recycling hangar, the aircraft stands, cargo facilities and terminal building. The proposed business park to the north of the B2050 would be complete and visible in northerly views. There would be an increase in ATMs and therefore a high degree of movement of aircraft along the runway and taxiing around the site.

Magnitude of change: High	Type of effect: Permanent adverse	Significance: Significant
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Table 11.106 Recreational Receptors: PRoW Receptor TR9

PRoW TR9	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor covers users of PRoW TR9, a public bridleway approximately 350m in length, which extends from High Street, Manston, then follows farm access tracks east and south before it enters the eastern end of the site boundary, to the north east of the existing runway. The end of the bridleway within the site boundary appears to be a remnant, which no longer connects to the wider PRoW network.</p> <p>Currently, as users of the bridleway leave High Street Manston, they enter a minor lane which accesses the Chapel Farm residence. The lane is lined by mature trees along much of its length and ends at the entrance to an arable field, where the bridleway continues south along the field boundary until meeting the airport boundary fence. Beyond the boundary fence is an area of mown grass to the east of the existing runway. Views to the site are limited by field boundary hedgerows and trees, but filtered partial views to the eastern end of the runway may be possible from the southern end of this PRoW.</p> <p>At Year 1, the access road which follows the fence line to the north-east of the runway would be reinstated/constructed, giving rise to construction activity in the foreground of southerly views. In the middle distance of southerly views, works to the taxiways and runways may be partially visible. Where gaps in the foreground vegetation allow, there may be northerly and westerly framed views to the upper portions of built form, including to</p>

the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site during the construction period. The predicted magnitude of change is considered likely to be Medium, due to the receptors close proximity to the development site and the likely high levels of vegetative screening in the foreground of views.

Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10

In Year 10, there would be no further proposed changes at the eastern end of the site. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form, including to the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site. In addition, aircraft movements on the taxiways and runways may be notable in the middle ground of southerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptors close proximity to the development site, and the likely high levels of vegetative screening in the foreground of views.

Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
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Year 20

In Year 20, as in Year 10, there would be no further proposed changes at the eastern end of the site. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form. In addition, aircraft movements on the taxiways and runways may be notable in the middle ground of southerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptors close proximity to the development site.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant
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Table 11.107 Recreational Receptors: PRoW Receptor TR10

PRoW TR10

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1

This recreational receptor covers users of PRoW TR10, a public bridleway approximately 950m in length, which extends from Chapel Farm, Manston to the east, then follows a farm access track to join the A256 and continues to the east in the vicinity of Ozengell Grange. The western end of the bridleway is located approximately 150m north of the site boundary.

Currently, as users of the bridleway leave the A256, they follow the grassed margins between two large scale arable fields to the north and south of the path. A small block of woodland is located at Ozengell Grange, at the eastern end of the bridleway. Views to the west are unenclosed and take in flat, arable fields in the foreground and a belt of mature trees in the middle distance, surrounding Chapel Farm.

At Year 1, there may be potential for partial views to the eastern side of the site, with construction activities visible in the background of views, either the upper portions of taller buildings in the centre of the site or mobile cranes, or views to ground level where gaps in tree cover allow. At the western end of the bridleway there may be potential for close range views to activity on site, where gaps in tree cover allow.

Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10

In Year 10, as at Year 1, there may be potential for partial views to the eastern side of the site, with construction activities visible in the background of views, associated with the upper portions of taller buildings in the centre of the site or mobile cranes, or views to ground level where gaps in tree cover allow. At the western end of the bridleway there may be potential for close range views to activity on site, again where gaps in tree cover allow. Where these gaps do occur, there may be northerly and westerly framed views to the upper portions of built form, including to the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site. In addition, aircraft movements on the taxiways and runways may be notable in the background of westerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptors close proximity to the development site but reduced by the high levels of vegetative screening in the foreground of views.

Magnitude of change: Medium	Type of effect:	Significance: Significant
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	Permanent adverse (operation) Temporary adverse (construction)
Year 20	In Year 20, construction activity on site would be complete. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form. In addition, aircraft movements on the taxiways and runways may be notable in the background of westerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptors close proximity to the development site, with the magnitude reduced by the high levels of vegetative screening in the foreground of views.
	Magnitude of change: Medium Type of effect: Permanent adverse Significance: Significant

Table 11.108 Recreational Receptors: PRow Receptor TR22

PRow TR22	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor covers users of PRow TR22, a public footpath approximately 780m in length, which extends from the entrance to Manston Caravan and Camping Park, on the eastern side of Manston Road, to the south and east to meet the B2050 and east to end at Preston Road. At its nearest point, along the B2050, the footpath is located approximately 240m north east of the site boundary. Views from the northern end of the footpath, from the entrance off Manston Court Road, tend to be largely screened by built form and tree cover, as the footpath passes between residential properties and through the caravan park. As users of the footpath leave caravan park, which is surrounded by dense deciduous hedges, they cross over a stile and enter an arable field directly to the north of the B2050. From this location, views to the west and south are expansive. Although not taken from the footpath, Viewpoint 6: B2050 western edge of Manston is located within approximately 140m of the footpath, along the B2050, and is considered generally representative of views which may be experienced from the footpath at the edges nearest the B2050. From these locations, westerly and southerly foreground views take in the curtilage of the B2050 and arable fields in the middle ground of views. In the background of westerly views, the existing built form within the site is visible. The flat expanse of the runway, surrounded by security fencing, is visible in the background of southerly views. Views from the eastern section of the footpath, between the B2050 and Preston Road are likely to be heavily screened and filtered by high hedgerow vegetation, which surrounds the path on both sides. If the maintenance regime along these hedgerows were to change, expansive views to the south and west might be possible, taking in the Proposed Development in background views.</p> <p>At Year 1, from the sections of the footpath nearest the B2050, the Proposed Development on site would be clearly visible in southerly and westerly views. This includes the built form and the construction activity associated with the proposed cargo facilities, ATC tower and units within the southern half of the business park, as well as activity within the contractor's main compound, which would be located at the eastern edge of the site, nearest to the B2050. Mobile cranes would also be visible across the site, with movements on the skyline drawing the eye.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be High as the Proposed Development would give rise to large scale changes which are likely to be dominant in views for the sections of the footpath nearest the B2050.</p>
	Magnitude of change: High Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 10	In Year 10, as in Year 1, views from the sections of the footpath nearest the B2050 are likely to have clear views to the majority of the built form in the centre of the site and across the Northern Grass area. As a small amount of construction activity is still likely to be on-going at this stage, mobile cranes may be visible on the horizon and the contractor's main compound would still be in use at the edge of the Site nearest the viewer. Aircraft movements at the eastern ends of the runway and taxiway may also be notable in views. The planting introduced along the eastern edge of the Northern Grass area in Year 1 would be of sufficient height and density to filter and screen views of the lower facades of the business units although the large scale changes across the remainder of the site would lead to a continued high magnitude of visual change for receptors travelling in a westerly direction.
	Magnitude of change: High Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Significant
Year 20	In Year 20, construction activity on site would be complete. Views from the sections of the footpath nearest the B2050 would have clear views to the majority of the built form in the centre of the site with car parking occupying the

edge of the Site nearest the viewer. Aircraft movements at the eastern ends of the runway and taxiway may also be notable in views.

Magnitude of change: **High** Type of effect: **Permanent adverse** Significance: **Significant**

Table 11.109 Recreational Receptors: PRow Receptor TR23

PRow TR23		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRow TR23, a public footpath approximately 550m in length, which cuts across fields to serve as a pedestrian bypass of a dog-leg bend in Preston Road. The footpath extends from Preston Road in the south, with its entrance adjoining the entrance to Maytree Park, a small caravan park, then runs north through a field of well-wooded pasture and a solar farm, to re-join Preston Road on its north eastern extent. At its nearest point, the footpath is approximately 500m east of the site boundary. In spite of its proximity to the site, there are unlikely to be clear views to the Proposed Development from the majority of its length, due to screening by heavily wooded field boundaries in the foreground and middle ground of views at its southern end and the surrounding built form of the solar farm in the foreground and middle ground of views at its northern end.</p> <p>At Year 1, the majority of the construction activities on site would be taking place to the south west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by intervening solar panels and tree cover. Partial views to the upper portions of the taller buildings on site and to the mobile construction cranes may be possible, where gaps in built form and tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development would give rise to only minor changes in the background of views, as experienced from a location with a substantial amount of tree cover and built form in the foreground and middle ground of views.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	<p>In Year 10, as in Year 1, the majority of the construction activities on site would be taking place to the south west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by intervening solar panels and tree cover. Partial views to the upper portions of the higher buildings on site and to the mobile construction cranes may be possible, where gaps in foreground screening elements allow. The upper facades and rooftops of the buildings within the northern end of the proposed business park site may be partially visible in westerly views above the planting introduced along the eastern boundary of the Northern Grass area in Year 1, where gaps in vegetation and built form allow. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	<p>In Year 20, construction activity on site would be complete. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in foreground screening elements allow. The facades of the business units within the northern part of the Northern Grass area would be largely screened by the now mature planting along the eastern side of the business park leaving the rooflines occasionally and partially visible in the background of westerly views, again where gaps in foreground screening elements allow. There would be an increase in ATMs but views of aircraft would continue to be intermittent and transitory.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.110 Recreational Receptors: PRow Receptor TR24

PRow TR24		

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRoW TR24, a public footpath approximately 1.7km in length, which extends from Manston Court Road, along field boundaries, south to Coldswood Farm and south to Spratling Street, forming a sharp turn to the north and east to join Haine Road. At its nearest point, the footpath is located approximately 1km east of the site boundary. At the northern end of the path, located approximately 1.1km north-east of the northern end of the Northern Grass area, the path follows field boundaries between unenclosed, large scale arable fields. When the path reaches Coldswood Farm, approximately 500m to the south of Manston Court Road, foreground views may be partially screened by mature trees in the foreground of views, and in the middle ground of views, surrounding properties on Preston Road. As the path extends south to Spratling Street, foreground views take in unenclosed arable fields, while westerly views in the direction of the site have screening in the middle ground of views, where mature tree belts surround Preston Park caravan site. The section of path between Spratling Street and Haine Road is likely to have foreground and middle ground views across unenclosed arable fields, with multiple layers of tree cover and occasional rooftops of built form visible in background views to the west.

At Year 1, the majority of the construction activities on site would be taking place to the south-west of the viewer. Partial background views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.

The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development would give rise to only minor changes in the background of views.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, the majority of the construction activities on site would be taking place to the south west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial views to the upper portions of the higher buildings on site and to the mobile construction cranes may be possible, where gaps in fore and mid-ground tree cover allow. The upper facades and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site would be complete. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.111 Recreational Receptors: PRoW Receptor TR25

PRoW TR25

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRoW TR25, a public footpath approximately 250m in length, which follows the northern boundary of an arable field, joining Preston Road in the west and a farm access track in the east. At its nearest point, the footpath is located approximately 700m east of the site boundary. Mature trees lining Preston Road to the west of the footpath are likely to largely screen and heavily filter most views in the direction of site.

At Year 1, the majority of the construction activities on site will be taking place to the south west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial background views to the upper portions of the higher buildings on site and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.

The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the south west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial views to the upper portions of the higher buildings on site and to the mobile construction cranes may be possible, where gaps in fore and mid-ground tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site will be completed. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.112 Recreational Receptors: PRoW Receptor TR26

PRoW TR26

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRoW TR26, a public footpath approximately 110m in length, which follows a field boundary between Haine Road to the west and New Haine Road to the east. At its nearest point, the footpath is located approximately 1.4km north-east of the site boundary. Foreground views along the entire length of the path are likely to be heavily filtered and screened by foreground vegetation, as field and property boundaries in this location are surrounded by mature trees.

At Year 1, the majority of the construction activities on site would be taking place to the south west of the viewer. Partial background views to the upper portions of the taller buildings on site and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.

The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development would give rise to only minor changes in the background of views.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, the majority of the construction activities on site would be taking place to the south-west of the viewer and are unlikely to be clearly visible from the footpath due to screening by multiple layers of tree cover. Partial views to the upper portions of the taller buildings on site and to the mobile construction cranes may be possible, where gaps in foreground and middle ground tree cover allow. The upper facades and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views and through or above the planting introduced along the eastern boundary of the Northern Grass area in Year 1, where gaps in the foreground vegetation allow. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site would be complete. Partial views to the upper portions of the higher buildings may be possible where gaps in built form and tree cover allow. The rooftops of the buildings within the northern end of the Northern Grass are may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow, and by Year 20 are likely to be almost entirely screening by the planting introduced to their immediate east in Year 1. There would be an increase in ATMs although views would continue be intermittent and transitory.

Magnitude of change: **Low** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.113 Recreational Receptors: PRoW Receptor TR31

PRoW TR31		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRoW TR31, a public footpath approximately 400m in length, which links Spratling Street in the north with Elm Grove, a residential close to the B2050, in the south. At its nearest point, the southern end, the footpath is located approximately 500m east of the site boundary. From Spratling Street, foreground views take in an adjoining residential property and hedge-lined field boundaries, before entering a hedge-lined arable field. Field boundaries to the west contain a number of mature trees emergent from the hedgerow in the middle ground of westerly views. The path cuts diagonally across the field, then passes between well-wooded garden boundaries to emerge at Elm Grove.</p> <p>At Year 1, the majority of the construction activities on site would be taking place to the west and south west of the viewer. Partial background views to the upper portions of the higher buildings on site and to the mobile construction cranes would occasionally be possible, where gaps in fore and mid-ground tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development would give rise to only minor changes in the background of views.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	<p>In Year 10, as in Year 1, the majority of the construction activities on site would be taking place to the west and south-west of the viewer and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover and built form. Partial views to the upper portions of the higher buildings on site and to the mobile construction cranes may be possible, where gaps in foreground and middle ground tree cover and built form allow. The upper facades and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of north-westerly views, where gaps in vegetation allow.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	<p>In Year 20, construction activity on site would be completed. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of north-westerly views, where gaps in vegetation allow.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.114 Recreational Receptors: PRoW Receptor TR32

PRoW TR32	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	

Year 1	<p>This recreational receptor covers users of PRoW TR32, a public footpath approximately 1.4km in length, Canterbury Road West in the north with Cottington Lane, in the south. The site boundary and proposed fuel farm are located just to the north of Canterbury Road West, with the runway located approximately 240m north of the northern end of the footpath. Viewpoint 3: Canterbury Road West PRoW is taken from the northern end of the footpath, just south of residential properties located along Canterbury Road West. In Viewpoint 3, there are no views to the Proposed Development, due to rising landform to the north of Canterbury Road West. The majority of the footpath is not modelled as having theoretical visibility to the Proposed Development; however, mid-way along the path an elevated section of the path crosses over the A256 tunnel and may have potential partial views to the Proposed Development. Foreground views in this location take in an arable field to the north, with rising landform, built form and tree cover in the middle ground of views and potential for partial views to the upper portions of the Proposed Development in background views.</p> <p>At Year 1, the construction activity on site may be partially visible in northerly background views to the upper portions of the higher buildings on site. Mobile construction cranes may also be occasionally partially visible in background views.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.</p>			
	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Magnitude of change: Low</td> <td style="width: 33%;">Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</td> <td style="width: 33%;">Significance: Not Significant</td> </tr> </table>	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant		
Year 10	<p>In Year 10, as in Year 1, it is possible that there would be minor partial background views to the upper portions of built form on site, and to mobile construction cranes on site. Movements of aircraft on the runway may also be partially visible from this location, in the background of northerly views.</p>			
	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Magnitude of change: Low</td> <td style="width: 33%;">Type of effect: Permanent adverse (operation) Temporary adverse (construction)</td> <td style="width: 33%;">Significance: Not Significant</td> </tr> </table>	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant		
Year 20	<p>In Year 20, construction activity on site would be complete. Partial views to the upper portions of the higher buildings on site may be possible in the background of northerly views from a short section of the route. Movements of aircraft on the runway may also be partially visible from this location, in the background of northerly views.</p>			
	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Magnitude of change: Low</td> <td style="width: 33%;">Type of effect: Permanent adverse</td> <td style="width: 33%;">Significance: Not Significant</td> </tr> </table>	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant		

Table 11.115 Recreational Receptors: PRoW Group A

Group A: PRoWs between Birchington and St. Nicholas-at-Wade				
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.			
Assessment				
Year 1	<p>This recreational receptor group covers users of PRoWs located at the north-western edge of the study area, from the A28, south of St. Nicholas-at-Wade, north to the coastline and east to the settlement of Birchington. At its nearest point, the Proposed Development is approximately 2.4km south east of the receptor group, near the small settlement of Brooksend. These PRoWs generally cross a landscape of large scale arable fields and link settlements and isolated farms to the road network and to the coastline. Some of these PRoWs also form part of promoted long distance footpaths, users of which are considered separately. Viewpoint 19: St Nicholas-at-Wade is taken from the southern edge of this PRoW group (though the photograph is taken from the junction of the A28 and Orchard Lane, not from a PRoW), and is generally indicative of the typical landscape and views experienced from the area. The Thanet Earth greenhouses are located just to the south of the A28 and are likely to be prominent in some south easterly views from this area, or screen views to the Proposed Development, as is the case in Viewpoint 19. In the ZTV illustrated in Figure 11.7 potential views to the Site are possible from areas of high open ground, generally arable fields, crossed by PRoWs. Due to the distance between the viewers and the Proposed Development, it is unlikely that the Proposed Development would be a notable feature in views. Where views are possible, it is likely that the Proposed Development would be viewed as a very minor addition to built form along the skyline in background views. During the construction period, mobile cranes would occasionally be visible as minor features in background views.</p>			
	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Magnitude of change: Negligible</td> <td style="width: 33%;">Type of effect: Temporary adverse (construction) Permanent adverse (built elements)</td> <td style="width: 33%;">Significance: Not Significant</td> </tr> </table>	Magnitude of change: Negligible	Type of effect: Temporary adverse (construction) Permanent adverse (built elements)	Significance: Not Significant
Magnitude of change: Negligible	Type of effect: Temporary adverse (construction) Permanent adverse (built elements)	Significance: Not Significant		

Year 10 It is likely that effects in Year 10 would be as described for Year 1. There would be intermittent and transitory views of aircraft (up to two an hour in Year 10) most notable those on flight paths to the west of Manston Airport.

Magnitude of change: Negligible	Type of effect: Temporary adverse (construction) Permanent adverse (operation)	Significance: Not Significant
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Year 20 At Year 20, effects upon receptors are likely to be the same as those described above for Year 10, but without construction activity present on site. There would be an increase in ATMs although views of overhead aircraft would still be intermittent and transitory.

Magnitude of change: Negligible	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.116 Recreational Receptors: PRoW Group B

Group B: PRoWs between Brooksend and West Brook

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PRoWs located to the north-west of the Proposed Development, which cross arable fields at the edges of settlements along the coast. At its nearest point, the Proposed Development is approximately 1.4km south of the receptor group, near **Viewpoint 10 Pumping Station south of Quex Park**. **Viewpoint 15 PRoW, Shottenden Road** is also taken from within this receptor group area.

Unusually for the study area, the landscape surrounding these PRoWs has tree belts and hedges frequently present in foreground, with substantial tree cover in the vicinity of Quex Park, and tree belts present along some field boundaries. However, where PRoWs cross open fields, there may be partial views to the Proposed Development, with the upper portions of built form visible on the skyline. During the construction phase, the movement of cranes on the horizon may be notable in some views. Due to distance from the site and likely partial screening of many views, it is unlikely that the Proposed Development will play more than a minor role in background views to the south-east.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 It is likely that effects in Year 10 will be as described for Year 1. There would be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the west and east of Manston Airport.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 At Year 20, effects upon receptors are likely to be the same as those described above for Year 1, but without construction activity present on site. There would be an increase in ATMs although views of overhead aircraft would still be intermittent and transitory.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.117 Recreational Receptors: PRoW Group C

PRoWs between Lydden and West Brook

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1	<p>This recreational receptor group covers users of PRowWs located to the north of the Proposed Development, which frequently follow farm access tracks between arable fields, linking minor roads. At its nearest point, the Proposed Development is approximately 450m south of the receptor group. Viewpoint 7: Vincent Road near Flete Farm, Viewpoint 13: Nash Court, Nash Road, Margate and Viewpoint 14: Junction of High Street and Shottendene Road, southern Garlinge are all taken from within this receptor group area. It is considered likely that views experienced from the PRowWs in the southern half of this receptor group would be similar in content to those represented in Viewpoint 7 and PRowWs in the northern half will be similar in content to those represented in Viewpoints 13 and 14.</p> <p>From the northern half of the receptor group area, it is likely that the Proposed Development would be a very minor additional built form in the background of views, with only the upper portions of the highest structures on site potentially visible on the skyline. In Year 1, mobile construction cranes may be occasionally discernible in views.</p> <p>From the southern half of the receptor group area, the upper portions of built form may be clearly visible on the horizon in southerly views. At Year 1, construction within the business park site and within the main site is likely to be prominently visible in the background of views, with the movement of construction cranes potentially drawing the eye.</p> <p>It is considered likely that the Proposed Development will give rise to a Medium magnitude of change, as from the nearest PRowWs, it introduces large scale elements of built form into the background of generally rural, undeveloped views.</p>			
	<table border="1"> <tr> <td>Magnitude of change: Medium</td> <td>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</td> <td>Significance: Significant</td> </tr> </table>	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant		
Year 10	<p>It is likely that effects in Year 10 would be similar to those described for Year 1 although the now operation business units within the Northern Grass area would be more prominent than those buildings introduced in Year 1. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.</p>			
	<table border="1"> <tr> <td>Magnitude of change: Medium</td> <td>Type of effect: Permanent adverse (operation) Temporary adverse (construction)</td> <td>Significance: Significant</td> </tr> </table>	Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant		
Year 20	<p>At Year 20, effects upon receptors are likely to be the same as those described above for Year 10, but without construction activity present on site. There would be an increase in ATMs although views of these would still be intermittent and transitory.</p>			
	<table border="1"> <tr> <td>Magnitude of change: Medium</td> <td>Type of effect: Permanent adverse</td> <td>Significance: Significant</td> </tr> </table>	Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant
Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant		

Table 11.118 Recreational Receptors: PRow Group D

PRowWs around A255 between Westwood and Northdown				
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.			
Assessment				
Year 1	<p>This recreational receptor group covers users of PRowWs located to the north-east of the Proposed Development. At its nearest point, the Proposed Development is approximately 2.4m south-west of the receptor group. This receptor group is surrounded on all sides by urbanised or industrial areas. PRowWs tend to be footpaths extending from settlement edges, following field boundaries between irregular shaped arable fields. Tree belts are common in this area, with tree cover surrounding farms, settlement edges, the rail line and some field boundaries. Some of these footpaths cross major roads and a rail line at the north-eastern side of the receptor group. It is considered likely that due to the surrounding built form, vegetative screening and distance from the site, there would be no notable views to the Proposed Development or construction activities on the site, with the exception of the presence of elevated crane activity.</p>			
	<table border="1"> <tr> <td>Magnitude of change: Negligible</td> <td>Type of effect: Neutral</td> <td>Significance: Not Significant</td> </tr> </table>	Magnitude of change: Negligible	Type of effect: Neutral	Significance: Not Significant
Magnitude of change: Negligible	Type of effect: Neutral	Significance: Not Significant		
Year 10	<p>In Year 10, as in Year 1 described above, it is considered unlikely that the Proposed Development would form a notable part of any views. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.</p>			
	<table border="1"> <tr> <td>Magnitude of change: Negligible</td> <td>Type of effect: Neutral</td> <td>Significance: Not Significant</td> </tr> </table>	Magnitude of change: Negligible	Type of effect: Neutral	Significance: Not Significant
Magnitude of change: Negligible	Type of effect: Neutral	Significance: Not Significant		

Year 20 In Year 20, as in Year 10 described above, it is considered unlikely that the Proposed Development will form a notable part of any views. There would be an increase in ATMs although views of these would still be intermittent and transitory.

Magnitude of change: **Negligible** Type of effect: **Neutral** Significance: **Not Significant**

Table 11.119 Recreational Receptors: PRow Group E

Group E: PRowS between Minster and Cliffs End

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of a small number of PRowS extending from the eastern edge of Minster, following field boundaries to the north-east, east and south. The rail line forms the southern edge of the receptor group area, located at approximately 10m AOD, with land rising gently to approximately 50m AOD at the site boundary to the north. The eastern boundary of the receptor group area is formed by the A256. Banked hedges with emergent mature trees form field boundaries and follow minor lanes, though contain many gaps and areas of varying management. Many of the larger detached residences in the area have well-treed gardens. The combined effect creates multiple layers of vegetative screening across the landscape, allowing occasional filtered or framed views to the north.

Viewpoint 11 Viking Coastal Trail, Cottingdon Road is taken from within this receptor group area (but not from a PRow) and illustrates typical landscapes in this area and the rising landform to the north. Due to screening by landforms and tree cover it is considered likely that at Year 1, during the construction phase, only the tallest site elements (likely to be mobile construction cranes) will be occasionally visible, where gaps in vegetation allow. Given that the southern side of the site hosts the runway, and no notable built form is proposed in this area, it is unlikely that the Proposed Development would give rise to more than a low magnitude of change to existing views experienced from these PRowS.

Magnitude of change: **Low** Type of effect: **Temporary adverse** (construction) Significance: **Not Significant**

Year 10 In Year 10, as in Year 1 described above, it is considered unlikely that the Proposed Development would form a notable part of any views. The tops of the tail fins on the largest aircraft using the runway may be intermittently visible moving above the horizon. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.

Magnitude of change: **Low** Type of effect: **Permanent adverse** (operation) **Temporary adverse** (construction) Significance: **Not Significant**

Year 20 In Year 20, as in Year 1 described above, it is considered unlikely that the Proposed Development would form a notable part of any views. The tops of the tail fins on the largest aircraft using the runway may be intermittently visible moving above the horizon. ATMs are forecast to increase in comparison with Year 10, therefore there would be an increase in numbers of partly visible aircraft.

Magnitude of change: **Low** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.120 Recreational Receptors: PRow Group F

Group F: PRowS between Minster and Gore Street

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PRowS located to the west of High Street, Minster and west to the minor settlement of Gore Street. A rail line forms the southern edge of the receptor group area, located at approximately 10m AOD, with land rising gently to approximately 45m AOD at the north eastern edge of the receptor group area, at the south-western corner of the site. The northern receptor group area is bounded by the A253.

PRoWs in this area generally extend from the residential centres of Minster and Monkton, following field boundaries to join minor lanes. Banked hedges with emergent mature trees form field boundaries and follow minor lanes, though contain many gaps and areas of varying management. Edges of settlements are well-treed, and small blocks of woodland are found across the landscape. The combined effect creates multiple layers of vegetative screening across the landscape, allowing occasional filtered or framed views to the north-east, in the direction of site. Theoretical visibility, as illustrated in the ZTV model, indicates that the only potential views to the Proposed Development would be from PRoWs at the southern edge of the receptor group area. Due to screening by landform and tree cover, it is considered likely that at Year 1, during the construction phase, only the tallest site elements (likely to be mobile construction cranes) may be occasionally visible, where gaps in vegetation allow. Given that the south western side of the site hosts the runway, and no notable built form is proposed in this area, it is unlikely that the Proposed Development would give rise to more than a Negligible magnitude of change to existing views experienced from these PRoWs.

Magnitude of change: Negligible	Type of effect: Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1 described above, it is considered unlikely that the Proposed Development would form a notable part of any north easterly views. There would be intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport.

Magnitude of change: Negligible	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, as in Year 1 described above, it is considered unlikely that the Proposed Development would form a notable part of any views. There would be an increase in ATMs although views of these would still be intermittent and transitory.

Magnitude of change: Negligible	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.121 Recreational Receptors: PRoW Group G

Group G: PRoWs in the Northern Side of Stour Valley

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PRoWs located to the north of the River Stour to the rail line located south of Minster, east to the A256 and west to Monkton Marshes. At its nearest point the site boundary is located approximately 1.4km to the north of this receptor group. The Saxon Shore Way long distance footpath follows the River Stour and its users are considered as a separate receptor group. PRoWs in this area generally extend from the river northwards, following field boundaries. There is little to no development in this floodplain landscape, with tree cover limited to occasional mature trees located along field boundaries. A double row of pylons support overhead lines runs from north-west to south-east, to join the Richborough substation. Foreground views from these PRoWs take in surrounding arable fields, with middle distance northerly views potentially including built form at Minster. Due to the distance from site and topography, it is considered likely that the Proposed Development and associated construction activity may be visible creating some skyline intrusion in background views. The Proposed Development is likely to be viewed as a minor feature on the horizon in expansive views in this area, which may contain substantial elements of existing development, such as overhead lines.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1 described above, it is considered likely that the Proposed Development and associated elevated construction activity may be occasionally visible in background views on the horizon. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, as in Year 1 described above, it is considered likely that the Proposed Development, most notably the ATC tower, cargo facilities and aircraft recycling hangars, may be occasionally visible in background views on the horizon. There would be an increase in ATMs although views of these would still be intermittent and transitory.

Magnitude of change: **Low** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.122 Recreational Receptors: PRow Group H

Group H: PRowS on the Southern Side of Stour Valley

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PRowS located from the River Stour extending south to the edge of the study area boundary, east to the A256 and west to Plucks Gutter. At its nearest point the site boundary is located approximately 3.1km to the north of this receptor group. The Saxon Shore Way long distance footpath follows the River Stour and its users are considered as a separate receptor group. PRowS in this area generally extend from the river southwards, following field boundaries. There is little to no development in this floodplain landscape, with tree cover limited to occasional mature trees and hedges located along field boundaries to join minor lanes. A double row of pylons support overhead lines crosses the north-eastern edge of the receptor group area, to join Richborough substation. Foreground views from these PRowS take in surrounding fields, frequently used as rough pasture, with occasional hedge boundaries in the middle ground of views. **Viewpoints 17 South Saxon Way alongside River Stour, 18 Goldstone Drove PRow, west of Lower Goldstone and 22 PRow north of Richborough Castle** fall within this receptor group area, and illustrate the low-lying topography and vegetation. Due to the distance from site and topography, it is considered likely that the Proposed Development and associated construction activity may be occasionally visible in background views on the horizon. The Proposed Development is likely to be viewed as a minor feature in expansive views in this area, which may contain prominent of existing development, such as overhead lines.

Magnitude of change: **Low** Type of effect: **Permanent adverse** (built elements)
Temporary adverse (construction) Significance: **Not Significant**

Year 10 In Year 10, as in Year 1 described above, it is considered likely that the Proposed Development and associated construction activity may be occasionally visible in background views on the horizon. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.

Magnitude of change: **Low** Type of effect: **Permanent adverse** (operation)
Temporary adverse (construction) Significance: **Not Significant**

Year 20 In Year 20, as in Year 1 described above, it is considered likely that the Proposed Development, most notably the ATC tower, cargo facilities and aircraft recycling hangars, may be occasionally visible in background views on the horizon. There would be an increase in ATMs although views of these would still be intermittent and transitory.

Magnitude of change: **Low** Type of effect: **Permanent adverse** Significance: **Not Significant**

Vehicular Receptors Travelling along Principal and Local Roads close to the Proposed Development

11.9.7 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out for principal and local roads close to the Proposed Development site in **Tables 11.123 - 11.132**. The distribution of these routes is shown in **Figure 11.1**.

Table 11.123 Vehicular Receptors: A256 (dual carriageway) north and south

A256 (dual carriageway) north and south

Receptor sensitivity: **Low:** Receptors include drivers and their passengers travelling along a dual-carriageway for which their surroundings is unlikely to be a primary concern.

Assessment		
Year 1	<p>Within the study area the road runs from east of Richborough to west of Cliffs End where the road meets the A229 at a roundabout approximately 750m south of the site. All of the road lies within the ZTV of the Proposed Development as shown in Figure 11.7. Southbound users would experience no views of the Proposed Development as drivers and their passengers would be travelling away from the Proposed Development which would therefore be behind them.</p> <p>For northbound travellers, no ground level construction related activities would be visible from any section of the road. However northbound travellers may experience partial views of the upper sections of the two mobile construction cranes and the first cargo unit (most eastern) and occasionally the ATC tower above the crest of the plateau. Views of the upper portions would decrease as northbound travellers head closer to the Proposed Development due to the topography. Views would be most likely approximately 1.3km south of the southern boundary of the Proposed Development.</p> <p>For southbound travellers, the magnitude of change would be no change, as the Proposed Development would be outside of their field of view located behind them. For northbound travellers there would be periodic views of upper sections of the two mobile cranes and very limited views of the upper portion of the cargo unit and ATC tower. This would result in a small change above a limited part of the horizon and viewed at speed therefore the magnitude of change would be low.</p>	<p>Magnitude of change: Low (northbound travellers) No Change (southbound travellers)</p> <p>Type of effect: Temporary adverse (construction) Permanent adverse (built elements)</p> <p>Significance: Not Significant</p>
Year 10	<p>For northbound travellers and in addition to the elements present in the Year 1 view would be the two central cargo units and aircraft recycling hangar. The aircraft recycling hangar would appear most prominent however this would only extend marginally above the horizon line. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport. The magnitude of change would remain as low, because the combined effect of the built elements now visible would only result in a small change to a limited part of the view experienced at speed.</p>	<p>Magnitude of change: Low (northbound travellers) No Change (southbound travellers)</p> <p>Type of effect: Temporary adverse (construction) Permanent adverse (operation)</p> <p>Significance: Not Significant</p>
Year 20	<p>In contrast to previous periods here would be no views of cranes as construction activity would cease by Year 18. For northbound users, in addition to the elements present in the Year 10 view may be partial views of the upper sections of the fourth cargo unit and an extension to the aircraft recycling hangar. There would also be an increase in ATMs although views of these would still be intermittent and transitory. The magnitude of change would remain as low, because the combined effect of the built elements now visible would only result in a small change to a limited part of the view experienced at speed.</p>	<p>Magnitude of change: Low (Northbound travellers) No Change (southbound travellers)</p> <p>Type of effect: Permanent adverse</p> <p>Significance: Not Significant</p>

Table 11.124 Vehicular Receptors: A256 Haine Road north and south

A256 Haine Road north and south	
Receptor sensitivity:	Low: Receptors include drivers and their passengers travelling along a busy primary road for which their surroundings is unlikely to be a primary concern.
Assessment	
Year 1	<p>The A256 Haine Road runs from a roundabout with Canterbury Road and A229 west of St Lawrence north to Westwood. The majority of the route lies within the ZTV of the Proposed Development as shown in Figure 11.7.</p> <p>For northbound travellers, no ground level construction related activities would be visible from any section of the road. Views of the Proposed Development would be restricted to an approximately 350m southern section of the route although roadside vegetation and built form located at Manston would screen a majority of the development. However, there would be some filtered oblique views of two mobile cranes, the ATC tower and the first cargo unit experienced at speed. Beyond this section of road, views would become increasingly more oblique and through Haine views would be screened by residential properties in the foreground to the west of the road. Between the north of Haine and Westwood there would be no views of the Proposed Development as this would now be outside the field of view behind northbound travellers.</p>

Southbound travellers may experience intermittent views of the two mobile construction cranes, first cargo unit, ATC tower and southern units of the business park. Within Westwood views of the Proposed Development would be screened by built form in the foreground of views. Leaving Westwood there would be open views towards the Site and there may be long distance views of the cranes and emerging built form. As the road enters Haine neighbouring built form along the route would screen any views of the Proposed Development. After leaving the built-up area of Haine, there may again be some views of the identified elements however the majority would be screened by vegetation along field boundaries between the road and Proposed Development site. As travellers reach the most southern section of the road proximity to the built elements and screening would reduce, but the angle of the view would be more oblique.

For north and southbound travellers, the approximately 350m section to the south, where views are open but oblique the magnitude of change would be Low due to the oblique brief nature of views experienced at speed. For northbound users travelling along the remaining section of the route there would be no visual change. For southbound users, the magnitude of change would be typically be Low because the built elements visible would only contribute to a small change in a limited part of the horizon and again would be experienced at speed.

Magnitude of change: Low to No Change	Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)	Significance: Not Significant
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Year 10

For north and southbound travellers where views have been identified, further changes to views in Year 10 would include partial views of the aircraft recycling hangar, central two cargo units and passenger terminal. These built elements would be visible from the same locations described above and would be of similar prominence to the elements visible in Year 1, again experienced at speed. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.

The magnitude of change would remain as predicated for Year 1.

Magnitude of change: Low to No Change	Type of effect: Temporary adverse (Cranes) Permanent adverse (operation)	Significance: Not Significant
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Year 20

In contrast to previous periods no cranes would be visible as construction activity would cease by Year 18. For north and southbound travellers in addition to where views of built elements have been identified in the Year 10 view, there would be partial views experienced at speed of an extension to the recycling hangar and the fourth cargo unit, although the latter would likely be screened by the first three cargo units introduced in previous phases. There would also be an increase in ATMs although views would still be intermittent and transitory. The magnitude of change would remain as predicted for Year 10.

Magnitude of change: Low to No Change	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.125 Vehicular Receptors: A299 (travelling east)

A299 East	
Receptor sensitivity:	Low: Receptors include drivers and their passengers travelling along a busy primary road for which their surroundings are unlikely to be a primary concern.
Assessment	
Year 1	<p>Within the study area the road runs from the south-western edge of St. Lawrence (Ramsgate) to north of St Nicholas-at-Wade. There will be intermittent views of the Proposed Development to varying extents as the road passes intermittently through the ZTV for any element of the Proposed Development as shown in Figure 11.7. It is unlikely any ground level construction related activities would be visible from any section of the road.</p> <p>Users of the road travelling east between north of St. Nicholas-at-Wade and north of Minster would experience occasional views of the mobile construction cranes experienced at speed.</p> <p>At Minster the road continues east alongside the Proposed Development site although despite its proximity to the site, north-easterly views would be mainly screened by a low embankment which separates the site from the road. The road then turns away from the Proposed Development and there would be no further views for eastbound travellers.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible would be Negligible representing a small change that will be viewed from fast-moving vehicles.</p>
Magnitude of change:	Type of effect: Permanent adverse Significance: Not Significant

	Negligible to No Change	Temporary adverse (Cranes) Permanent neutral (Built elements)	
Year 10	The upper sections of construction cranes may continue to be visible at speed for drivers and their passengers using this route. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport and potentially partial views of the tail fins of the tallest aircraft moving along the runway. The predicted magnitude of changes would remain as Negligible to No Change.		
	Magnitude of change: Negligible to No Change	Type of effect: Temporary adverse (Cranes) Permanent neutral (operation)	Significance: Not Significant
Year 20	In contrast to previous periods no cranes would be visible as construction activity would cease by Year 18. There would be an increase in ATMs although views would continue to be intermittent and transitory and experienced at speed from a fast-moving vehicle. The magnitude of change would remain as predicted for Year 10.		
	Magnitude of change: Negligible to No Change	Type of effect: Permanent neutral	Significance: Not Significant

Table 11.126 Vehicular Receptors: A299 (travelling west)

A299 west			
Receptor sensitivity:	Low: Receptors include drivers and their passengers travelling along a busy primary road for which their surroundings are unlikely to be a primary concern.		
Assessment			
Year 1	<p>Within the study area the road runs from the south-western edge of St. Lawrence (Ramsgate) to north of St. Nicholas-at-Wade. There would be intermittent views of the Proposed Development to varying extents as the road passes through the ZTV for any element of the Proposed Development as shown in Figure 11.7. It is unlikely any ground level construction related activities would be visible from any section of the road.</p> <p>Users of the road travelling west between the edge of south western edge of St. Lawrence and north of Cliffs End would not experience views of the Proposed Development. As the road crosses the railway line north of Cliffs End the road enters the ZTV although most of the views along this section would be screened by a cutting embankment running adjacent to the road. As the cutting embankment reduces in height and vegetation becomes less dense close to the A256 roundabout there may be oblique partial views of the mobile construction cranes, the first cargo unit, the ATC tower and southern units of the business park. The upper portions of these built elements would only extend marginally above the cutting embankment and more distant horizon and would be experienced obliquely and at speed.</p> <p>The road then turns to head north and from this short stretch of route (approximately 650m) westbound travellers would experience more direct views of the elements of the Proposed Development identified above the horizon. At its junction with Canterbury Road West then continues westwards alongside the Proposed Development site. From along this stretch, views towards the construction activities and emerging built elements would be foreshortened by the roadside embankment which separates the site from the road. Views from this section would become increasingly more oblique as travellers reach the western edge of the Proposed Development site.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible is Low for a short section where receptors are heading north reducing to negligible where views are screened by the roadside embankment.</p>		
	Magnitude of change: Low to No Change	Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)	Significance: Not Significant
Year 10	<p>Where views of the Proposed Development have been identified between the north of Cliffs End and east of the Proposed Development site and in addition to the elements identified in the Year 1 view, there would be partial views of the upper sections of two central cargo units, passenger terminal and aircraft recycling hangar, as well as aircraft moving along the runway. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.</p> <p>The magnitude of change would remain as described for Year 1 due to the brief nature of available views.</p>		
	Magnitude of change: Low to No Change	Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation)	Significance: Not Significant

Year 20 In contrast to previous periods no cranes would be visible, as construction activity would cease by Year 18. Where views of the Proposed Development have been identified between the north of Cliffs End and east of the Proposed Development site and in addition to the built elements identified in the Year 10 view, there would be partial views of the upper sections of the final cargo unit and extension to the aircraft recycling hangar, as well as an increase in ATMs. The magnitude of change would remain the same due to the brief nature of available views.

Magnitude of change: **Low to No Change** Type of effect: **Permanent adverse** Significance: **Not Significant**

Table 11.127 Vehicular Receptors: B2050 west of Woodchurch

B2050 west of Woodchurch		
Receptor sensitivity:	Medium: receptors will include people travelling through a rural landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	<p>This section of the road runs between the west of Woodchurch and south of Birchington and lies within the ZTV for the Proposed Development (Figure 11.7). There would be no views for northbound travellers as they would be heading away from the Proposed Development.</p> <p>Southbound users of the road travelling between the south of Birchington and west of Woodchurch would experience intermittent views of the Proposed Development. There would be partial views of views of the upper sections of the mobile construction cranes, the first cargo unit, the ATC tower and southern units of the business park. The roofs and upper facades of the identified built elements would only extend slightly above the roadside vegetation and vegetation making up field boundaries. As the road enters Woodchurch, vegetation and built form screens the views of the Proposed Development.</p> <p>The magnitude of change for the section of the road where the Proposed Development visible would be low due to roadside and other vegetative screening allied with the speed of the traveller.</p>	
	Magnitude of change: Low	Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements) Significance: Not Significant
Year 10	<p>Where views have been identified between south of Birchington and west of Woodchurch and in addition to the elements identified in the Year 1 view, there would be partial views of the upper sections of the two central cargo units, the northern business units of the business park, the passenger terminal and the aircraft recycling hangar. There would also be intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths to the east and west of Manston Airport.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible would remain as Low.</p>	
	Magnitude of change: Low	Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation) Significance: Not Significant
Year 20	<p>In contrast to previous periods no cranes would be visible as construction activity would cease by Year 18. In addition to the built elements identified in the Year 10 views, would be partial views of the upper sections of the final cargo unit. Although the cranes are no longer present in the view, the magnitude of change would remain as Low as the combined effect of the built elements would result in a noticeable change to a small part of the view that would be viewed from moving vehicles.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.128 Vehicular Receptors: B2050 Woodchurch – Manston (east and westbound)

B2050 Woodchurch – Manston (east and westbound)	
Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.
Assessment	

Year 1	<p>This section of the road runs between Woodchurch and Manston. The majority of the route lies within the ZTV for the Proposed Development as shown in Figure 11.7.</p> <p>Eastbound and westbound travellers would experience prominent views of construction activities, two mobile construction canes, the first cargo unit (most eastern), the ATC tower, attenuation pond and the southern business units in the foreground with limited screening.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible would be Medium as whilst there would be large and prominent changes to foreground views these would be experienced at speed (40mph).</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)</p> <p>Significance: Not Significant</p>
Year 10	<p>Where views have been identified in addition to the elements identified in the Year 1 view, would be views of the two central cargo units, the passenger terminal and the northern units of the business park. The views of the cargo units and Proposed Development of the airport may begin to be softened by landscaping works along the southern side of the road introduced in Phase 3.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible would remain as Medium as whilst foreground views would be changed by large scale and prominent built elements these would be viewed briefly and at speed.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation)</p> <p>Significance: Not Significant</p>
Year 20	<p>In contrast to previous periods no cranes or ground level construction activity would be visible from the road as this would have ceased by Year 18. In addition to the built elements identified in the Year 10 views would be the fourth most western cargo facility. Landscaping vegetation implemented in Phases 3 and 4 would be gradually maturing and would soften and partially filter views across the airport site. The magnitude of change for the section of the road where the Proposed Development is visible will remain as Medium.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Permanent adverse</p> <p>Significance: Not Significant</p>

Table 11.129 Vehicular Receptors: B2190 Spitfire Way

B2190 Spitfire Way		
Receptor sensitivity:	Medium: receptors will include people travelling through the rural landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	<p>The road runs adjacent the perimeter of the Proposed Development site to the north west, until it merges with the B2050 south of Woodchurch. This section of the road lies within the ZTV for the Proposed Development as shown in Figure 11.7.</p> <p>Users of the road would experience prominent views of construction activities, two mobile construction canes, the first cargo unit (most eastern), the ATC tower and the southern business units in the foreground of the view with limited screening. Changes to views would be most notable for eastbound travellers as they would be looking more directly at the central core of proposed airport buildings.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible will be Medium because whilst there would be a large prominent change in the view appearing in the foreground, this change would be experienced at speed.</p>	<p>Magnitude of change: Medium</p> <p>Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)</p> <p>Significance: Not Significant</p>
Year 10	<p>Where views have been identified in addition to the elements identified in the Year 1 view, would be views of the two central cargo units, the passenger terminal and northern units of the business park. Alike the elements present at Year 1, these new elements would be prominent in the foreground of the view. Aircraft would also be visible in the foreground particularly for westbound travellers from the most westerly section of the road.</p>	

The magnitude of change for the section of the road where the Proposed Development is visible would remain as Medium due to the brevity of the view.

Magnitude of change: Medium	Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation)	Significance: Not Significant
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Year 20 In contrast to previous periods no cranes or ground level construction activity would be visible from the road this would cease by Year 18. In addition to the built elements identified in the Year 10 views would be the fourth most western cargo facility. This cargo facility would screen some buildings from the most eastern part of the road due to the building's proximity to the road. Landscaping vegetation implemented during Phase 3 would be of a height to screen and soften views of the identified buildings. The activity and number of aircraft would also increase from Year 10.

Although cranes will no longer be visible the magnitude of change for the section of the road where the Proposed Development is visible will remain as Medium due to the large prominent changes but brief nature of the view.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.130 Vehicular Receptors: Canterbury Road West around Cliffs End

Canterbury Road West around Cliffs End		
Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	The road runs for approximately 1.75km from the north of Cliffs End towards Ramsgate and lies within the ZTV for the Proposed Development. Eastbound and westbound travellers would have views of the Proposed Development, most notably the upper sections of cranes, as well as changes to the existing infrastructure at the proposed fuel farm located on the northern side of the road.	
	The magnitude of change for the section of the road where elements of the Proposed Development are visible would be Low to Negligible.	
	Magnitude of change: Low (west of Cliffs End) Negligible (east of Cliffs End)	Type of effect: Temporary adverse (construction) Permanent neutral (Built elements)
	Significance: Not Significant	
Year 10	There would be no views of any ground level construction activities, aircraft on the ground or ground level operational activities for east or westbound receptors. There may be periodic views of the two mobile cranes when they are used to construct built elements in the eastern part of the airport, in particular the extension to the aircraft recycling hangars where they may become more prominent than in Year 1 but only occupying a narrow section of the horizon in the views of eastbound drivers and their passengers. All built elements present at Year 10 would be situated below the horizon for eastbound receptors. The fuel farm would be visible in brief views for east and westbound receptors.	
	Magnitude of change: Low	Type of effect: Temporary adverse (Cranes) Permanent neutral (Operation)
	Significance: Not Significant	
Year 20	There would be no views of any ground level construction activities, aircraft on the ground or ground level operational activities. All built elements would be situated below the horizon with the exception of the fuel farm. The overall composition and balance of the view would not significantly alter in comparison with the baseline.	
	Magnitude of change: Low (west of Cliffs End) Negligible (east of Cliffs End)	Type of effect: Permanent neutral
	Significance: Not Significant	

Table 11.131 Vehicular Receptors: Manston Court Road

Manston Court Road	
Receptor sensitivity:	Medium: receptors will include people travelling through the rural landscape on local roads where the surrounding landscape may have some influence of their enjoyment.

Assessment

Year 1

The road runs from Manston Road, east of the proposed business park, towards Broadstairs and St Peters. The majority of the road is within the ZTV for the Proposed Development as shown in **Figure 11.7**.

Northbound users of the road would experience prominent views of the southern units of the business park and two mobile cranes when they are constructing the business units.

Southbound users of the road would experience prominent views of two mobile construction canes, the first cargo unit (most eastern), the ATC tower and the southern business units. Views from some sections of the road would be screened by residential properties (on the southern section of Manston Court Road) and roadside vegetation. Before the residential properties on the southern section, roadside vegetation is less dense and there would be prominent views of the business units in the foreground.

The magnitude of change for the section of the road where the Proposed Development is visible would be Medium because whilst the built elements would contribute to a large prominent change in the view appearing in the foreground, these views would be brief and experienced at speed.

Magnitude of change: Medium	Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)	Significance: Not Significant
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Year 10

For northbound users and in addition to the elements present in the Year 1 view would be the northern business units. These will appear prominently in the foreground of the view at an oblique angle to the direction of travel.

For southbound users and in addition to the elements present at Year 1 would be views of the northern units of business park and upper portions of two central cargo units and the passenger terminal. Northern business units would screen the majority of the other identified built elements. The magnitude of change for the section of the road where the Proposed Development is visible would remain as Medium.

Magnitude of change: Medium	Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation)	Significance: Not Significant
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Year 20

In contrast to previous periods, there will be no views of cranes as construction activity will cease by Year 18. No new built elements will be present for northbound users however landscaping works that were planted at year 10 will now be softening some of the views of the business units.

For southbound travellers in addition to the built elements present at Year 10 would be views of the upper portion of the fourth cargo unit (most western). However, business units would screen a majority of the identified built elements from most sections of the road due to their proximity from the southern section of the road. Similar to northbound travellers, views of the business units for southbound users would be softened by landscaping works.

The magnitude of change for the section of the road where the Proposed Development is visible would remain as Medium.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.132 Vehicular Receptors: Manston Road (northwest of site boundary)

Manston Road (northwest of site boundary)

Receptor sensitivity: **Medium:** receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.

Assessment

Year 1

The road runs from the south-eastern edge of Woodchurch where it meets Spitfire Way, to the south-eastern edge of Margate where it meets Shottendane Road. The majority of the road is within the ZTV for the proposed development. The exception is the most northern section of the road approaching Margate.

Northbound users would experience close distance oblique views of the southern units of the business park and of the two mobile construction cranes when constructing these business units, when travelling on the most southern section of the road that runs adjacent to the business park site to the north west.

Southbound travellers would experience views of the southern business units, first most cargo facility (most eastern) and two mobile construction cranes. The height of the radar tower that is situated adjacent to the road is being increased by 5m, which will slightly increase its prominence. The prominence of the proposed elements identified would increase as southbound travellers head increasingly closer to the Proposed Development. When constructed the business units would screen a vast majority of the other built development.

For northbound travellers beyond the northern edge of the Proposed Development there would be no visual change as all built elements will be behind them.

For southbound travellers and northbound travellers, the magnitude of change is likely to be Medium, because whilst the built elements would contribute to a large prominent change in the view appearing in the foreground, this would be experienced at speed.

Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) Medium (remainder)	Type of effect: Temporary adverse (Cranes) Permanent adverse (Built elements)	Significance: Not Significant
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Year 10

For northbound users in addition to the elements present in the Year 1 view would be the northern business units. These would appear prominently in the foreground of the view at an oblique angle and at speed for the approximately 1.3km stretch of road adjacent to the business park site.

For southbound users and in addition to the elements present at Year 1 would be views of the northern units of business park and upper portions of two central cargo units. The business units are located closest to the road and would screen a majority of the built elements of the Proposed Development.

For northbound travellers beyond the northern edge of the Proposed Development the magnitude of change would remain as no change as all built elements would be behind them. For southbound travellers and northbound users of the road travelling along the southern section of the route adjacent the site, the magnitude of change would remain as Medium due to the brevity of views.

Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) Medium (remainder)	Type of effect: Temporary adverse (Cranes) Permanent adverse (Operation)	Significance: Not Significant
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Year 20

In contrast to previous periods, there would be no views of cranes as construction activity would cease by Year 18. No new built elements would be present for northbound users; however, landscaping works planted in Year 1 would now be softening some of the views of the business units.

For southbound travellers and in addition to the built elements present at Year 10 would be views of the upper portion of the fourth cargo unit (most western). However, business units would screen the majority of the identified built elements from most sections of the road due to their proximity from the southern section of the road. Only the upper sections of the cargo units may be visible above or between the business units from the more northern section of the road. Similar to northbound travellers, views of the business units for southbound users would be softened by landscaping works.

For southbound travellers and northbound travellers, the magnitude of change would remain as Medium.

Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) Medium (remainder)	Type of effect: Permanent adverse	Significance: Not Significant
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Inter-related effects

11.9.8

Visual effects during the construction and operation phase of the proposed development could lead to effects on human receptors. There is potential for inter-related effects to arise in relation to human receptors (for example there could be visual, noise, traffic and dust effects upon the same

receptor). Environmental effects that may affect human receptors are described in **Chapter 6: Air Quality**; **Chapter 12: Noise and Vibration**; **Chapter 13: Socio-economics**; **Chapter 14: Traffic and Transportation** and **Chapter 15: Health and Wellbeing**. Consideration of interactive effects on humans as a result of other environmental effects (such as noise, traffic and transport, air quality and socio-economics together with visual), is considered in **Chapter 18: Cumulative Effects** of this document.

- 11.9.9 Changes to views may contribute to effects on the settings of heritage assets and this is considered in **Chapter 9: Historic Environment**. However, it is noted that any adverse visual effects arising as a result of change in valued views would not constitute an inter-related effect because, insofar as they relate to the significance of heritage assets, these views represent a subset of the changes already considered within the historic environment assessment. Change to significance resulting from visibility of the airport infrastructure, aircraft movements and lighting has already been considered in the historic environment assessment of effects.
- 11.9.10 No other inter-related effects are anticipated to arise as the residential, recreational and users of the transport networks receptors do not comprise potential receptors within the definitions used for other assessments within this ES.

Cumulative Effects

- 11.9.11 The potential for cumulative effects to arise as a result of the Proposed Development together with other development proposals is assessed in **Chapter 18: Cumulative Effects**.

11.10 Conclusions of Significance Evaluation

- 11.10.1 This section summarises all significant landscape or visual effects identified in **Sections 11.8** and **11.9**.
- 11.10.2 No significant landscape effects have been predicted to occur at either Year 1, Year 10 or Year 20. The detailed assessments upon which this conclusion is based are set out in paragraph 11.8.6 and **Tables 11.20** to **11.33**.
- 11.10.3 **Table 11.133** summarises all significant visual effects identified in **Section 11.9** together with a brief supporting rationale. Detailed assessments of the visual effects likely to be experienced by all the visual receptors included in the assessment are set out in the tables provided in **Section 11.9** and **Appendix 11.3**. The distribution of significant visual effects is shown in **Figure 11.40**.

Table 11.133 Summary of significant visual effects

Receptor and effects	Significance Level	Rationale
Residential Receptor Groups		
Residential Receptor Group 21: Alland Grange Lane properties	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in four two-storey properties in the northern part of this group. It is not predicted that any significant visual effects will be experienced by residents of bungalows within this group or by residents in properties in the southern part of this group.</p> <p>Significant effects will arise where unscreened views are available toward the Proposed Development on the horizon to the south-east. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.54.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 22: Cheeseman's Farm properties	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in two two-storey properties in the southern part of this group. It is not predicted that any significant visual effects will be experienced by any other residents in this group.</p> <p>Significant effects will arise where unscreened views are available toward the Proposed Development on the horizon to the south-east. These views would be primarily available from upper-storey rear windows. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.55.</p>
Residential Receptor Group 23: Vincent Road, Vincent Farm, Flete Farm	Significant (Year 10)	<p>It is predicted that significant visual effects will be experienced by residents of Vincent Farm only. No significant visual effects are predicted to be experienced by residents of any other properties in this group.</p> <p>Significant effects will arise from the combination of construction activities and built development visible in middle-ground views. These effects are predicted to occur in relation to the Year 10 assessment period only.</p> <p>A detailed assessment of these effects is provided in Table 11.56.</p>
Residential Receptor Group 25: Preston Road properties, Preston Farm and Coldwood Farm	Significant (Year 1 & Year 10)	<p>It is predicted that significant visual effects will be experienced by residents at Garden Cottage and Leo Cottage on the southern edge of this grouping. No significant visual effects are predicted to be experienced by residents of any other properties in this group.</p> <p>Significant effects will arise from the combination of construction activities and built development visible in middle-ground views. These effects are predicted to occur in relation to the Year 1 and Year 10 assessment periods primarily as a result of crane activity and the emergence of large scale built form. Planting around the business park is likely to reduce the magnitude of change in Year 20.</p> <p>A detailed assessment of these effects is provided in Table 11.58.</p>
Residential Receptor Group 31: Manston – Properties on Preston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties in the southern part of this group and in the eight northernmost properties on Preston Road. It is not predicted that any significant visual effects will be experienced residents in the central part of this group or those located on Spratling Street.</p> <p>Significant effects will arise where unscreened or lightly screened views are available toward the Proposed Development to the west south-west. These views would be primarily available from upper-storey windows. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.64.</p>
Residential Receptor Group 32: Manston – Properties in northern section of High Street	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties on the western side of High Street. It is not predicted that any significant visual effects will be experienced residents in properties on the eastern side of High Street.</p> <p>Significant effects will arise as a result of large scale changes in the background of views toward the Proposed Development to the west south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.65.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 33: Manston – Properties in southern section of High Street	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in the majority of the properties in this group. In most instances, significant changes to views will be restricted to those available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of large scale changes in the background of views toward the Proposed Development to the west south west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.66.</p>
Residential Receptor Group 35: Rose Farm and Pounces Cottages	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at Pounce Cottages. It is not predicted that significant visual effects would be experienced by residents of Rose Farm. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in the middle-ground and background of views toward the Proposed Development to the east. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.68.</p>
Residential Receptor Group 36: Properties on Bell Davies Drive	Significant (Year 1)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of construction activities in the background of views toward the proposed aircraft stands and ATC. Significant effects would result from temporary construction activities and would be restricted to the Year 1 assessment period only.</p> <p>A detailed assessment of these effects is provided in Table 11.69.</p>
Residential Receptor Group 38: Terraced and semi-detached properties on the eastern side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at all properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large-scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.71.</p>
Residential Receptor Group 39: Properties around Manston Court on eastern side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties in the northern-most part of this group. It is not predicted that any significant visual effects will be experienced residents in properties in the immediate vicinity of Manston Court.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large-scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.72.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 40: Northern semi-detached properties on western side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large-scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.73.</p>
Residential Receptor Group 41: Southern terraced properties on western side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large-scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.74.</p>
Residential Receptor Group 42: Jubilee Cottages on Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in background views toward the Proposed Development to the south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.75.</p>
Residential Receptor Group 43: Properties in northern Cliffs End, north of Canterbury Road West	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties on the western and northern edges of this group. It is not predicted that any significant visual effects will be experienced residents in properties on the eastern or western edges of the group or located in the centre of the group.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in background views toward the Proposed Development to the north-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.76.</p>
Residential Receptor Group 47: Properties west of Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of residents in properties in this group. The highest magnitudes of change are likely to be experienced by residents in the northern-most part of this group.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in foreground, middle-ground and background views toward the Proposed Development to the south. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.80.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 48:	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of residents in properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in middle-ground and background views toward the Proposed Development to the north. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.81.</p>
Recreational Receptor Groups		
Recreational Receptor Group 6: Manston Court Caravan Site	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of visitors to the caravan park.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in middle-ground views toward the Proposed Development to the west and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.95.</p>
Recreational Receptor Group 7: Preston Parks	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by a number of visitors to the caravan park, particularly those located in its western-most part.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in middle-ground views toward the Proposed Development to the west and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.96.</p>
PRoW Receptor TR8	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.105.</p>
PRoW Receptor TR9	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the southern part of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.106.</p>

Receptor and effects	Significance Level	Rationale
PRoW Receptor TR10	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this bridleway.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.107.</p>
PRoW Receptor TR22	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large-scale changes in background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.108.</p>
PRoW Group C	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of PRoW in the southern half of this group. It is not predicted that significant visual effects will be experienced by users of PRoW in the northern half of this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium scale changes in background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.117.</p>
Assessed Viewpoints		
1 – RAF Manston Museum Car Park	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by visitors to the RAF Manston Museum. It is likely that these effects will primarily be experienced during arrival at and departure from the museum, but they may also be experienced in relation to any outdoor exhibits that may be on display.</p> <p>Whilst visitors' experience of viewing the main collection (located indoors) will be unaffected, effects are considered significant because of the large scale and close distance changes to external views that would be experienced during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.1. The nature of the changes to this view are illustrated by the photowires from this viewpoint provided in Figures 1, 2 and 3 of Appendix 11.2.</p>

Receptor and effects	Significance Level	Rationale
Viewpoint 2 – Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties on the western side of Manston Road. Effects will primarily arise from the construction and operation of the business units of the business park to the north of the airport, which are likely to result in large scale, close distance changes to available views during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.2. The nature of the changes to this view are illustrated by the photowires from this viewpoint provided in Figures 4 and 5 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity and is directly equivalent to the views available to only the northernmost residents in this vicinity. A detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.80.</p>
Viewpoint 3 – Canterbury Road West PRoW	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties along the southern side of Canterbury Road West. It is not predicted that any significant visual effects will be experienced by users of the local PRoW or transport networks in this vicinity.</p> <p>Effects will primarily arise from the temporary use of cranes during the construction of the airport and from the permanent introduction of the fuel farm. Hence significant effects may be experienced during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.3. The nature of the changes to this view are illustrated by the photowire from this viewpoint provided in Figure 6 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity. A detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.81.</p>
Viewpoint 6 - B2050 western edge of Manston	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties on the central part of the western fringe of Manston. Effects will arise from the construction and operation of several elements of the Proposed Development, which are likely to result in large scale, close distance changes to available views during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.6. The nature of the changes to this view are illustrated by the photowire from this viewpoint provided in Figure 9 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity and is directly equivalent to the views available to only the northernmost residents in this vicinity. The detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.64.</p>

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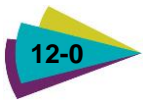
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12. Noise and Vibration

12.1 Introduction

- 12.1.1 This Chapter provides an assessment of the potential noise and vibration effects that could arise as a result of the re-opening of Manston Airport (the 'Proposed Development') as a dedicated airfreight facility capable of handling over 10,000 air cargo movements per year. A description of the Proposed Development is provided in **Chapter 3: Proposed Development**.
- 12.1.2 Noise and vibration can have an effect on the environment and on the quality of life, health and well-being of individuals and communities. It can also pervade and affect the quality of natural resources.
- 12.1.3 The Chapter is structured as follows:
- ▶ Limitations of assessment, areas of uncertainty and assumptions used within the assessment;
 - ▶ Scope of assessment, considering the scoping process and consultation, aspects of noise and vibration assessed and study area;
 - ▶ Policy and legislative context informing the assessment methodology and criterion;
 - ▶ Characterisation of baseline conditions around the Proposed Development using noise survey data;
 - ▶ Embedded mitigation incorporated into the design and considered within the assessment;
 - ▶ Assessment methodology, with reference to standards, prediction methodology and criterion;
 - ▶ Assessment of noise and vibration effects during the construction and operation of the site; and
 - ▶ Residual effects after mitigation has been considered within the assessment.
- 12.1.4 This Chapter is supported by information in a set of Appendices (**Appendix 12.1 – Appendix 12.4**), which provide further detail on each of the sections described above.

Limitations and Assumptions

- 12.1.5 This report is based upon the latest design of the Proposed Development. At the time this Chapter was written, several sources of data were uncertain and these are discussed in **Table 12.1** together with a description of how a robust assessment has been delivered in the absence of the data.

Table 12.1 Limitations

Limitation	Assessment Scenario	Impact on Assessment
Construction programme and methods to be confirmed	Construction noise and vibration	Assumptions regarding equipment, working methods and times have been made based on professional judgment and advice from the design team. A precautionary approach has been used by utilising a reasonable worst-case scenario in all variables. This is considered a typical approach reflecting the level of information available at this stage in a development.
Airspace procedures to be confirmed through the CAA's Airspace Change Proposal process	Operational aircraft noise	In addition to the DCO application for the airport, the exact airspace options, operating principles and aircraft flight paths will be formalised through an Airspace Change Proposal (ACP), which is a separate consenting regime that will happen after the airport receives its powers under the DCO.

Limitation	Assessment Scenario	Impact on Assessment
		<p>The ACP will be submitted through the Civil Aviation Authority's (CAA) airspace change process and the potential noise effects will be assessed following the CAA guidance within the Civil Aviation Publications (CAP).</p> <p>The ACP will therefore provide opportunities for communities to engage on future airspace options through an extensive consultation process as well as the preparation of a separate Environmental Statement (ES) to accompany the ACP.</p> <p>This means that the assessment of aircraft noise presented in this ES is based on indicative prototype routes which will be subject to authorisation and/or modification via the ACP, hence the impact of aircraft noise will be subject to change during that process. Close to the airport, on landing, final approaches and immediately after take-off, airspace options are limited hence noise effects have been predicted with the greatest certainty. This area is also where the highest noise effects are expected. Further from the airport, where there is greater flexibility for airspace change, noise effects will be subject to more variation during the ACP.</p> <p>To understand the potential variation in noise impacts, this ES has considered indicative prototype airspace route options within a 'design swathe'. This design swathe has defined a swathe or corridor in which the final flight paths following the ACP will likely be within and is designed around the knowns of the local airspace, including other airways and navigational aids.</p> <p>Prototype routes have been used for the assessment of aircraft noise, which have been developed around design principles, namely 'avoid overflying populations', 'overfly populations' and 'swathe centreline'. An options appraisal of these principles is presented in Appendix 12.3: Methodology, which, demonstrates that the variation in the population adversely effected and significantly adversely effected by noise across the design principles is less than 1%, based on the operating conditions modelled.</p> <p>It should be noted that this process is both normal and unavoidable due to the separate consenting regimes. The assessment is therefore robust because it has considered the range of design outcomes which could occur following the completion of the ACP.</p>
<p>Future aircraft performance characteristics through engine and airframe design uncertain</p>	<p>Operational aircraft noise</p>	<p>It is expected that noise from next generation aircraft will be quieter than today's aircraft however actual noise levels are still uncertain. Therefore, for the ES, a robust worst-case assessment of noise from future aircraft types has been undertaken assuming that future generation aircraft will produce the same noise as today's equivalent aircraft.</p>

12.1.6 No technical difficulties have been encountered whilst preparing this Chapter and the assessment carried out can be considered robust and fit for purpose.

12.2 Scope of Assessment and Consultation

Scoping Report and Opinion

12.2.1 Since 2015 and throughout the undertaking of the survey and assessment work, RiverOak Strategic Partners Limited (RiverOak) has engaged with consultees with an interest in potential noise and vibration effects. A Scoping Report (**Appendix 1.1**), which included a chapter covering noise effects, was submitted to the Planning Inspectorate (PINS) who provided a Scoping Opinion (**Appendix 2.2**). Although this Scoping Opinion was not carried out in the context of the 2017 EIA Regulations¹ (see **Chapter 1: Introduction**) it has still provided an important basis for defining the scope of the detailed assessment.

12.2.2 Organisations that were consulted with respect to noise and vibration and provided a response include:

- ▶ PINS;

- ▶ The CAA;
- ▶ Cliffsend Parish Council;
- ▶ The Department for Transport (DfT);
- ▶ Kent District Council (KCC);
- ▶ Minster Parish Council;
- ▶ Thanet District Council (TDC); and
- ▶ Natural England.

Scope of Assessment

Direct and Indirect Effects

- 12.2.3 Based on the Scoping Report and the Scoping Opinion, the following key aspects have been identified to be assessed within this Chapter:
- ▶ Noise and vibration effects from the construction of the Proposed Development and the transport of construction materials;
 - ▶ Renewed exposure to noise from aircraft in the air at the re-opening and mature operation of the Proposed Development;
 - ▶ Renewed exposure to noise from aircraft on the ground and associated Ground Support Equipment (GSE) at the re-opening and mature operation of the Proposed Development; and
 - ▶ Changes in and exposure to surface access noise, namely road traffic noise from vehicle movements associated with the operation of the Proposed Development.
- 12.2.4 Operation of static noise sources, for example Heating, Ventilation and Air Conditioning (HVAC) equipment and back-up generators, could have a noise impact without appropriate mitigation. However, the necessary information to undertake an assessment of static noise sources will not be available until detailed design. In lieu of an assessment for static noise sources during planning stages, a commitment has been included within embedded mitigation to ensure that appropriate guidelines are followed such that no significant impacts arise as a result of these aspects of the Development.
- 12.2.5 Based on professional experience of undertaking similar studies for other airports, significant effects from operational vibration are unlikely. Therefore, as per the associated Scoping Report (**Appendix 1.1**), vibration from the operation of the Proposed Development has been scoped out of the assessment. Based on this exclusion, a baseline vibration analysis is not considered necessary.
- 12.2.6 Whilst the core scope of the assessment has remained the same, the approach and detail of the assessment has been informed by the evolution of the masterplan scheme design, results from the baseline stage (described in **Section 12.6**) and comments raised following the Section 42 consultation on the Preliminary Environmental Information Report (PEIR) 2017(**Appendix 12.1**).
- 12.2.7 Further consultation was undertaken with TDC to agree a noise monitoring strategy, with changes to the method incorporated into the noise survey (see **Section 12.6**).

Inter-related effects

- 12.2.8 Inter-related effects resulting from noise in relation to other environmental topics are presented in **Chapter 7: Biodiversity, Chapter 9: Historic Environment, Chapter 11: Landscape and Visual Impact, Chapter 13: Socio Economics, Chapter 15: Human Health and Chapter 16: Climate Change**.

- 12.2.9 The inter-related effect of multiple topics (air quality, visual, traffic and transport, socio-economics, health and well-being in addition to noise) acting in combination on the same human receptors is discussed in **Chapter 18: Cumulative Effects**.

Cumulative effects

- 12.2.10 Potential for cumulative effects is provided through an assessment at **Chapter 18: Cumulative Effects** and includes potential cumulative effects of the Proposed Development together with other identified major development proposals that were scoped in to the assessment.
- 12.2.11 Of relevance to noise a cumulative effect could occur when:
- ▶ Noise from the Proposed Development is received in combination with noise from other major development proposals leading to significant effects at existing sensitive receptors. For example increases in road traffic noise resulting from increases in road traffic from the Proposed Development in combination with increased road traffic from other major development proposals; or
 - ▶ Noise from the Proposed Development results in a significant effect on a planned development which may not have considered noise from the Proposed Development. For example, aircraft noise may result in significant adverse effects on sensitive residential development which received planning permission prior to the DCO application for the Proposed Development.

Study Area

- 12.2.12 The study areas have been determined by the potential extent of the likely significant effects (as defined within this ES and the potential adverse effects (in terms of Government Policy) arising from the construction and operation of the Proposed Development.
- 12.2.13 The extents at which potential construction noise effects may occur varies depending on the context of the construction phases and associated noise sources under evaluation. The extents of the construction noise assessments therefore focus on the closest and thus greatest affected receptors.
- 12.2.14 For the purposes of this assessment, the following parameters have been used to define the study areas applicable to the assessments associated with the ground and airspace activities:
- ▶ An initial study area (as measured from the site boundary) of 2km has been adopted for the assessment of noise and vibration from ground based elements during construction and operation of the Proposed Development. This is to account for the likely large number of noise sources associated with the construction phase and airfield activities, some of which could occur during the night-time when background sound levels are lower than the day-time period; and
 - ▶ The spatial scope of noise from aircraft in flight is partly governed by the extents to which areas are overflowed, and thus adversely affected by aircraft noise. An initial study area (as measured from the site boundary) of 14km along the westerly runway centreline (i.e. to Herne Bay coastline) and 3.5km along the easterly centreline (i.e. to Ramsgate coastline) has been adopted for the assessment of aircraft noise. The extents of this study area have been defined to include locations that are potentially under the aircraft flight paths up to an aircraft height of 7,000ft as specified in CAP1616: Airspace Design². Beyond this height, it is considered that aircraft noise would likely not have a significant effect on ground based receptors, however, it is noted that aircraft noise could still be observed, but at level considered to be not significant.
- 12.2.15 For the purposes of this assessment a design swathe has been considered within which are six prototype routes designed against design principles. The prototype routes have taken into account the 'knowns' of the local airspace. The prototype routes are presented in **Figure 12.1**.

- 12.2.16 To determine the range of effects, prototype routes were assessed using an appraisal methodology consistent with the options appraisal methodology within CAP1616². A summary of the options appraisal methodology is presented in **Appendix 12.3**.
- 12.2.17 The options appraisal process considered the following routes;
- ▶ ‘Overfly population’;
 - ▶ ‘Avoid populations’; and
 - ▶ The design swathe centreline or ‘Swathe Centreline’. This route is considered the most operable route and hence the ‘probable’ route to be operated.
- 12.2.18 For simplicity, the assessment of effects presented in this Chapter is based upon the ‘probable route’ as this is considered the most likely to be operated. It should be noted that the options appraisal demonstrates that the variation in the population adversely effected and significantly adversely effected by aircraft noise across the design principles is less than 1%, based on the operating conditions modelled.

Temporal Scope

- 12.2.19 The temporal scope associated with the operational noise assessment is based upon the period between Year 2 (2020) and Year 20 (2038), as these represent ‘opening year’ for aircraft operations and ‘maximum forecast capacity’.
- 12.2.20 The aircraft forecast predicts a gradual increase in aircraft movements between Year 2 and Year 20. This would lead to an increase in aircraft noise over time. Over this period there will also be changes in aircraft, with airlines phasing out older aircraft. This could reduce aircraft noise levels over time. However, Year 20 is considered to be the likely “worst-case” year in terms of noise, even considering the phasing out of some louder aircraft.

12.3 Policy and Legislative Context

- 12.3.1 At an international level, standards governing aircraft noise emissions are set by the International Civil Aviation Organization (ICAO). In the UK, the Department for Transport (DfT) and the Department for Environment, Food and Rural Affairs (Defra) are responsible for overseeing the various environmental aspects of the aviation industry. The Secretary of State has powers under Sections 78-80 of the *Civil Aviation Act 1982* (as amended in 2006)³ to control aircraft noise at designated airports, however, at present only Heathrow, Gatwick and Stansted are designated because of aircraft noise.
- 12.3.2 At a local level, local planning authorities, in this case TDC, have control through planning conditions and legal agreements.
- 12.3.3 In addition to legislative powers, national and local policy exists to help manage the effects of noise and vibration and guidance documents and British standards exist to inform the assessment of aircraft noise and other noise and vibration sources associated with the construction and operation of airports. Key documents include the National Planning Policy Framework (NPPF)⁴, providing guidance to planning authorities on the approval of applications, and the Noise Policy Statement for England (NPSE)⁵, which sets out Government aims in relation to noise and health and quality of life.
- 12.3.4 At the time of writing this assessment, UK aviation policy is being updated. In October 2017, the Government issued a Revised Draft Airports National Policy Statement⁶ relating to airport expansion in the south-east of England, Air Navigation Guidance 2017⁷ and Consultation Response on UK Airspace Policy⁸. Furthermore, CAP1616: Airspace Design² was published in December 2017 and CAP1506: Survey of Noise Attitudes 2014⁹ was published in February 2017.

- 12.3.5 No changes to the scope of assessment are required as a result of the adoption of the 2017 EIA regulations¹, although it is now the case that **Chapter 15: Health and Wellbeing** will refer to the findings of this Chapter.
- 12.3.6 More detailed information relating to noise policy and guidance is provided in **Appendix 12.2**. Further details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1**.

12.4 Overall Noise Baseline

Desk Study

- 12.4.1 A desk study was undertaken to collate the current baseline data for the Proposed Development and the surrounding areas. The desk study utilised online mapping resources and population datasets to identify receptors and design baseline surveys. The relevant data sources are listed in **Appendix 12.3**.

Baseline Overview

- 12.4.2 The Proposed Development is located adjacent to the Thanet Urban Agglomeration¹ with Ramsgate located approximately 1.5km to the east of the site boundary, St. Nicholas-at-Wade approximately 6km to the west and Margate approximately 5km to the north.
- 12.4.3 The nearest residential areas to the site are as follows:
- ▶ Cliffsend approximately 200m to the south-east of the runway (King Arthur Road);
 - ▶ Minster, approximately 700m to the south-west of the runway (Hill House Drive); and
 - ▶ Manston, approximately 300m to the north of the runway, with the former RAF base approximately 700m north of the runway.
- 12.4.4 Other close isolated residences are located on Spitfire Way to the north of the runway (approximately 400m) and Ivy Cottage Hill and Wayborough Hill, to the south of the runway (both approximately 300m).
- 12.4.5 Notable road noise sources in the local area include the A299 which extends parallel within 100m to the south of the runway and connects Minster and Cliffsend. To the north of the Proposed Development, Spitfire Way (B2190) and Manston Road (B2050) run south of the village of Manston and a number of dwellings. The Chatham Mainline railway runs south of Minster and through Cliffsend.
- 12.4.6 Polar Helicopters, a helicopter charter business, operates from a hangar at the north of the site on Spitfire Way. It is proposed that the business will be retained as part of the re-opening of the Proposed Development, although it is likely to be moved to the new Business Aviation Facility. The Spitfire and Hurricane Museum and the RAF Manston History Museum are located north of Manston Road, inside the site boundary and these are still operational today and will be safeguarded.

Receptors

- 12.4.7 There are three main categories of receptor to be considered in the assessment of noise and vibration within the study area:

¹ The Proposed Development is within the Thanet Urban Agglomeration, as defined by the *Environmental Noise (England) Regulations 2006 (as amended)* and as such the Proposed Development is subject to the requirements of the regulations (as amended), including the requirement for periodic noise mapping and action planning.

- ▶ Residential receptors – existing and proposed residential receptors in isolation or as a community (i.e. a group of receptors located close to one another, or within a named hamlet, village or town);
- ▶ Non-residential community receptors – including schools, places of worship, and medical facilities; and
- ▶ Quiet Areas – areas referred to in the NPPF⁴ as being prized for their recreational and amenity value.

12.4.8 No Quiet Areas have been identified within the study area. Assessments considering the likely impacts upon quiet areas have not therefore been undertaken. An assessment of the noise on tranquillity is provided in **Chapter 11: Landscape and Visual**.

12.4.9 The assessment of likely noise effects associated with the construction and operation of the Proposed Development on ecological receptors is addressed within **Chapter 7: Biodiversity**.

12.4.10 The following considerations have been taken into account in identifying potential receptors:

- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
- ▶ The sensitivity of the receptors to the changes that are likely to occur;
- ▶ The likely magnitude, duration and other characteristics of the effects;
- ▶ The importance or value of the receptor at a local, regional and national level; and
- ▶ Relevant best practice and guidance where specialist methodologies have been developed as detailed below.

12.4.11 Noise measurements or site observations have been undertaken for all identified receptors as identified for the assessment in **Table 12.2**. These receptors have been identified adopting the considerations outlined above and from considering consultation responses received from PINS and other stakeholders. Further detail of the receptors is presented in **Appendix 12.3**.

Noise Survey

12.4.12 The current baseline is identified by a combination of noise measurements, for the nearest receptor locations to the Proposed Development and site observations for receptors over a wider area, for the purposes of assessing aircraft noise. Site observations are considered appropriate for the wider area as it would not be practical to measure noise levels in detail across the area potentially affected by flight paths. The observations at each location were not static and instead consisted of a walkover around the location.

12.4.13 The purpose of the baseline sound surveys was to:

- ▶ Obtain baseline ambient sound levels during the daytime to inform the assessment of construction noise emissions at the nearest potential noise-sensitive receptors and to inform indicative construction noise thresholds as set prescribed in BS5228-1:2009+A1:2014 'ABC method'¹⁰;
- ▶ Obtain baseline sound levels during different periods of the day and night to inform the assessment of industrial and commercial sound; and
- ▶ Understand the baseline sound environment at locations where aircraft noise could be observed to provide context to the assessment of aircraft noise.

12.4.14 To ensure collection of reproducible levels of sound, long-term sound measurements were taken over a period of 24 days from Sunday 26 February 2017 to Wednesday 22 March 2017. In response to TDCs request, an additional survey was undertaken at the Nethercourt Estate from 10 October 2017 to 30 November 2017, a period of 20 days.

12.4.15 Baseline sound monitoring was undertaken at seven locations as illustrated in **Figure 12.2**. A summary of the daytime and night-time sound levels at these locations is presented in **Table 12.2**.

Table 12.2 Summary of Current Baseline Survey Locations

Location ref.	Address	Observations		Indicative Baseline	
		Daytime 07:00 to 23:00	Night-time 23:00 to 07:00	Daytime (L _{Aeq,16hr})	Night-time (L _{Aeq,8hr})
LT1 – Orchard Cottage	The Street, Acol, Birchington	Distant road traffic was the dominant noise source at times of observations from the A28, and the A299. Intermittent road traffic noise was also audible on Minster Road.	At night-time, distant road traffic noise from the A28 and A299 was dominant and road traffic noise on Minster road remained intermittent. An electricity pylon was also audible during the night.	53 dB	48 dB
LT2 – Beamont Close	Beamont Close, Manston	The acoustic environment was observed to be dominated by road traffic noise emanating from the B2190 Spitfire Way, A299 and the A253. Bird song and distant construction noise were also audible.	Road traffic from A253 was observed to be dominant, however noise from other roads were also audible. An industrial noise source was also perceived, but at a low level.	51 dB	45 dB
*LT3 – Grove House	Manston Road, Manston	Road traffic dominated the acoustic environment from Manston Road and the A256 became dominant at periods where traffic was low on Manston Road. Bird song and a train pass-by were also audible during observations.	Night-time observations were undertaken and it was noted that road traffic noise from the A256 was dominant	51 dB	46 dB
LT4 – St John's Avenue	St John's Avenue, Ramsgate	The acoustic environment was observed to be dominated by road traffic noise from the A256 and intermittent local road traffic noise along St. John's Avenue. Bird song and children playing also contributed to the acoustic environment.	Night-time observations were undertaken and it was noted that road traffic noise from Manston Road dominant. Bird song was also audible.	53 dB	46 dB
LT5 – Cliff View	Cliff View Road, Cliffsend, Ramsgate	The acoustic environment was observed to be dominated by road traffic noise from the A299 and the A256. Aircraft noise from a single helicopter flyover was also audible and dominated the noise environment when occurring. Noise from an electricity pylon was also perceived during observations.	Road traffic noise was dominant, in particular noise from the A256 during the night-time observations. A single aircraft noise event from a high-flying aircraft was also observed.	51 dB	47 dB
LT6 – Tothill Street	Tothill Street, Minster	The acoustic environment was observed to be dominated by road traffic noise from the A253, the A299 and Tothill Street. Bird song was constant and aircraft noise was intermittent, both high flying aircraft and a helicopter fly over.	Night-time observations were undertaken and it was noted that background noise levels were low. Wind rustling the trees was the dominant noise source. A single train pass-by was audible to the south and on occasion, road traffic along Tothill Street was observed	53 dB	48 dB
*LT7 – Windermere Avenue	68 Windermere Avenue	The acoustic environment was observed to be dominated by road traffic noise from Manston Road, the A299 and the A256. A train pass-by event was observed and	The dominant noise source was a combination of both distant road traffic from the A299 and the A256 combined with the wind	52 dB	42 dB

Location ref.	Address	Observations		Indicative Baseline	
		Daytime 07:00 to 23:00	Night-time 23:00 to 07:00	Daytime (L _{Aeq,16hr})	Night-time (L _{Aeq,8hr})
		dominated the acoustic environment for a small period.	rustling leaves from the trees on Windermere Avenue.		

*A weather station was deployed with the sound monitoring equipment at the survey location.

12.4.16 To characterise the wider baseline, observations were undertaken at 14 locations during both daytime and night-time periods as described in **Table 12.3** and illustrated in **Figure 12.1**. An ambient noise level has been identified to represent each location observed, based on the following:

- ▶ Site observation;
- ▶ Short-term measurements; and
- ▶ *Environmental Noise (England) Regulations*¹¹ Round 2 noise mapping data.

Table 12.3 Summary of Baseline Area Characterisation

Observation ref.	Residential area	Observations	
		Daytime	Night-time
OBS 1 – St. Nicholas-at-Wade	St. Nicholas-at-Wade	Road traffic noise from the A299 was the dominant contributor to the baseline sound environment, which was in the region of 55 to 60 dB LAeq,5 min. Intermittent road traffic noise from local roads through the village was audible as well as a train pass-by on the Chatham Main Line.	Road traffic noise from the A299 was still dominant, however the levels had reduced due to decreased traffic flow. Monitored levels were in the region of 42 to 47 dB LAeq,5 min.
Represented by Sound Levels:		57 dB LAeq, 16hr	45 dB LAeq,8hr
OBS 2 - Beltinge	Beltinge	Road traffic noise from the A299 dominated the sound climate, which was measured in the region of 60 dB LAeq,5 min. Train pass-bys were audible along the Chatham Main Line.	Road traffic noise from the A299 remained the dominant source of sound, measuring in the region of 45 dB LAeq,5 min.
Represented by Sound Levels:		60 dB LAeq, 16hr	45 dB LAeq,8hr
OBS 3 – Avenue of Remembrance, Herne Bay	Herne Bay	Road traffic noise from Kings Road was the dominant source of sound, however during lulls in traffic flow distant road traffic noise from the A299 and A2990 was noted to be the dominant source of sound.	Due to reduced traffic flow on Kings Road, road traffic noise from the A299 and A2990 was dominant, measuring in the region of 46 dB LAeq,5 min.
Represented by Sound Levels:		48 dB LAeq, 16hr	45 dB LAeq,8hr
OBS 4 – Studd Hill, Herne Bay	Herne Bay	Road traffic noise from Sea Street was the dominant source of sound, measured as being in the region of 60 dB LAeq,5 min. A train pass-by was also audible during observations.	Distant road traffic noise from the A2990 was the dominant source of sound, which would be dominated by infrequent vehicle pass-bys on Sea Street. Measured levels were in the region of 49 dB LAeq,5 min.
Represented by Sound Levels:		54 dB LAeq, 16hr	48 dB LAeq,8hr
OBS 5 - Sarre	Sarre	The sound climate of the village was dominated by road traffic noise emanating from the A28. This measured in the region of	During night-time, the sound climate was again dominated by road traffic noise from the A28, however due to reduced

Observation ref.	Residential area	Observations	
		Daytime	Night-time
		60 dB $L_{Aeq,5 \text{ min}}$. Aircraft noise was also audible intermittently.	traffic flow the levels had lowered to 50 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 57 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq,8hr}$
OBS 6 - Stourmouth	Stourmouth	The sound climate was dominated by road traffic noise from the A28. Monitored levels were in the region of 50 dB $L_{Aeq,5 \text{ min}}$. Train horns were audible whilst making observations.	Road traffic noise from the A28 was dominant. Monitored levels were in the region of 30-35 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 45 dB $L_{Aeq, 16hr}$	33 dB $L_{Aeq,8hr}$
OBS 7 – Grove Ferry, Upstreet	Upstreet	The dominant source of sound was road traffic noise from the A28, however during a train pass-by, rail noise would dominate this. Measured levels were in the region of 55 to 60 dB $L_{Aeq,5 \text{ min}}$.	Road traffic noise from the A28 remained the dominant source of sound. Measured levels were in the region of 35 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 51 dB $L_{Aeq, 16hr}$	36 dB $L_{Aeq,8hr}$
OBS 8 - Reculver	Reculver	The dominant source of sound was waves from the sea crashing against the shore, as well as bird song, in particular seagulls.	Distant road traffic noise from the A299 was the dominant source of sound, with intermittent high-flying aircraft noise noted. Monitored levels were in the region of 34 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 54 dB $L_{Aeq, 16hr}$	33 dB $L_{Aeq,8hr}$
OBS 9 - Birchington-on-Sea	Birchington-on-Sea	Road traffic noise on the A28 was dominant during observations, with local traffic dominating this whilst vehicles passed-by. A rail pass-by occurred which dominated the sound climate. Measured levels were in the region of 61 dB $L_{Aeq,5 \text{ min}}$.	Road traffic noise from the A28 was dominant. As well as this, high flying aircraft noise was audible, which was intermittent. Measured levels were in the region of 53 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 60 dB $L_{Aeq, 16hr}$	51 dB $L_{Aeq,8hr}$
OBS 10 - Staner Court	Ramsgate	Road traffic noise from Manston Road was the dominant source of sound, with road traffic noise from the A256 also audible. A helicopter fly over was audible during the observations. Measured levels were in the region of 46 to 54 dB $L_{Aeq,5 \text{ min}}$.	Ventilation plant from the commercial units in the vicinity of Staner Court was the dominant source of sound. Whilst road traffic noise on Manston Road was intermittent. Measured levels were in the region of 49 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 48 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq,8hr}$
OBS 11 - St Lawrence	St Lawrence	The sound of trains idling was the dominant source of sound until a rail pass-by occurred, which dominated the sound climate.	During the night-time the sound of trains idling at the train station was dominant, levels were measured in the region of 45 to 50 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 54 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq,8hr}$
OBS 12 – Ramsgate Harbour	Ramsgate	Road traffic noise from the B2054 was dominant throughout, with intermittent aircraft noise audible. Measured levels were in the region of 50 to 5 dB $L_{Aeq,5 \text{ min}}$.	Traffic flow on the B2054 was much reduced and therefore the dominant source of sound was wind rustling through the trees. Levels measured were in the region of 50 dB $L_{Aeq,5 \text{ min}}$.
		Represented by Sound Levels: 51 dB $L_{Aeq, 16hr}$	51 dB $L_{Aeq,8hr}$
OBS 13 - Pegwell	Pegwell	Road traffic noise from traffic on local roads was the dominant source of sound. Agricultural noise and aircraft noise was also	At night-time, road traffic noise was still the dominant source of, however it was noted to be quieter than that of during

Observation ref.	Residential area	Observations	
		Daytime	Night-time
		audible during observations. Measured levels were in the region of 40 to 45 dB $L_{Aeq,5}$ min.	the day. Measured levels were in the region of 40 dB $L_{Aeq,5}$ min.
		Represented by Sound Levels: 42 dB $L_{Aeq, 16hr}$	42 dB $L_{Aeq,8hr}$
OBS 14 – Nethercourt Estate	Ramsgate	Road traffic noise from traffic on A299 and A255 was dominant at this location and gets louder closer to the south of the estate. In the evening, road traffic noise was accompanied by sirens from emergency vehicles. Noises from nearby vegetation also dominated. Aircraft noise was audible during the observation but not dominant. A rail pass-by event occurred which was clearly audible but not dominating.	As with the daytime observation, road traffic noise from the direction of the A299 and A255 was dominant at this location and was louder closer to the south of the estate. Sound from nearby vegetation was still equally as dominant also. A low level 'hum', emanating from the railway was observed along the northern edge of Nethercourt Estate. Road traffic noise was observed to be slightly more audible on the south side of the estate.
		Represented by Sound Levels: 60 dB $L_{Aeq, 16hr}$	54 dB $L_{Aeq,8hr}$

Future Baseline

- 12.4.17 Whilst the trend is for road traffic noise to increase, it is not considered that this will change the baseline significantly. Given the semi-rural character of the area and current legislation and guidance on industrial noise, it is unlikely that the baseline would change because of commercial development. Therefore, the future baseline sound environment is assumed to be the same as today's baseline sound environment.
- 12.4.18 Further information on the baseline noise survey locations, including the approach to formulating a representative sound level for the wider area, is provided in **Appendix 12.4**.

12.5 Environmental Measures Incorporated into the Proposed Development

- 12.5.1 Measures will be incorporated into the construction and operation of the Proposed Development to avoid, reduce or compensate for potential adverse noise effects as follows.

Construction Environmental Management Plan

- 12.5.2 Specific to noise, the Construction Environmental Management Plan (CEMP) describes measures to be put in place by contractors to reduce noise including:
- ▶ A requirement to use Best Practicable Means (BPM) to minimise noise and vibration at neighbouring residential properties and other sensitive receptors arising from construction activities; and
 - ▶ A requirement for contractors to obtain consents from the relevant local authority under Section 61 of the *Control of Pollution Act 1974*¹² for the proposed construction works, excluding non-intrusive surveys. Applications will be made to the relevant local authority.
- 12.5.3 In addition, the following mitigation measures, based on current construction assumptions are proposed on the basis that there would serve to reduce construction noise:
- ▶ Where it is reasonable and practical to do so, on-site construction traffic will avoid using the perimeter roads which run in close proximity to sensitive residential development at night; and
 - ▶ To screen construction noise from sensitive receptors, 2.5m site construction noise barriers will be placed around the perimeter of the construction site compounds, to the south of the internal

access road and along perimeter roads used as haul roads where the haul roads are in close proximity to sensitive properties. **Figure 12.3a** and **Figure 12.3b** show the locations where construction noise barriers have been incorporated in the construction noise assessment reported in this chapter. This could be expected to result in a 5 dB reduction in noise levels at effected receptors.

Noise Mitigation Plan Proposals

- 12.5.4 A draft noise mitigation plan (**Document TR020002/APP/2.4**) has been developed which fully considers potential noise abatement operating procedures and restrictions. This plan has been derived from the evaluation of measures that are achievable within the context of the development proposals. As part of the process for adopting operating procedures within the noise mitigation plan, the procedures were appraised as described in *Review of Potential Aircraft Noise Abatement Operational Procedures*¹³.
- 12.5.5 It is acknowledged that noise-related restrictions will be a requirement of any consent given. The plan has therefore determined how noise can be managed and controlled in a manner that provides local communities with certainty around the levels of noise that can be expected from the reopening of the Proposed Development and its forecast operation.
- 12.5.6 It is expected that the observance of the mitigation plan will become a DCO requirement. However, it is acknowledged the restrictions contained within the noise mitigation plan will be subject to approval by the designated Competent Authority under the terms of *Regulation (EU) No 598/2014*¹⁴. It is further expected that the Proposer will seek to formalise noise abatement procedures through the CAP1616² ACP.
- 12.5.7 Once operational, it is expected that the noise mitigation plan will be formalised in the airports noise abatement procedures within the UK Integrated Aeronautical Information Package (AIP) and will be reviewed periodically as part of the airport's obligations under the *Environmental Noise (England) Regulations*¹¹.
- 12.5.8 The noise mitigation plan includes:
- ▶ A restriction on night-time aircraft:
 - ▶ A restriction on the noisiest aircraft operating at night:
 - No quota count (QC) sixteen or eight aircraft will be allowed to take off or land between 23:00 and 07:00; and
 - An aircraft is awarded a QC value depending on the amount of noise it generates during certification. The quieter the aircraft the smaller the QC value.
 - ▶ An Annual Quota Count (QC) budget of 3,028 for the night-time (23:00-07:00):
 - ▶ As each aircraft movement takes place, an amount of the relevant quota is used depending on the classification of the aircraft.
 - ▶ A restriction on training flights:
 - ▶ Other than the general aviation training that already operates at Manston Airport, there will be no additional training flights as part of the Proposed Development.
 - ▶ Community Consultative committee:
 - ▶ The Promoter will establish a Community Consultative Committee. The committee will have an independent chair and secretary who will be paid from airport funds. It will meet quarterly in public at suitable premises on the airport and its agendas and minutes will be published. It will also have the power to create special purpose sub-committees as appropriate.
 - ▶ Community Trust Fund:

- ▶ The Proposer will establish a Community Trust Fund. The proceeds of the fund will be applied to community projects within the 50 dB $L_{Aeq, 16hr}$ daytime contour and 40 dB $L_{Aeq, 8hr}$ night contours by the Community Consultative Committee.
- ▶ Noise and track monitoring:
 - ▶ The airport authority will install a Noise and Track-Keeping system which will track aircraft in flight and measure noise levels. Aircraft operators whose planes have persistently departed from designated departure flight paths will be subject to track keeping penalties of £500 per infringing aircraft departure.
- ▶ Departure Noise Limits:
 - ▶ Permanent fixed noise monitoring terminals will be located under each of the aircraft departure flight paths at a distance of 6.5 km from the start of aircraft take-off roll;
 - ▶ During the Daytime Period, the operator of any departing aircraft that exceeds 90 dB L_{ASmax} at the relevant noise monitoring terminal will be subject to a penalty of £750 and a further penalty of £150 for each additional dB exceeded above 90 dB L_{ASmax} ; and
 - ▶ During the Night-time Period the operator of any departing aircraft that exceeds 82 dB L_{ASmax} at the relevant noise monitoring terminal will be subject to a penalty of £750 and further penalties of £150 for each additional dB exceeded above 82 dB L_{ASmax} .
- ▶ Off-track Flight:
 - ▶ Through the CAP1616 ACP, the airport authority will seek to establish NPRs which will be designed against the priorities as defined during the ACP;
 - ▶ The airport authority will require each aircraft operator to ensure that 95% of all departures within a calendar year remain within the NPR; and.
 - ▶ Any airline which fails to meet the target and subsequently fails to work collaboratively with the airport authority after being notified of persistent departures outside of the NPRs will be subject to a track keeping penalty of £500 per aircraft departure.
- ▶ Runway Preference:
 - ▶ When weather conditions allow and taking into account other operational and safety considerations, the Promoter will seek to operate take-offs from Runway 28 and landings on Runway 10 to avoid aircraft overflying Ramsgate.
- ▶ Procedures for Arriving Aircraft:
 - ▶ Aircraft operators will be encouraged to keep noise disturbance to a minimum by operating a low power/low drag procedure subject to Air Traffic Control (ATC) speed control requirements and the maintenance of safe operation of the aircraft; and
 - ▶ The Proposer will establish a policy which minimises the use of reverse thrust except where operationally essential.
- ▶ Restrictions on engine testing:
 - ▶ There will be no open field testing of jet engines at night, except where operationally urgent and carried out within a designated test area.

Aircraft Dwelling Relocation Scheme

12.5.9

In line with Government guidance, a relocation assistance scheme will be offered by the airport authority to enable those homeowners exposed to the highest levels of airport related noise to move away from the Proposed Development. The dwelling relocation assistance will be offered if residents are exposed to unacceptable adverse effects on their health and quality of life. Eligibility will be based upon a dwelling lying within the daytime 69 dB $L_{Aeq, 16hr}$ contour. If eligible,

homeowners will be provided with assistance with the costs of moving away from the Proposed Development.

Aircraft Noise Dwelling Insulation Scheme

- 12.5.10 A noise insulation scheme for residential properties will be offered by the airport authority to help avoid significant adverse effects on health and quality of life. The scheme will take into account both daytime and night-time noise exposure. Eligibility for the scheme is consistent with current and emerging Government policy.
- 12.5.11 Where, upon application to the airport authority, the freehold owner of a residential property is deemed eligible for assistance under the noise insulation scheme, they will receive £4,000 towards acoustic insulation.
- 12.5.12 Eligibility associated with daytime noise insulation scheme will require residential properties with habitable rooms to be within the 63 dB $L_{Aeq,16hr}$ contour. In addition, where properties have bedrooms which are affected by levels of noise at or above 55d B $L_{Aeq,8hr}$, noise insulation scheme will apply, even if those properties do not fall within the 63 dB $L_{Aeq,16hr}$ contour.

Insulation Scheme for Noise-Sensitive Buildings

- 12.5.13 A separate noise insulation scheme for noise-sensitive school and community buildings will also be offered in connection with the Proposed Development. The scheme takes into account the daytime noise exposure and is based upon the extent of the daytime 60 dB $L_{Aeq,16hr}$. The scheme will provide reasonable levels of noise insulation and ventilation for schools and community buildings.

Control of Industrial and Commercial Sound

- 12.5.14 A set of measures will be put in place to control the effects of noise from the operation of aviation related infrastructure and fixed plant designed and installed by the Developer as part of the Proposed Development. The measures shall be applied to all fixed plant which are not essential to the operation or maintenance of aircraft, such as mechanical ventilation systems for passenger terminals, hangars and office buildings.
- 12.5.15 Design detail for assessing industrial and commercial sound was not available at the time of writing, as is often the case at this stage for large infrastructure projects. It is therefore necessary to apply a method at this stage for further work once detailed design for fixed plant is available. The level and nature of sound produced by industrial and commercial sound and the ability to practicably control the sound emissions will vary. Measures are designed to ensure an appropriate level of consistency in the approach to be applied to the different sources of industrial and commercial sound, whilst ensuring a suitable level of flexibility to address different situations and circumstances.
- 12.5.16 The Developer will assess industrial and commercial sound at the nearest residential receptor based on the principles set out in BS4142:2014¹⁵. This methodology requires an assessment of industrial sound against the background level at residential receptors, measured prior to the construction and operation of the airport. This will ensure that the background level will be established using up-to-date and robust information. The Developer will undertake the following steps to control industrial and commercial sound:
- ▶ Specify noise limits and incorporate acoustic requirements into contract documents such that they will apply to the design of all the fixed plant that are to be installed and operated as part of the Proposed Development;
 - ▶ Determine the relevant background levels and establish these jointly with the relevant local authorities;
 - ▶ Procure, install and commission fixed plant, including sound attenuation equipment that meets the specification requirements; and

- ▶ Before formal operation of the fixed plant, complete a standard suite of acceptance tests as necessary to demonstrate that the operational sound levels achieve the design criteria.

Masterplan Design

- 12.5.17 As part of the masterplan design, a 3m acoustic fence is to be erected along the southern and eastern boundary of the fuel farm to mitigate noise at nearby receptors.
- 12.5.18 A designated engine ground running area will be established, at which all open field engine ground runs will take place. Options analysis as part of the airside ground noise modelling determined that the optimal location is in the centre of the runway and hence all modelling has assumed this location.
- 12.5.19 As the design of airport related business development on the Northern Grass area is developed, the Promoter has committed to take reasonable steps to minimise noise by implementing the following design principles:
- ▶ A landscaped area has been provided between the proposed business park and the houses immediately adjacent to its eastern boundary. This area will be safeguarded in future design iterations in order to protect the residential properties during construction and operation;
 - ▶ The buildings which will generate the least noise will be located in the most sensitive areas of the site close to existing residential development. Such activities could include offices, parkland/greenspace, attenuation ponds, the museums and associated facilities;
 - ▶ Warehouse buildings shall be orientated such that loading/unloading activities face away from any existing residential dwellings;
 - ▶ Doors or other openings on building facades facing existing residential dwellings shall be minimised or avoided. This is most important for industrial buildings but may also include other buildings where evening, weekend or night-time activities occur; and
 - ▶ Internal vehicular routes shall be located away from the most sensitive parts of the site and buildings shall be used to screen road noise from existing residential buildings.

12.6 Assessment Methodology

General Approach

- 12.6.1 The general approach to the assessment has been to predict noise from the construction and operation of the Proposed Development and assess these against the baseline conditions, as described in **Section 12.4**.
- 12.6.2 The assessment has been informed by data sources and prediction methods that are described in detail in **Appendix 12.3**. Methods for prediction incorporate both computer noise modelling and spreadsheet analysis incorporating international and national standardised calculation methodologies.
- 12.6.3 The following sections describe the approach taken in assessing each noise and vibration aspect of the construction and operation of the Proposed Development.
- 12.6.4 The identified criterion for the assessment of impacts has been informed by the aims of the Government's Noise Policy to avoid '*significant adverse*' impacts and '*minimise adverse*' impacts on health and quality of life. The effect levels in relation to adverse impacts on health and quality of life are set out as in **Table 12.4**.

Table 12.4 Adverse effect levels adopted for this assessment

Effect level	Description	Action

NOEL (No Observed Effect)	Level below which no effect on health and quality of life is detected	No specific measures
LOAEL (Lowest Observed Adverse Effect Level)	Level above which adverse effects on health and quality of life can be detected	Mitigate and reduce to a minimum
SOAEL (Significant Observed Adverse Effect Level)	Level above which significant adverse effects on health and quality of life occur	Avoid
UAEL (Unacceptable Adverse Effect Level)	Level above which adverse effects are unacceptable	Prevent

- 12.6.5 The NPSE⁵ states that it is not possible to have a “single objective” noise based measure applicable to all sources and receptors that define the onset of the LOAEL or the SOAEL. It is however possible to define threshold levels for the onset of each of the effect levels, based upon available standards and technical guidance.
- 12.6.6 As outlined in **Section 12.3**, there are emerging national planning policies relevant to aviation noise and the draft Airport National Policy Statement is due for parliamentary scrutiny in 2018. In the UK Air Navigation Guidance 2017, there is a much clearer alignment of the aims and objectives of the NPSE⁵ in the context of aviation, taking the step in defining values for LOAEL and SOAEL.
- 12.6.7 In line with best practice and previous projects, the assessment identifies likely significant effects by consideration of the existing levels of the noise or vibration exposure, the change in noise and vibration exposure with and without the Proposed Development, the number and type of buildings impacted and other relevant factors. The impact of any noise change is considered within the context in which that change will occur. In general, if the forecast levels with the Proposed Development are below the LOAEL, no significant effects have been identified. Where the current or forecast noise level with the Proposed Development exceeds the SOAEL, greater weight has been applied to receptors by identifying likely significant effects on the basis of a smaller change in noise than when the noise level is less than the SOAEL.
- 12.6.8 The 2017 EIA Regulations ¹ require that assessments identify the likely significant environmental effects of a proposed development. Additionally, they require identified effects to be mitigated with the aim to avoid, prevent or reduce the associated significant adverse effects on the environment.

Prediction Methods

Construction and Operational Noise – Road Traffic

- 12.6.9 The assessment scenarios and extents are consistent with the advice set out within the Highways Agency’s (now Highways England) ‘Design Manual for Roads and Bridges’ (DMRB)¹⁶. The baseline year and future assessment year have been selected to identify the periods when likely noise effects from road traffic would be greatest. The future assessment year has been selected to be representative of the road traffic flows during the busiest construction periods and the periods immediately after the commissioning of the Proposed Development (both ‘short-term’), and the greatest traffic flows in Year 20 (2038²) (‘long-term’).
- 12.6.10 The calculation of construction and operational road traffic noise is undertaken with reference to the following guidance documents:
- ▶ DfT’s document ‘Calculation of Road Traffic Noise’ (CRTN)¹⁷; and
 - ▶ Transport and Road Research Laboratory ‘Converting the UK traffic noise index LA_{10,18hr} to EU noise indices for noise mapping’¹⁸.

² It is acknowledged that Year 20 is not consistent with the methodology presented in DMRB which requires noise to be assessed in the ‘long-term’ and typically within a 15-year period. However, Year 20 has been considered for this assessment for consistency with the aircraft noise assessment.

Construction Vibration - Earthworks, Fixed and Mobile Plant

- 12.6.11 The methodology adopted for the calculation of vibration levels from construction activities is that advocated within Transport and Road Research Laboratory 'Research Project 429 – Groundborne vibration caused by mechanised construction works'¹⁹ and BS5228-2:2009+A1:2014¹⁰.
- 12.6.12 Additional general guidance on the considerations to be made when calculating vibration levels has been taken from Transport and Road Research Laboratory 'Research Project 53 – Ground vibration caused by civil engineering works'²⁰.
- 12.6.13 Assessments of the vibration induced effects during construction has been limited to a distance of 100 m from the associated activities, consistent with the research presented within TRL 53²⁰ and TRL 429¹⁹.

Operational Noise – Industrial and Commercial Sound (Fixed Plant)

- 12.6.14 No detailed quantitative assessment of noise from the fixed plant has been undertaken as the level of design detail currently available is limited, as would be the case at this stage for any infrastructure project. Therefore, a set of environmental measures which will avoid significant adverse effects of noise and minimise adverse effects of noise from fixed plant has been developed (**Section 12.5**). It is anticipated that it is likely to be reasonably practicable to design these systems so that effects are avoided based upon the assessment methodology set out in BS4142:2014¹⁵.

Operational Noise – Aircraft Noise (aircraft air and airside ground noise (including mobile and static sources of noise))

- 12.6.15 The assessment of aircraft noise presents the combined noise and sound effects of airside ground noise and aircraft air noise for the Proposed Development:
- ▶ Aircraft air noise - the noise as aircraft depart from and arrive at the Proposed Development; and
 - ▶ Airside ground noise - the noise from aircraft and associate airport activities, including aircraft taxiing and manoeuvring on the ground, static and moving airfield plant.
- 12.6.16 Different calculation methodologies are to be implemented for aircraft air noise and airside ground noise. For airside ground noise, the methodology and calculation algorithms to be implemented, will be those advocated within ISO 9613-2²¹ guidance.
- 12.6.17 Aircraft air noise was calculated using the latest version of Federal Aviation Administration's (FAA) Integrated Noise Model (INM) v.7.0d. It is acknowledged that the INM is now considered a legacy tool by FAA and as such is no longer supported and has been superseded by the Aviation Environmental Design Tool (AEDT). However, aircraft noise models for the Proposed Development were first set up in 2016 with INM, hence INM has been retained for consistency³.

Significance Evaluation Methodology

- 12.6.18 The evaluation of significance differs depending on the sensitivity of the assessed receptor(s). National noise policy and standards documents generally focus on the effects of noise on residential receptors in isolation, whilst there is a requirement within the NPSE and NPPG to evaluate the effects on a community basis, such as within a neighbourhood. The evaluation of significance within a community is therefore a combination of advice derived from standards and policy, in addition to considerations of context and receptor sensitivity.
- 12.6.19 Non-residential receptors, such as offices, hospitals and schools, are often cited as containing buildings and/or activities that are potentially noise sensitive. The World Health Organisation

³ Paragraph 1.19 of CAP1616a Environmental requirements technical annex states that "For consistency and comparison purposes, if a noise model is already in use at an airport, the same model should be used for the assessment of any airspace change proposal related to that airport."

(WHO) Guidelines for Community Noise²² introduce the concept of differentiating between these uses in terms of the degree of sensitivity to noise effects. The evaluation of significance for non-residential receptors may therefore differ from that adopted for residential receptors and communities.

12.6.20 In summary, the assessments will consider the appropriate noise and vibration effects upon the receptors outlined below.

Residential Receptors

12.6.21 For assessment purposes, where the calculated noise exposure at a receptor is shown to be at SOAEL, UAEL or greater in terms of government noise policy and therefore where a 'significant observed adverse' impact on health and quality of life is possible, it is to be considered to indicate a likely significant adverse effect in the context of Government Noise Policy.

12.6.22 Effects at the assessed receptors that are shown to be LOAEL or lower are not considered adverse in terms of 2017 EIA Regulations¹. However, where possible, mitigation will still be recommended in keeping with the second aim of NPSE⁵.

12.6.23 The second aim of NPSE⁵ refers to situations where the calculated impact lies between the LOAEL and the SOAEL, where there is currently a requirement to:

“mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development”

12.6.24 Where the impact lies between LOAEL and SOAEL, reasonable steps should be taken to mitigate and minimise the impact. The NPSE⁵ however recognises that this does not necessarily mean such adverse effects cannot occur.

12.6.25 The assessment as to whether there is an adverse effect at a residential receptor in the context of EIA regulations when the noise exposure is between the LOAEL and SOAEL, requires additional quantitative and qualitative considerations. These considerations require elements of professional judgement and consideration of the context within which the effect occurs. In summary, these considerations include:

- ▶ The magnitude of the effect;
- ▶ The change in magnitude of the effect;
- ▶ The type of effect, including its intermittency;
- ▶ The existing sound environment;
- ▶ The effectiveness of mitigation, including BPM (best practicable means); and
- ▶ The duration of effect.

12.6.26 The NPPG²³ advises that noise effects may be partially offset if the residents of affected dwellings have access to:

“a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;

a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;

a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwelling, and/or;

a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance)."

Community Receptors

- 12.6.27 Where the calculated noise exposure at residential receptors within a community area is greater than the LOAEL but less than the SOAEL and thus in terms of government noise policy has an adverse effect, a significant adverse effect in terms of the 2017 EIA Regulations can be demonstrated to occur if the overall effect upon the community is deemed severe enough.
- 12.6.28 Additional considerations in determining whether the adverse community effect is significant, include:
- ▶ The number of residential receptors affected; and
 - ▶ The sensitivity of receptors within the 'community'.
- 12.6.29 The assessment of likely significant adverse effects upon communities also requires professional judgements assisted by the considerations outlined for residential receptors in Paragraph 12.6.25. Depending on the number of receptors and their associated sensitivity, a likely significant adverse effect may occur when there is a large effect at a small number of properties, or a smaller effect at a larger number of properties.
- 12.6.30 It is possible that a likely significant adverse effect can apply on a community basis when significant adverse effects are not derived on an individual basis for any of the receptors within it.

Non-Residential Receptors

- 12.6.31 For non-residential receptors, the evaluation of significance shall take into account the considerations outlined in Paragraph 12.6.25 for residential receptors and the sensitivity of the non-residential receptors.

Assessment Criteria – Residential and Community Receptors

- 12.6.32 This section sets out how the criteria for likely significant effects upon residential and community receptors in terms of 2017 EIA Regulations for each of the scoped assessments have been derived, taking into account significant adverse effects as outlined in government policy, and other relevant guidance.

Construction Noise – Earthworks, Fixed and Mobile Plant

- 12.6.33 In accordance with the methodologies advocated within Annex E of BS5228-1:2009+A1:2014⁴, the determination of impact thresholds for the construction phase noise effects will have regard to baseline levels of ambient noise at the receptors.
- 12.6.34 Using the three-tiered threshold level system set out within the ABC Method, the impact thresholds to be adopted within the construction noise assessment are shown in **Table 12.5**. Exceedance of the Category C threshold levels are considered to correlate with SOAEL in government policy and to have a significant adverse effect, in terms of the 2017 EIA Regulations¹.
- 12.6.35 The daytime Category C (SOAEL) threshold of 75 dB $L_{Aeq, T}$ is taken from the Committee on the 'Problem of Noise: Noise Report'²⁴ (Wilson, 1963) and was set to avoid interference with normal speech indoors. This is considered a conservative approach given the improvement in construction methods and glazing specifications since 1963. The night-time Category C (SOAEL) of 55 dB $L_{Aeq, 8hr}$ is consistent with advice presented within the 'WHO Night Noise Guidelines for Europe'²⁵. The evening Category C (SOAEL) is set at 10 dB lower than the daytime criteria, based upon advice presented within the 'Department of the Environment Advisory Leaflet 72 – Noise Control on Building Sites'²⁶.

- 12.6.36 Therefore, a potential significant effect may also occur if the ambient noise level exceeds the Category C threshold values provided in **Table 12.5**, (i.e. the ambient noise level is higher than the threshold value) and the total $L_{Aeq, T}$ noise level for the period increases by more than 3 dB because of construction noise.
- 12.6.37 The Category A and Category B threshold levels set out within **Table 12.5** are considered representative of LOAEL given they are the ‘ABC Method’¹⁰ lower thresholds for the adverse effects.

LOAEL and SOAEL Impact Thresholds

- 12.6.38 The threshold levels related to noise during the Proposed Development’s earthworks and construction activities are summarised in **Table 12.5**. A significant adverse effect is determined to occur when the calculated noise is greater than the SOAEL threshold level. The threshold levels are set out for the daytime, evening and night-time periods and are considered free-field (i.e. away from acoustically reflective surfaces).

Table 12.5 Noise from Construction – Impact criteria for residential receptors (airborne sound only)

Noise Sources	Receptor	Period	Category A (LOAEL)	Category B	Category C (SOAEL)
Construction noise (earthworks, fixed & mobile plant)	Residential	Daytime*	65 dB $L_{Aeq, 12hr}$	70 dB $L_{Aeq, 12hr}$	75 dB $L_{Aeq, 12hr}$
	Residential	Evening**	55 dB $L_{Aeq, 4hr}$	60 dB $L_{Aeq, 4hr}$	65 dB $L_{Aeq, 4hr}$
	Residential	Night-time***	45 dB $L_{Aeq, 8hr}$	50 dB $L_{Aeq, 8hr}$	55 dB $L_{Aeq, 8hr}$
Definitions and notes:					
*Daytime – Weekdays (07:00-19:00) and Saturdays (0700-1300).					
**Evening – Weekdays (19:00-23:00), Saturdays (1300-2300), Sundays and Bank Holidays (0700-2300).					
***Night-time – Weekdays, Weekends and Bank Holidays (2300-0700).					
Category A – threshold level is LOAEL when ambient noise levels (rounded to the nearest 5 dB) are less than these values.					
Category B – threshold level is LOAEL when ambient noise levels (rounded to the nearest 5 dB) are the same as Category A values.					
Category C – threshold level is SOAEL for ambient noise levels (rounded to the nearest 5 dB) which are 3 dB or more below these values. Where ambient noise levels are less than 3 dB below these values. SOAEL is indicated if the total $L_{Aeq, T}$ noise level for the period increases by more than 3 dB due to site noise.					

Construction and Operational Noise – Road Traffic

Residential Receptors (in Isolation)

- 12.6.39 The determination of impact thresholds for road traffic noise is based upon the guidance values set out within the *Noise Insulation (Amendment) Regulations (NIR) 1988*²⁷ and the WHO Guidelines for Community Noise²², for daytime noise criteria, and the WHO Night Noise Guidelines for Europe²⁵ for night-time noise criteria.
- 12.6.40 During the daytime, a significant adverse effect is determined to occur when noise exposures exceed 63 dB $L_{Aeq, 16hr}$ free-field (equivalent to 68 dB $L_{A10, 18hr}$ façade level) at assessed residential receptors. The 68 dB $L_{A10, 18hr}$ façade level is one of the requirements set out within the NIR²⁷ under which buildings may qualify for statutory noise insulation. In the event that the assessment identifies any requirements for mitigation under the NIR, these would be clarified. For the purpose of the assessment of likely significant effects, the 63 dB $L_{Aeq, 16hr}$ free-field threshold level is considered a suitable value for the SOAEL.

- 12.6.41 During the night-time, 55 dB $L_{Aeq,8hr}$ is considered representative of SOAEL and is consistent with advice presented within WHO Night Noise Guidelines²⁵.
- 12.6.42 The day-time and night-time LOAEL are set at 50 dB $L_{Aeq,16hr}$ (free-field) and 40 dB $L_{Aeq,8hr}$ (free-field) respectively, based upon advice set out within WHO Guidelines for Community Noise²² and Night Noise Guidelines²⁵.

LOAEL and SOAEL Impact Thresholds

- 12.6.43 The threshold level relating to road traffic noise during the construction and operation of the Proposed Development are summarised in **Table 12.6**. A significant adverse effect is determined to occur when the calculated noise is greater than the SOAEL threshold level. The threshold levels are presented for the daytime and night-time periods and are considered free-field (i.e. away from acoustically reflective surfaces).

Table 12.6 Summary of Road Traffic Noise Thresholds

Noise Sources	Receptor	Period*	LOAEL	SOAEL
Construction and operational noise – road traffic	Residential	Daytime (0700-2300)	50 dB $L_{Aeq,16hr}$	63 dB $L_{Aeq,16hr}$
		Night-time (2300-0700)	40 dB $L_{Aeq,8hr}$	55 dB $L_{Aeq,8hr}$

- 12.6.44 Where the road traffic noise effects at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in **Section 12.6**, subsection ‘Significant Evaluation Methodology’ to evaluate the magnitude of significance in terms of 2017 EIA Regulations¹.

Community Receptors

- 12.6.45 In addition to the considerations summarised in **Section 12.6**, subsection ‘Significance Evaluation Methodology’, the determination as to whether there is a significant adverse community effect in terms of the 2017 EIA Regulations¹ from road traffic noise will take into account the likely magnitude of change.
- 12.6.46 The DMRB presents an interpretation of changes in road traffic noise levels ($L_{A10,18hr}$) for determining the potential magnitude of impact. DMRB sets out differing criteria associated with noise change for short-term (i.e. immediately after the development opening) and long-term (15 years from the development opening) effects, as outlined in **Table 12.7** and **Table 12.8**, respectively.

Table 12.7 DMRB Classification of Magnitude of Noise Impacts in the Short-Term

Noise Change in (dB $L_{A10,18hr}$)	Magnitude of Impact
0	No Change
0.1 – 0.9	Negligible
1 – 2.9	Minor
3 – 4.9	Moderate
5+	Major

Table 12.8 DMRB Classification of Magnitude of Noise Impacts in the Long-Term

Noise Change in dB ($L_{A10,18hr}$)	Magnitude of Impact
---------------------------------------	---------------------

0	No Change
0.1 – 2.9	Negligible
3 – 4.9	Minor
5 – 9.9	Moderate
10+	Major

- 12.6.47 The classification of magnitude of noise impacts in **Table 12.7** and **Table 12.8** have been used to assist the evaluation of significance for communities located in proximity to new and existing road networks.
- 12.6.48 At residential receptors where the baseline road traffic noise is already greater than the SOAEL threshold level, a significant adverse community effect is likely to occur when the overall magnitude of change is 1 dB or greater. This approach is in keeping with the DMRB short-term criteria, summarised in **Table 12.7**.
- 12.6.49 At residential receptors where both the existing and proposed levels of road traffic noise exposure are calculated to be less than the SOAEL threshold level, there is a potential for a significant adverse community effect where the magnitude of change is 3 dB or greater. This approach is in keeping with the DMRB long-term criteria, summarised in **Table 12.8**.

Construction Vibration - Earthworks, Fixed and Mobile Plant

- 12.6.50 Sources of potential adverse effects due to vibration at residential receptors include from the construction of the Proposed Development include:
- ▶ Earthworks – construction activities such as vibratory compactions; and
 - ▶ Construction – activities such as those associated with impact or vibratory piling.
- 12.6.51 BS6472-1:2008 'Guide to Evaluation of Human Exposure to Vibration in Buildings'²⁸ covers vibration sources other than those associated with blasting. The standard provides guidance on predicting human response to vibration over the frequency range 0.5 Hz to 80Hz. The standard uses typical human responses to whole-body vibration in order to determine a Vibration Dose Value (VDV), which may be used to determine the potential for unfavourable reaction and adverse comment to vibration from residential occupants.
- 12.6.52 The response of the human body to vibration is very complex and depends on many different factors, one of which (but not necessarily the most important), is the magnitude of vibration. Once an individual has perceived a vibration then it is possible for concern to be raised about the source of that vibration. This concern is usually expressed, as fear of the vibration and the potential to cause damage to the occupant's property and that further damage may occur from repeated vibration events.
- 12.6.53 BS6472-1:2008²⁸ discusses the fact that structural vibration within buildings can be detected by the occupants and examines how the occupant's quality of life and/or working efficiency may be reduced. Tentative guidance is given on the various magnitudes of vibration at which adverse comment by the occupants may begin to arise. The standard also discusses how and where to measure vibration and gives the factors which influence human response.
- 12.6.54 The standard discusses the possible effects that various types of vibration may have on the inhabitants of any building. BS6472-1:2008²⁸ Section 6 describes methods for the evaluation of such vibration and indicates levels, in terms of VDV ($\text{ms}^{-1.75}$) that might possibly give rise to adverse comment under a given range of circumstances. **Table 12.9** presents a summary of these values.

Table 12.9 Summary of VDV above which various degrees of adverse comment may be expected from the residents of dwellings

Period	Satisfactory VDV ($\text{ms}^{-1.75}$)		
	Low Probability of Adverse Comment	Adverse Comment Possible	Adverse Comment Probable
Daytime (0700-2300)	0.2 – 0.4	0.4 – 0.8	0.8 – 1.6
Night-time (2300-0700)	0.1 – 0.2	0.2 – 0.4	0.4 – 0.8

LOAEL and SOAEL Impact Thresholds

- 12.6.55 The VDV ($\text{ms}^{-1.75}$) which relate to human response, as summarised in **Table 12.9** have been used to determine the effect criteria in terms of government policy, as summarised in **Table 12.10**
- 12.6.56 Exposures relating to the LOAEL are based upon the VDV values outlined in BS6472-1:2008²⁸ for a low probability of adverse comment. The exposures relating to the SOAEL are based upon lower VDV value for probability of adverse comment.
- 12.6.57 The LOAEL values vary dependent upon the length of time over which the impact takes place. The requirement to mitigate and minimise effects is therefore less stringent where activities are to take place for less than one month.
- 12.6.58 The threshold levels related to vibration during a proposed development's earthworks, construction activities and rail traffic movements are summarised in **Table 12.10**. A significant adverse effect is determined to occur when the calculated vibration is greater than the SOAEL threshold level. The VDV are representative of the worst-case location within the property.

Table 12.10 Vibration from Construction – Impact Criteria for Residential Receptors

Vibration Sources	Receptor	Duration	Period	VDV (LOAEL)	VDV (SOAEL)
Vibration - earthworks, fixed & mobile plant and rail traffic	Residential	Less than 1 month	Daytime (0700-2300)	0.4	0.8
			Night-time (2300-0700)	0.2	0.4
	Residential	More than 1 month	Daytime (0700-2300)	0.2	0.8
			Night-time (2300-0700)	0.1	0.4

- 12.6.59 Where the calculated vibration impacts at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in Paragraph 12.6.25 to evaluate the magnitude of significance in terms of the 2017 EIA Regulations¹.
- 12.6.60 It is noted that the assessment of vibration effects from the earthworks and construction (fixed and mobile plant) phases will be based upon the absolute values of the predicted vibration effects at residential receptors. There will be no earthworks and construction activity related vibration effects in the absence of the Proposed Development, therefore an assessment that considers the magnitude of change will not be undertaken and will be based upon meeting associated threshold limits.

Cosmetic Damage

The assessment criteria for the likelihood of cosmetic damage to buildings are based upon guidance presented within BS7385 'Evaluation and measurement for vibration in buildings: Part 2 Guide to damage levels from ground-borne vibration²⁹'. An exceedance of the values, specified in

terms of Peak Particle Velocity (PPV) (mms^{-1}), in **Table 12.11** would indicate, in terms of 2017 EIA Regulations¹ a significant adverse effect.

Table 12.11 Assessment Criteria for likely Cosmetic Damage to Buildings

Building Category	Transient vibration guide values for cosmetic damage in buildings	
	Transient vibration mms^{-1}	Continuous vibration mms^{-1}
Structurally sound and non-protected buildings	12	6
Protected or potentially vulnerable buildings	6	3

Operational Noise – Aircraft Noise (aircraft air and airside ground noise (including mobile and static sources of noise))

- 12.6.61 The determination of impact thresholds for the consideration of significance in terms of the 2017 EIA Regulations is informed by relevant existing and emerging aviation noise policies, in addition to the relevant guidance, namely:
- ▶ Aviation Policy Framework 2013 (APF)³⁰;
 - ▶ Air Navigation Guidance 2017⁷;
 - ▶ Revised draft Airports National Policy Statement (2017)⁶;
 - ▶ Transport Analysis Guidance (WebTAG)³¹;
 - ▶ CAP1506a: The 2014 Survey of Noise Attitudes⁹
 - ▶ CAP1616²: Airspace Design: Guidance on the regulatory process for changing airspace design including community engagement requirements;
 - ▶ CAP1616a: Airspace Design: Environmental requirements technical annex; and
 - ▶ DfT Consultation Response on UK Airspace Policy: A framework for balanced decisions on the design and use of airspace (2017).
- 12.6.62 In the UK Government's Airspace Policy consultation, it is stated that whilst the APF 2013 is the current policy framework, a new Aviation Strategy due for parliamentary scrutiny in 2018 will eventually replace the APF 2013.
- 12.6.63 Therefore, whilst the methodology for operational aircraft noise has been developed based on the APF³⁰ consideration has been given to relevant recent revised draft policy consultation on Airports National Policy Statement. Whilst this consultation may not represent the final Government policy position, it is to be considered the direction of travel with respect to airspace and aviation noise policy. This is particularly relevant to greater consistency between aviation noise policy as set out in the draft Airports NPS and UK Airspace Policy consultation with overarching noise policy in England as set out in the NPSE⁵.
- 12.6.64 For the daytime period, a *significant adverse effect* is determined to occur when average absolute free-field operational noise exposures are greater than 63 dB $L_{Aeq,16hr}$. This has been defined as the SOAEL for daytime aircraft operational noise and is based upon the APF³⁰ (Paragraphs 3.37-3.39), which indicates that above 63 dB $L_{Aeq,16hr}$, airports should provide assistance towards noise insulation at noise-sensitive buildings and residential dwellings.
- 12.6.65 For the daytime period, a precautionary UAEL has been defined as noise exposure at or greater than 69 dB $L_{Aeq,16hr}$. This is based upon the APF³⁰ (Paragraph 3.36), which indicates that for aircraft noise above 69 dB $L_{Aeq,16hr}$ airports should offer households assistance with the costs of moving.

- 12.6.66 For the purposes of this assessment, the daytime LOAEL is set at 50 dB $L_{Aeq,16hr}$ (free-field), based upon advice set out within WHO²² guidance. It is noted that since the production of the Scoping Report in 2016, aviation policy has defined daytime LOAEL at 51 dB $L_{Aeq,16hr}$ (free-field), however, for the purposes of this assessment the lower value of 50 dB $L_{Aeq,16hr}$ (free-field) is considered appropriate.
- 12.6.67 For the aircraft noise element of the operational noise calculation, consideration will also be given to the size of population exposure to noise above 54 dB $L_{Aeq,16hr}$ ⁴, in accordance with the UK Air Navigation Guidance 2017⁴ and above 57 dB $L_{Aeq,16hr}$ ⁵, in accordance with the Aviation Policy Framework 2013.
- 12.6.68 During the night-time period, a *significant adverse effect* is determined to occur when average absolute free-field noise exposures are greater than 55 dB $L_{Aeq,8hr}$. This has been defined as the night-time SOAEL and is based upon advice set out within WHO Night Noise Guidelines²⁵.
- 12.6.69 For residential receptors a significant *adverse effect* is also determined when there is an additional 'awakening'. This 'awakening' metric has been defined as a SOAEL and is informed by emerging best practice and research into aircraft induced sleep disturbance, namely research undertaken by Basner et al (2006)⁶. For the purposes of this assessment, it is considered that one additional awakening as per the Basner et al (2006) methodology is considered SOAEL.
- 12.6.70 At dwellings with no specific form of noise insulation, operational noise will be considered to give rise to significant adverse effects if there is an absolute external noise level of at least 80 dB L_{ASmax} (approximately 90 dB SEL⁷) and the average number of noise events during the night above this level is already at least 18. The use of this indicator does not imply any plan or proposal to attain this level of night flights, but merely that if there were, then this could be considered likely to result in a significant effect should external noise levels be above 80 dB L_{ASmax} for each movement.
- 12.6.71 The night-time LOAEL for aircraft noise is set at 40 dB $L_{Aeq,8hr}$ (free-field) and is based upon advice set out within WHO Night Noise Guidelines²⁵. It is noted that since the production of the Scoping Report in 2016, draft aviation policy⁸ has defined night-time LOAEL at 45 dB $L_{Aeq,16hr}$ (free-field), however, for the purposes of this assessment the lower value of 40 dB $L_{Aeq,16hr}$ (free-field) is considered appropriate.
- 12.6.72 For the purposes of this assessment, an additional night-time LOAEL is also defined at 60 dB L_{ASmax} (outside) based upon advice set out within WHO²² Guidelines for Community Noise, which states that 60 dB L_{Amax} at the outside façade represents a LOAEL in the context of sleep disturbance.
- 12.6.73 Whilst the above effect criteria provide objective measures for the significance of the noise effects associated with the Proposed Development, adverse or beneficial effects may also be identified through any potential features of the effects or through professional judgement.

LOAEL and SOAEL Impact Thresholds

- 12.6.74 Threshold levels relating to the operation of the Proposed Development are summarised in **Table 12.12**. A significant adverse effect is determined to occur when the calculated noise is greater than

⁴ The Consultation Response on UK Airspace Policy: A framework for balanced decisions on the design and use of airspace states in Paragraph 2.10 that based on the findings of SoNA 2014, the degree of annoyance previously received at 57 dB $L_{Aeq,16hr}$ now occurs at 54 dB $L_{Aeq,16hr}$.

⁵ The Aviation Policy Framework (APF) states in Paragraph 3.17 that 57 dB $L_{Aeq,16hr}$ will continue to treat as '*the average level of daytime aircraft noise marking the approximate onset of significant community annoyance*'.

⁶ Based on the findings of Basner et. al. '*Aircraft noise effects on sleep: Application of the results of a large polysomnographic field study*' 2006 enabling the calculation one additional awakening due to aircraft noise using L_{ASmax} noise events. Assumes an average insulation value of the 21 dB for a bedroom façade as adopted by the WHO Night Noise Guidelines for Europe (2009).

⁷ 90 dB SEL has been used by Department for Transport and at other UK airports as a measure of sleep disturbance and the basis of for night-noise insulation schemes when considering the number and nature of aircraft night operations.

the SOAEL threshold level. The threshold levels are presented for the daytime and night-time periods and are considered free-field (i.e. away from acoustically reflective surfaces).

Table 12.12 Summary of Operational Aircraft Noise Thresholds

Noise Sources	Receptor	Period	LOAEL	SOAEL
Operational aircraft noise	Residential	Daytime (0700-2300),	50 dB L _{Aeq,16hr}	63 dB L _{Aeq,16hr}
		Night-time (2300-0700)	40 dB L _{Aeq,8hr}	55 dB L _{Aeq,8hr}
		Night-time (2300-0700)	60 dB L _{ASmax}	One additional awakening

12.6.75 Where the operational noise effects at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in Paragraph 12.6.25 to evaluate the magnitude of significance in terms of 2017 EIA Regulations¹.

Community Receptors

12.6.76 In addition to the considerations summarised in Paragraph 12.6.25, the determination as to whether there is a significant adverse community effect in terms of the 2017 EIA Regulations¹ from operational noise will take into account the likely magnitude of change.

12.6.77 This is a similar approach to that to be adopted in the road traffic assessment, based upon the classification of magnitudes summarised in **Table 12.7** and **Table 12.8**.

12.6.78 At residential receptors where the baseline noise levels are already greater than the SOAEL threshold level, a significant adverse community effect is likely to occur when the overall magnitude of change is equal to or greater than 1 dB. This approach is in keeping with the DMRB short-term criteria, summarised in **Table 12.7**.

12.6.79 At residential receptors where the current baseline noise levels and the proposed operational noise levels are calculated to be less than the SOAEL threshold level but above the LOAEL, there is a potential for a significant adverse community effect where the magnitude of change is equal to or greater than 3 dB. This approach is in keeping with the DMRB long-term criteria, summarised in **Table 12.8**.

Assessment Criteria – Non-Residential Receptors

12.6.80 **Table 12.13** summarises the criteria that will be adopted for assessing the effect of the Proposed Development upon non-residential noise-sensitive receptors. In the case of non-residential noise-sensitive receptors, the criteria provided in **Table 12.13** will be used to indicate effects, however, significance will be determined on a case-by-case basis.

Table 12.13 Impact Criteria for Establishing Potentially Significant Effects on Noise-Sensitive Non-Residential Receptors

Receptor(s)	Impact Criteria		Potential Effects
	Daytime (0700-2300)	Night-time (2300-0700)	
Acoustical resources i.e. Theatres, concert halls, opera houses, concert halls or any specific space	60 dB L _{ASmax} ; Or 50 dB L _{Aeq,T} ; and No increase upon existing levels		Loss in acoustic quality and enjoyment

dedicated to the enjoyment of sound	See Note 1		
Places of worship	50 dB $L_{Aeq, T}$ and an increase of 3 dB See Note 2	n/a	Disruption or disturbance
Educational Facilities Including schools, colleges and	50 dB $L_{Aeq, T}$ and an increase of 3 dB See Note 2	n/a	Disruption or disturbance and interference with task
Healthcare Facilities Including hospitals and out-patient clinics	50 dB $L_{Aeq, T}$ and a change of 3 dB See Note 2	45 dB $L_{Aeq, T}$ and a change of >3 dB See Note 3	Disruption or disturbance during daytime periods and sleep disturbance during the night
Community Resources including libraries	50 dB $L_{Aeq, T}$ and a change of 3 dB See Note 2	n/a	Disruption or disturbance and interference with task

NOTE 1: Values based on indoor noise levels of 25 dB $L_{Aeq, T}$ and 25 dB L_{ASmax} as available within BS8233:2014 and FRA/FTA guidance respectively. Values have been converted to outdoor levels assuming a façade adjustment with a partially open window.

NOTE 2: Value is based on an indoor noise level target value of 35 dB $L_{Aeq, T}$ as aligned with the guidance available within Building Bulletin 93 and BS8233:2014. Value has been converted to outdoor levels assuming a façade adjustment with a partially open window.

Receptor Sensitivity and Significance

- 12.6.81 Noise levels which are forecast to exceed the relevant SOAEL are identified as a significant effect on an individual basis as required by Government Noise Policy.
- 12.6.82 The identification of significant effects in the context of 2017 EIA Regulations¹ takes into account the sensitivity of the impacted receptor. **Table 12.14** sets out the sensitivity of receptors considered in this noise assessment.
- 12.6.83 The assessment of significance of the predicted effects in the context of 2017 EIA Regulations¹ depends on the sensitivity of the receptor under consideration and is defined according to the matrix set out in **Table 12.15**.

Table 12.14 Receptor Sensitivity

Sensitivity of receptor	Receptor description
High	Such receptors include pupils in residential educational facilities and patients in healthcare facilities and are defined as a "vulnerable subgroup" with very high or continuous rates of occupancy. Receptors are categorised as high sensitivity where noise may be detrimental to vulnerable subgroups.
Medium	Residential receptors and community receptors. Receptors are categorised as medium sensitivity where noise may cause disturbance and a level of protection is required but a level of tolerance is expected.
Low	Area used primarily for leisure activities including public rights of way, sports facilities and sites of historic or cultural importance. Receptors are categorised as low sensitivity where noise may cause short duration effects in a recreational setting although particular high noise levels may cause a moderate effect.

Table 12.15 Significance Criteria

	Magnitude of Impact

Sensitivity/Value	Major	Moderate	Low	Negligible
High	Significant	Significant	Significant	Not Significant
Medium	Significant	Significant	Not Significant	Not Significant
Low	Significant	Not Significant	Not Significant	Not Significant

12.7 Assessment of Effects

12.7.1 As described in **Section 12.1**, this assessment evaluates effects from the following principle sources of noise at key sensitive receptors:

- ▶ Noise from the construction of the Proposed Development and the transport of construction materials;
- ▶ Noise from aircraft and airport operations including from aircraft in the air and noise from aircraft operations on the ground, associated Ground Support Equipment, airfield activities and airport buildings during operation of the Proposed Development;
- ▶ Changes in surface access noise, namely road traffic noise from vehicle movements associated with the operation of the Proposed Development; and
- ▶ Noise from the secondary business infrastructure located within the Northern Grass area.

12.7.2 A summary of assessment of the effects of each of these principle noise and vibration sources is presented in this section.

Construction Phase

Construction Noise – Earthworks, Fixed and Mobile Plant

12.7.3 Construction of the Proposed Development is expected to commence in 2019 (Year 1), continuing until the end of 2036 (Year 18). Construction of the Proposed Development will be undertaken in four phases (refer to **Chapter 3: Description of the Proposed Development**).

12.7.4 For the phases of construction, a set of activities will be required to construct the different components of the Proposed Development. These include:

- ▶ Cut and fill activities – this activity involves the excavation and movement of earth using excavators, bulldozers, dump trucks and other ancillary equipment;
- ▶ Concrete paving activities to construct the runway, taxiways and stands;
- ▶ Asphaltting of new roads and carparking areas;
- ▶ Warehouse construction;
- ▶ Construction of other buildings such as the new control tower and passenger terminal; and
- ▶ Construction traffic operating on haul routes within the site.

12.7.5 The assessment assumes that some of the activities defined above may occur simultaneously at points during the construction of the Proposed Development. For each phase, the locations where each activity will take place is identified in **Figure 12.3a** and **Figure 12.3b**. More details relating to these activities is provided in **Appendix 12.3**. The receptors where construction noise has been assessed are shown in **Figure 12.2**.

- 12.7.6 The assessment is based on reasonable programme assumptions available at this stage. As required by the principles of the CEMP, the contractor will be required to apply to the Local Authority for consent under Section 61 of the *Control of Pollution Act 1974*¹² which requires the adoption of Best Practicable Means to control noise and vibration at worksites. The assessment takes account of the embedded mitigation measures described in **Section 12.5**.
- 12.7.7 During Phase 1, it is expected that the construction will be undertaken during normal working hours (weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00 with some activity an hour either side for set-up, close down, deliveries and HGV movements).
- 12.7.8 In Phases 2, 3 and 4 once the airport is operational some works will need to occur during the evening (19:00 to 23:00) and night-time (23:00 to 07:00) periods to avoid a conflict with airport operations.
- 12.7.9 Daytime, evening and night time construction noise assessments have been undertaken in accordance with BS5228-2:2009+A1:2014¹⁰. At each receptor location a construction noise impact threshold has been defined for daytime, evening and night time works based on the existing ambient noise level at the receptor. Construction noise predictions have been compared to this threshold. Where the predicted level exceeds this threshold there is potential for a likely significant effect from construction noise and consideration is given to other factors, such as the duration of the impact and the number of properties impacted, in determining if a likely significant effect has occurred.
- 12.7.10 In addition, in line with government noise policy, a significant adverse effect is identified at any individual property where the predicted noise level exceeds the relevant SOAEL value for the daytime, evening or night time period.

Daytime Construction Assessment

- 12.7.11 Construction noise predictions during the different activities for weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00 are shown in **Table 12.16** to **Table 12.19**. The tables present the expected noise levels for one month when plant and equipment is located in the part of the work site closest to the receptor.
- 12.7.12 It can be seen from **Table 12.16** to **Table 12.19** that there is no exceedance of the BS5228-2:2009+A1:2014¹⁰ daytime construction noise impact criteria at residential receptors during any activity occurring on site in Phases 1, 2, 3 or 4. Hence no significant adverse effects are identified on any receptors during day time works.
- 12.7.13 Construction noise is not predicted to exceed the daytime SOAEL for construction noise of 75 dB $L_{Aeq,12hr}$ at any receptor during any phase or activity. Hence no significant adverse effects on individual properties are identified for daytime works.

Table 12.16 Phase 1 Monthly Construction Noise Predictions for Core Construction Hours (Weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,12hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,12hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Levels (dB $L_{Aeq,12hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	51 (LT2)	65 (A)	63	54	48	47	47	45	63
2	Spitfire Way	51 (LT2)	65 (A)	61	53	54	42	53	59	63
3	Smugglers Close	53 (LT6)	65 (A)	58	54	56	33	53	54	43
4	Southall Close	53 (LT6)	65 (A)	52	46	48	33	45	46	42
5	Ivy Cottage Hill	53 (LT6)	65 (A)	55	48	52	38	47	48	46
6	King Arthur Road	52 (LT5)	65 (A)	56	52	54	34	50	57	32
7	High Street	53 (LT3)	65 (A)	59	52	51	42	48	51	47
8	Manston Court Road	53 (LT3)	65 (A)	65	58	46	48	53	59	56
9	Manston Road	51 (LT2)	65 (A)	65	56	43	44	45	50	53

Table 12.17 Phase 2 Monthly Construction Noise Predictions for Core Construction Hours (Weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00)

Receptor Number	Description	Ambient Sound Level (dB $L_{Aeq,12hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,12hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Levels dB $L_{Aeq,12hr}$						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	51 (LT2)	65 (A)	56	50	-	48	45	47	-
2	Spitfire Way	51 (LT2)	65 (A)	54	51	-	48	49	49	-
3	Smugglers Close	53 (LT6)	65 (A)	57	54	-	51	53	54	-
4	Southall Close	53 (LT6)	65 (A)	49	45	-	42	44	46	-
5	Ivy Cottage Hill	53 (LT6)	65 (A)	51	47	-	44	46	47	-
6	King Arthur Road	52 (LT5)	65 (A)	55	52	-	48	50	52	-
7	High Street	53 (LT3)	65 (A)	52	47	-	40	44	44	-
8	Manston Court Road	53 (LT3)	65 (A)	60	54	-	40	44	54	-
9	Manston Road	51 (LT2)	65 (A)	61	50	-	37	39	59	-

Table 12.18 Phase 3 Monthly Construction Noise Predictions for Core Construction Hours (Weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,12hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,12hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Levels (dB $L_{Aeq,12hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	51 (LT2)	65 (A)	62	57	-	51	55	44	-
2	Spitfire Way	51 (LT2)	65 (A)	61	55	-	49	55	47	-
3	Smugglers Close	53 (LT6)	65 (A)	57	54	-	51	53	54	-
4	Southall Close	53 (LT6)	65 (A)	49	45	-	43	45	45	-
5	Ivy Cottage Hill	53 (LT6)	65 (A)	52	47	-	45	48	47	-
6	King Arthur Road	52 (LT5)	65 (A)	55	51	-	48	50	51	-
7	High Street	53 (LT3)	65 (A)	54	51	-	45	46	48	-
8	Manston Court Road	53 (LT3)	65 (A)	50	46	-	38	37	40	-
9	Manston Road	51 (LT2)	65 (A)	45	38	-	37	36	35	-

Table 12.19 Phase 4 Monthly Construction Noise Predictions for Core Construction Hours (Weekdays 07:00 to 19:00 and Saturdays between 08:00 and 13:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,12hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,12hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Levels (dB $L_{Aeq,12hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	51 (LT2)	65 (A)	56	57	-	59	-	42	-
2	Spitfire Way	51 (LT2)	65 (A)	65	55	-	49	-	43	-
3	Smugglers Close	53 (LT6)	65 (A)	52	51	-	52	-	51	-
4	Southall Close	53 (LT6)	65 (A)	47	43	-	44	-	43	-
5	Ivy Cottage Hill	53 (LT6)	65 (A)	52	45	-	46	-	44	-
6	King Arthur Road	52 (LT5)	65 (A)	54	49	-	49	-	49	-
7	High Street	53 (LT3)	65 (A)	55	52	-	35	-	47	-
8	Manston Court Road	53 (LT3)	65 (A)	50	37	-	27	-	33	-
9	Manston Road	51 (LT2)	65 (A)	44	27	-	27	-	27	-

Evening Construction Assessment

- 12.7.14 Construction noise predictions during the different activities for weekdays 19:00 to 23:00 and Saturdays between 13:00 and 23:00 are shown in **Table 12.20** to **Table 12.19**. The tables present the expected noise levels for one month when plant and equipment is located in the part of the work site closest to the receptor.
- 12.7.15 It can be seen from **Table 12.20** to **Table 12.22** that there is no exceedance of the BS5228-2:2009+A1:2014¹⁰ evening construction noise impact criteria at residential receptors during any activity occurring on site in Phases 2, 3 or 4. Hence no significant adverse effects are identified on any receptors during evening works.
- 12.7.16 Construction noise is not predicted to exceed the daytime SOAEL for construction noise of 65 dB $L_{Aeq,4hr}$ at any receptor during any phase or activity. Hence no significant adverse effects on individual properties are identified for evening works.

Table 12.20 Phase 2 Monthly Construction Noise Predictions for Evening Construction Hours (Weekdays 19:00 to 23:00 and Saturdays 1300-2300)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,4hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,4hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,4hr}$)							Highways Improvements
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings			
								Demolition	Construction		
1	Bell Davies Drive	50 (LT2)	55 (A)	46	47	-	-	-	-	-	
2	Spitfire Way	50 (LT2)	55 (A)	46	46	-	-	-	-	-	
3	Smugglers Close	54 (LT6)	60 (B)	35	35	-	-	-	-	-	
4	Southall Close	54 (LT6)	60 (B)	35	35	-	-	-	-	-	
5	Ivy Cottage Hill	54 (LT6)	60 (B)	40	42	-	-	-	-	-	
6	King Arthur Road	50 (LT5)	55 (A)	40	38	-	-	-	-	-	
7	High Street	48 (LT3)	55 (A)	50	51	-	-	-	-	-	
8	Manston Court Road	48 (LT3)	55 (A)	45	44	-	-	-	-	-	
9	Manston Road	50 (LT2)	55 (A)	40	39	-	-	-	-	-	

Table 12.21 Phase 3 Monthly Construction Noise Predictions for Evening Construction Hours (Weekdays 19:00 to 23:00 and Saturdays 1300-2300)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,4hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,4hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,4hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	50 (LT2)	55 (A)	53	52	-	-	-	-	-
2	Spitfire Way	50 (LT2)	55 (A)	53	53	-	-	-	-	-
3	Smugglers Close	54 (LT6)	60 (B)	39	37	-	-	-	-	-
4	Southall Close	54 (LT6)	60 (B)	39	37	-	-	-	-	-
5	Ivy Cottage Hill	54 (LT6)	60 (B)	46	44	-	-	-	-	-
6	King Arthur Road	50 (LT5)	55 (A)	40	40	-	-	-	-	-
7	High Street	48 (LT3)	55 (A)	50	50	-	-	-	-	-
8	Manston Court Road	48 (LT3)	55 (A)	43	42	-	-	-	-	-
9	Manston Road	50 (LT2)	55 (A)	39	38	-	-	-	-	-

Table 12.22 Phase 4 Monthly Construction Noise Predictions for Evening Construction Hours (Weekdays 19:00 to 23:00 and Saturdays 1300-2300)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,4hr}$)	BS 5228 Construction Impact Threshold (dB $L_{Aeq,4hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,4hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	50 (LT2)	55 (A)	50	50	-	-	-	-	-
2	Spitfire Way	50 (LT2)	55 (A)	55	53	-	-	-	-	-
3	Smugglers Close	54 (LT6)	60 (B)	39	37	-	-	-	-	-
4	Southall Close	54 (LT6)	60 (B)	39	37	-	-	-	-	-
5	Ivy Cottage Hill	54 (LT6)	60 (B)	47	45	-	-	-	-	-
6	King Arthur Road	50 (LT5)	55 (A)	47	38	-	-	-	-	-
7	High Street	48 (LT3)	55 (A)	48	50	-	-	-	-	-
8	Manston Court Road	48 (LT3)	55 (A)	43	43	-	-	-	-	-
9	Manston Road	50 (LT2)	55 (A)	40	39	-	-	-	-	-

Night-time Construction Assessment

12.7.17 Construction noise predictions during the different activities for night-time working during weekdays 23:00 to 07:00 are shown in **Table 12.23** to **Table 12.25**. The tables present the expected noise levels at night, for one month when plant and equipment is located in the part of the work site closest to the receptor. Shaded cells represent an exceedance of the construction noise impact criteria for residential receptors.

12.7.18 During Phase 2 the construction noise impact threshold is exceeded at the following receptor:

- ▶ At High Street the construction impact criteria of 50 dB $L_{Aeq,8hr}$ is exceeded by 1 dB during concreting activities (a minor impact according to impact magnitude classifications presented in **Table 12.7**); and
- ▶ Considering that the impact criteria is exceeded by only 1 dB, **no significant effect is identified** for night-time works during Phase 2. During Phase 2 construction noise is not predicted to exceed the night-time SOAEL for construction noise of 55 dB $L_{Aeq,8hr}$ at any receptor during any phase or activity. Hence **no significant adverse effects** are identified for night-time works during Phase 2.

12.7.19 During Phase 3 the construction noise impact threshold is exceeded at the following receptors:

- ▶ At Spitfire Way the construction impact criteria of 50 dB $L_{Aeq,8hr}$ is exceeded by 3 dB during cut and fill activities and by 3 dB during concreting activities (a **moderate impact** according to impact magnitude classifications presented in **Table 12.7**); and
- ▶ At Bell Davies Drive the construction impact criteria of 50 dB $L_{Aeq,8hr}$ is exceeded by 3 dB during cut and fill activities and by 2 dB during concreting activities (a **minor to moderate impact** according to impact magnitude classifications presented in **Table 12.7**);

12.7.20 During Phase 4 the construction noise impact threshold is exceeded at the following receptor:

- ▶ At Spitfire Way the construction impact criteria of 50 dB $L_{Aeq,8hr}$ is exceeded by 5 dB during cut and fill activities and by 3 dB during concreting activities (a **moderate to major impact** according to impact magnitude classifications presented in **Table 12.7**).

12.7.21 At Bell Davies Drive, approximately six dwellings have a direct line of site to the Proposed Development and may be exposed to the noise levels presented in **Table 12.24** for a duration of longer than one month.

12.7.22 At Spitfire Way, approximately eight dwellings have a direct line of site to the Proposed Development and may be exposed to the noise levels presented in **Table 12.24** and **Table 12.25** for a duration of longer than one month.

12.7.23 Considering approximately 14 dwellings in Minster are predicted to be exposed to minor to major construction noise impacts for a duration of one month, a **potential significant adverse effect** has been predicted at the community of Minster because of night-time construction noise in Phases 3 and 4.

12.7.24 The SOAEL for night-time construction noise is not predicted to be exceeded at any receptors during any of the Phases of work. Hence no significant effects on individual properties are identified during night time works.

12.7.25 The assessment is based on reasonable programme assumptions available at this stage. As required by the principles of the CEMP, the contractor will be required to apply to the Local Authority for consent under Section 61. The application will include a reassessment of construction noise levels and construction noise mitigation based on more detailed information. The CEMP sets out the following mitigation measures for construction noise:

- ▶ BPM to be applied during construction activities to minimise noise (including vibration) at neighbouring noise sensitive properties;
- ▶ Prescribed steps to be taken to minimise construction noise and vibration as far as it is reasonable and practical to do so;
- ▶ Contractors to undertake and report noise and vibration prediction and monitoring to assure and demonstrate compliance with the CEMP. Monitoring data to be made available to local authorities;
- ▶ Plant fitted with effective silencers and noise insulation to be used;
- ▶ The use of pink noise reversing alarms where practicable to reduce the noise generated by reversing beepers on site vehicles;
- ▶ Servicing, maintenance and operation of plant to be in accordance with manufacturer's instructions. Plant that is intermittently used should be shut down in the intervening periods between work, or throttled down to a minimum;
- ▶ The use of local noise screening or site hoardings to reduce noise where necessary;
- ▶ Appointment of a site contact to whom complaints/ queries about construction activity can be directed - any complaints to be investigated and action taken where appropriate;
- ▶ All construction activity to be undertaken in accordance with good practice as described in BS5228-2:2009+A1:2014¹⁰;

- ▶ Local residents to be kept informed of construction activities, including working hours;
- ▶ All reasonable steps will be taken to limit the number of vehicles waiting to deliver materials to the site;
- ▶ Construction at the site boundary (which would be closest to nearby residential receptors), to be undertaken as efficiently and quickly as reasonably possible; and
- ▶ With the exception of generators, pumps and electric plant, all plant and equipment to be shut down when not in use.

12.7.26

It is considered likely that one or a combination of these mitigation measures would avoid the significant effects describe above, hence no significant effects have been identified during the construction phase.

Table 12.23 Phase 2: Monthly Construction Noise Predictions for Night-time Construction Hours (Weekdays 23:00 to 07:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,8hr}$)	BS5228 Construction Impact Threshold (dB $L_{Aeq,8hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,8hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
				Demolition	Construction					
1	Bell Davies Drive	44 (LT2)	50 (B)	46	47	-	-	-	-	-
2	Spitfire Way	44 (LT2)	50 (B)	46	46	-	-	-	-	-
3	Smugglers Close	48 (LT6)	55 (C)	35	35	-	-	-	-	-
4	Southall Close	48 (LT6)	55 (C)	35	35	-	-	-	-	-
5	Ivy Cottage Hill	48 (LT6)	55 (C)	40	42	-	-	-	-	-
6	King Arthur Road	47 (LT5)	50 (B)	40	38	-	-	-	-	-
7	High Street	46 (LT3)	50 (B)	50	51	-	-	-	-	-
8	Manston Court Road	46 (LT3)	50 (B)	45	44	-	-	-	-	-
9	Manston Road	44 (LT2)	50 (B)	40	39	-	-	-	-	-

Table 12.24 Phase 3: Monthly Construction Noise Predictions for Night-time Construction Hours (Weekdays 23:00 to 07:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,8hr}$)	BS5228 Construction Impact Threshold (dB $L_{Aeq,8hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,8hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	44 (LT2)	50 (B)	53	52	-	-	-	-	-
2	Spitfire Way	44 (LT2)	50 (B)	53	53	-	-	-	-	-
3	Smugglers Close	48 (LT6)	55 (C)	39	37	-	-	-	-	-
4	Southall Close	48 (LT6)	55 (C)	39	37	-	-	-	-	-
5	Ivy Cottage Hill	48 (LT6)	55 (C)	46	44	-	-	-	-	-
6	King Arthur Road	47 (LT5)	50 (B)	40	40	-	-	-	-	-
7	High Street	46 (LT3)	50 (B)	50	50	-	-	-	-	-
8	Manston Court Road	46 (LT3)	50 (B)	43	42	-	-	-	-	-
9	Manston Road	44 (LT2)	50 (B)	39	38	-	-	-	-	-

Table 12.25 Phase 4: Monthly Construction Noise Predictions for Night-time Construction Hours (Weekdays 23:00 to 07:00)

Receptor Number	Receptor	Ambient Sound Level (dB $L_{Aeq,8hr}$)	BS5228 Construction Impact Threshold (dB $L_{Aeq,8hr}$) 'ABC' Category shown in brackets (See Table 12.5)	Noise Level (dB $L_{Aeq,8hr}$)						
				Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
								Demolition	Construction	
1	Bell Davies Drive	44 (LT2)	50 (B)	50	50	-	-	-	-	-
2	Spitfire Way	44 (LT2)	50 (B)	55	53	-	-	-	-	-
3	Smugglers Close	48 (LT6)	55 (C)	39	37	-	-	-	-	-
4	Southall Close	48 (LT6)	55 (C)	39	37	-	-	-	-	-
5	Ivy Cottage Hill	48 (LT6)	55 (C)	47	45	-	-	-	-	-
6	King Arthur Road	47 (LT5)	50 (B)	47	38	-	-	-	-	-
7	High Street	46 (LT3)	50 (B)	48	50	-	-	-	-	-
8	Manston Court Road	46 (LT3)	50 (B)	43	43	-	-	-	-	-
9	Manston Road	44 (LT2)	50 (B)	40	39	-	-	-	-	-

Construction Vibration – Earthworks and Fixed Mobile Plant

- 12.7.27 Construction activities which may potentially give rise to significant construction vibration effects include vibratory compaction for asphalt road surfaces. The majority of vibratory compaction on the main site of the Proposed Development will occur at distances of more than 100 m from vibration sensitive receptors and hence is unlikely to give rise to significant effects.
- 12.7.28 The exception is vibratory compaction which may be required for highway improvement works to the existing Spitfire Way. These works are in close proximity to dwellings on Bell Davies Drive and Spitfire Way and would be undertaken during normal daytime working hours.
- 12.7.29 **Table 12.26** presents predictions of construction vibration at these vibration sensitive dwellings for a vibratory roller operating at a range of amplitudes. **Table 12.26** presents the Peak Particle Velocity (PPV) at the building foundations and the VDV inside a room on the first floor of the property.
- 12.7.30 In all cases the PPV is less than the impact criteria for the onset of cosmetic damage (**Table 12.11**), meaning that significant effects in the form of building damage are unlikely as a result of the works.

- 12.7.31 At Bell Davies Drive the internal VDV is less than the LOAELs for construction vibration (**Table 12.10**).
- 12.7.32 At Spitfire Way the highest VDV exceeds the SOAEL for construction vibration for works lasting more than one month. However, the lowest VDV is less than the LOAEL. This demonstrates that it is possible to avoid adverse impacts from construction vibration by managing the amplitude at which the compactor operates. This is consistent with the requirement for the contractor to use BPM to reduce noise and vibration from construction works. Hence no significant effect has been identified.

Table 12.26 Predictions of Construction Vibration at Sensitive Receptors During Highway Improvement Works

Receptor	Minimum distance to vibratory compaction	Amplitude of vibrating drum mm	External PPV mms^{-1}	Internal VDV $\text{mms}^{-1.75}$
Bell Davies Drive	40 m	0.5 – 1.5	0.1 – 0.5	0.0 – 0.1
Spitfire Way	10 m	0.5 – 1.5	0.7 – 3.6	0.1 – 0.6

Construction Noise – Road Traffic

- 12.7.33 The Proposed Development will be operational in Phase 2 (at the start of Year 2) meaning that construction will be undertaken simultaneously with the operation of the airport in Phases 2, 3 and 4.
- 12.7.34 It is expected that construction vehicles and operational HGV would access the site from the wider transport network via the A299, Minster Road and Spitfire Way. It is anticipated that staff vehicles and passenger terminal vehicles will use the full extent of the highway network.
- 12.7.35 The number of construction HGV's anticipated on site will vary within and across the four construction phases but will be up to approximately 200 two-way HGV movements per day.
- 12.7.36 Based on traffic forecasts set out in **Chapter 14: Traffic and Transport**, forecast construction traffic will increase traffic flow on existing roads by less than 25% and there will not be a significant change in the number of HGVs using existing roads. This means that noise increases on existing roads during Phase 1 of construction are expected to be less than 1 dB. According to the impact criteria in **Table 12.7**, this is a negligible magnitude of impact for a short-term change in road traffic noise levels which would not be significant at noise sensitive receptors.
- 12.7.37 The impact of construction traffic during Phases 2, 3 and 4 has been assessed in combination with operational traffic generated by the Proposed Development in the following section because construction traffic will be using the road network simultaneously with operational traffic.

Operational Phase.

Aircraft Noise (aircraft air and airside ground noise including mobile and static sources of noise)

- 12.7.38 The assessment of aircraft noise is presented for both Year 2 and Year 20 using the forecast aircraft movements as shown in **Appendix 3.3**. Year 2 is considered the 'opening year' and Year 20 is considered the 'worst-case' year in terms of noise.

- 12.7.39 The forecast assumes that total aircraft traffic will grow from approximately 33 Air Transport Movements⁸ (ATMs) for a typical busy day in Year 2 to 79 ATMs per typical busy 24-hour day in Year 20. There will also be an average of approximately 16 non-ATMs per 24-hour day in all years including general aviation and training flights.
- 12.7.40 During the daytime period (between 07:00 to 23:00) the Proposed Development is forecast to handle approximately 72 aircraft movements during a typical busy day and during the night-time period (between 23:00 and 07:00) it is forecast to handle an average of seven aircraft movements on a typical busy night.
- 12.7.41 At its forecast capacity, the Proposed Development will have a total of 19 freight stands and four passenger stands. The freight stands will be constructed at the north of the site and at the existing terminal building and therefore passenger stands will be constructed on the north-east of the site around a new passenger terminal.
- 12.7.42 The aircraft fuel farm will be re-developed in a location which is currently used for fuelling activities, at the south-eastern airport boundary. The Proposed Development will also offer a small maintenance repair and overhaul (MRO) facility for recycling of aircraft, with approximately ten aircraft per year being dismantled and recycled.
- 12.7.43 The assessment of aircraft noise has assumed conventional operational measures. However, as described in *Review of Potential Aircraft Noise Abatement Operational Procedures*¹³, further reductions in the number of people exposed to the LOAEL and SOAEL could be achieved by implementing conventional noise abatement procedures. The ACP will seek to formalise these procedures.
- 12.7.44 Assessments of aircraft noise typically consider an 'average summer's day' period of movement from 16 June to 15 September. This 92-day period is used to account for the increased aircraft traffic during the summer season seen at many UK airports. However, the Proposed Development will focus on freight aircraft and the largest number of flights is likely to be during the winter season rather than the summer season. The majority of the cargo anticipated to be handled at Manston will have no particular seasonality associated. The exception to this is perishables (fresh fruit, vegetables and cut flowers) the volumes (and thus flight numbers) of which will be larger in winter than summer; this is due to the higher import demand during the period when the UK is non-productive in this sector. Therefore, the assessment of aircraft noise for the Proposed Development is based on a 'typical busy day' during the busier winter season to ensure that a worst-case assessment is undertaken.
- 12.7.45 The assessment of aircraft noise presents the combined noise effects of airside ground noise and aircraft air noise for the Proposed Development, including:
- ▶ Aircraft air noise - the noise as aircraft depart from and arrive at the Proposed Development; and
 - ▶ Airside ground noise - the noise from aircraft and associate airport activities, including aircraft taxiing and manoeuvring on the ground, static and moving airfield plant.
- 12.7.46 Generally, aircraft air noise is the dominant source of noise, except in areas in close proximity to the airfield but away from the runway (i.e. Spitfire Way).
- 12.7.47 For safety and operational purposes aircraft typically take-off and land into wind, therefore the direction in which aircraft operate is dependent on the prevailing wind. Historical weather data as analysed by the Airspace Consultants suggests that 70% of aircraft will take-off towards Herne Bay and land over Ramsgate, whilst 30% will land over Herne Bay and take off over Ramsgate. It should however be noted that as stated in **Section 12.5**, the Proposer will seek to establish

⁸ An Air Transport Movement (ATM) includes all landings and take-offs of commercial flights related to the transport of passengers and freight. All non-commercial aircraft movements which land or take-off from the airport are considered 'non-ATMs'.

through the CAP1616² ACP a runway preference which avoids overflying Ramsgate, when operational conditions allow.

- 12.7.48 The assessment of aircraft noise effects is informed by the number of dwellings and noise-sensitive non-residential receptors exposed to noise in excess of impact thresholds as a result of the 'probable route'. A full summary for the noise effects for routes designed to 'overfly populations' and 'avoid urban areas' is presented in **Appendix 12.3**.
- 12.7.49 The following figures present noise contours which have informed the assessment of significant effects for operational noise:
- ▶ **Figure 12.4** - Aircraft noise – daytime $L_{Aeq,16hr}$ contours - opening year;
 - ▶ **Figure 12.5** - Aircraft noise – night-time $L_{Aeq,8hr}$ contours - opening year;
 - ▶ **Figure 12.6** - Aircraft noise – daytime $L_{Aeq,16hr}$ contours - year of maximum forecast capacity;
 - ▶ **Figure 12.7** - Aircraft noise – night-time $L_{Aeq,8hr}$ contours - year of maximum forecast capacity;
 - ▶ **Figure 12.8** - Aircraft noise – night-time L_{ASmax} contours – opening year;
 - ▶ **Figure 12.9** - Aircraft noise – night-time L_{ASmax} contours - year of maximum forecast capacity;
 - ▶ **Figure 12.10** - Aircraft noise – night-time N80 contours – opening year;
 - ▶ **Figure 12.11** - Aircraft noise – night-time N80 contours - year of maximum forecast capacity;
 - ▶ **Figure 12.12** - Aircraft noise – day-time N60 contours – opening year;
 - ▶ **Figure 12.13** - Aircraft noise – night-time N60 contours - year of maximum forecast capacity

Permanent Noise Impacts at Residential Receptors

- 12.7.50 **Table 12.27** presents results of the number of residential dwellings potentially impacted by aircraft noise for the probable airspace route in Years 2 and 20, because forecast noise levels at these properties are predicted to be above the daytime or night-time LOAELs of 50 dB $L_{Aeq,16hr}$ and 40 dB $L_{Aeq,8hr}$ respectively.
- 12.7.51 The number of aircraft movements increases between Year 2 and Year 20 and therefore the extents of the Year 20 contour are much greater than the Year 2. In Year 2, 4,852 dwellings are forecast to be exposed to aircraft noise levels above the daytime LOAEL of 50 dB $L_{Aeq,16hr}$, while in Year 20 13,046 dwellings are forecast to be exposed to noise levels in excess of the daytime LOAEL. In Year 2, 10,512 dwellings are forecast to be exposed to aircraft noise levels above the night-time LOAEL of 40 dB $L_{Aeq,8hr}$, while in Year 20 16,465 dwellings are forecast to be exposed to noise levels in excess of the night-time LOAEL.
- 12.7.52 In Year 2, 48 dwellings are forecast to be exposed to daytime noise above the daytime SOAEL of 63 dB $L_{Aeq,16hr}$ with the Proposed Development (**Figure 12.4**). In Year 20 approximately 115 properties are forecast to be exposed to noise levels above the SOAEL with the Proposed Development (**Figure 12.6**). A potential significant adverse effect in the context of Government Noise Policy has therefore been identified at up to 115 residential properties during the daytime. Dwellings exposed to aircraft noise above SOAEL will be eligible for sound insulation under a sound insulation grant scheme described in **Section 12.5**. These mitigation measures, if accepted by the property owner, will reduce noise inside all dwellings during the daytime such that it does not reach a level where it will significantly affect residents.
- 12.7.53 In Year 2, no dwellings are forecast to be exposed to night-time noise above the night-time SOAEL of 55 dB $L_{Aeq,8hr}$ with the Proposed Development (**Figure 12.5**). In Year 20 approximately 225 properties are forecast to be exposed to noise levels above the SOAEL with the Proposed Development (**Figure 12.7**). A potential significant adverse effect in the context of Government Noise Policy has therefore been identified at up to 225 residential properties during the night-time. Dwellings exposed to aircraft noise above SOAEL will be eligible for sound insulation under the

sound insulation grant scheme described in **Section 12.5**. These mitigation measures, if accepted by the property owner, will reduce noise inside all dwellings during the daytime such that it does not reach a level where it will significantly affect residents.

- 12.7.54 In Year 2, no dwellings are predicted to be exposed to noise levels in excess of the UAEL of 69 dB $L_{Aeq,16hr}$ during the daytime (**Figure 12.4**). In Year 20 approximately eight dwellings are forecast to be exposed to noise levels above the UAEL with the Proposed Development (**Figure 12.6**). These properties are located at the south-east corner of the site close to the fuel farm on King Arthur Road. Fuel farm noise is contributing to the exceedance of the UAEL in addition to aircraft noise. Dwellings exposed to noise above UAEL will be eligible for financial assistance towards the costs of move away from the Proposed Development as part of the dwelling relocation scheme described **Section 12.5**. This mitigation will prevent unacceptable adverse effects of noise if the owner of the property chooses to relocate.

Maximum noise levels and awakening at Residential Receptors

- 12.7.55 In Year 2, 11,356 dwellings may be exposed to a maximum noise level in excess of 80 dB L_{ASmax} at night (**Figure 12.8**). In Year 20, 10,139 dwellings may be forecast to be exposed to maximum noise levels in excess of 80 dB L_{ASmax} at night (**Figure 12.9**). The reduction from Year 2 is due to the forecast phase out of the Boeing 767-300 and Boeing 767-400 aircraft in the fleet. For residential receptors with no specific form of noise insulation, operational noise is considered to give rise to significant adverse effects if there is an absolute noise level of at least 80 dB L_{ASmax} and the average number of noise events during the night above this level is already at least 18. Even during the maximum forecast year an average of seven night-time flights are forecast; hence aircraft noise alone will not typically result in additional awakenings at these dwellings
- 12.7.56 **Figure 12.10** and **Figure 12.11** present the night-time N-above 80 dB L_{ASmax} contours for Year 2 and Year 20 respectively. The noise contours show how many aircraft noise events which are louder than 80 dB L_{ASmax} would occur at locations around the Proposed Development on an average night. The contours take into account the number and type of aircraft and the probability that an aircraft will use a given take-off or landing route. In Year 2 (**Figure 12.10**), the N-above contours demonstrate that residential properties in the vicinity of the Proposed Development will be exposed to up to one aircraft noise event in excess of 80 dB L_{ASmax} on an average night. In Year 20 (**Figure 12.11**), the N-above contours demonstrate that residential receptors in the proximity of the Proposed Development and on the take-off/landing route over Ramsgate will be exposed to aircraft noise levels in excess of 80 dB L_{ASmax} up to 3.5 times on an average night. On this basis aircraft noise is not expected to result in additional awakenings at night, hence no significant effect has been identified as a result of maximum noise levels from aircraft at night.
- 12.7.57 **Figure 12.12** and **Figure 12.13** present the night-time N-above 60 dB L_{ASmax} contours for Year 2 and Year 20 respectively. The noise contours show how many aircraft noise events which are louder than 60 dB L_{ASmax} would occur at locations around the Proposed Development on an average night. 60 dB L_{ASmax} is the LOAEL for maximum noise levels from aircraft at night. In Year 2 (**Figure 12.12**), approximately 8,557 dwellings will be exposed to 1 event in excess of 60 dB L_{ASmax} on an average night and no dwellings will be exposed to more than one event. In Year 20 (**Figure 12.13**), on an average night approximately 20,874 dwellings will be exposed to 1 event or more in excess of 60 dB L_{ASmax} , 16,755 of those dwellings will be exposed to 2-4 events in excess of 60 dB L_{ASmax} and 160 of those dwellings will be exposed to 5-9 events in excess of 60 dB L_{ASmax} .

12.7.58

Table 12.27 Number of Dwellings Impacted by Aircraft Noise as a Result of the Probable Route

Indicator	Year 2	Year 20
Daytime (0700 to 2300)		
>50 dB L _{Aeq,16hr} (LOAEL)	4,852	13,046
>63 dB L _{Aeq,16hr} (SOAEL)	48	115
>69 dB L _{Aeq,16hr} (UAEL)	0	8
Night-time (2300 to 0700)		
>40 dB L _{Aeq,8hr} (LOAEL)	10,512	16,465
>55 dB L _{Aeq,8hr} (SOAEL)	0	225

Permanent Noise Impacts at Sensitive Non-Residential Properties

12.7.59 **Table 12.28** presents predicted daytime noise levels resulting from the Proposed Development's probable route in Year 20 at sensitive non-residential receptors which are potentially impacted by aircraft noise.

12.7.60 Considering the magnitude of the impacts (moderate and above) and the sensitivity of the receptors, significant adverse effects have been identified at the following non-residential receptors:

- ▶ Manston School House Nursery;
- ▶ Chatham & Clarendon Grammar School;
- ▶ The Elms Nursery School;
- ▶ Priory County Infant School;
- ▶ Masque Theatre School;
- ▶ Fledglings Nursery School;
- ▶ Ellington Infant School;
- ▶ Christ Church, Ramsgate;
- ▶ Spitfire & Hurricane Memorial Building and RAF Museum;
- ▶ Pie Factory Music; and
- ▶ Minster Surgery.

12.7.61 The significant effect will be characterised by potential disruption, disturbance or interference with tasks by the users of the buildings.

12.7.62 The magnitude of the effect will depend on the existing ambient noise level at these receptors. For example, at receptors which are already exposed to transport noise levels in excess of the impact threshold the impact of the introduction of a new transport noise source would be negligible.

12.7.63

As described in **Section 12.5** a noise insulation scheme for noise-sensitive schools and community buildings will also be offered as part of the Proposed Development. The scheme takes into account the daytime noise exposure and is based upon the extent of the daytime 60 dB L_{Aeq,16hr} noise contour. The scheme will provide reasonable costs for insulation and ventilation. It should be noted that no noise-sensitive schools and community buildings have been identified which are exposed to noise levels in excess of 60 dB L_{Aeq,16hr} for the proposed development's probable route.

Table 12.28 Noise-Sensitive Non-residential Receptors Impacted by Aircraft Noise

Receptor	Receptor Category	Impact threshold (dB L _{Aeq,16hr})	Noise level (dB L _{Aeq,16hr})	Exceedance (dB)	Magnitude of impact
St. Laurence Junior School	Educational	50	53	3	Minor
Chilton Primary School	Educational	50	54	4	Minor
Penzance Language School	Educational	50	53	3	Minor
Pinewood Studios	Acoustical	50	52	2	Negligible
St. Augustines Rc Church	Worship	50	50	0	No Change
Sailors Church	Worship	50	53	3	Minor
Manston School House Nursery	Educational	50	55	5	Moderate
Chatham & Clarendon Grammar School	Educational	50	58	8	Moderate
The Elms Nursery School	Educational	50	58	8	Moderate
St. Nicholas At Wade C Of E Primary School	Educational	50	52	2	Negligible
Priory County Infant School	Educational	50	55	5	Moderate
Churchill House School	Educational	50	53	3	Minor
Masque Theatre School	Educational	50	57	7	Moderate
Fledgelings Nursery School	Educational	50	57	7	Moderate
Ellington Cp School	Educational	50	56	6	Moderate
Christ Church School	Educational	50	53	3	Minor
Newington Childrens Centre	Educational	50	53	3	Minor
Christchurch Church	Worship	50	55	5	Moderate
Newington Community Primary School	Educational	50	51	1	Negligible
Old Priory School	Educational	50	53	3	Minor
St. Laurence Junior School	Educational	50	52	2	Minor
Minster Abbey	Worship	50	50	0	No change
Spitfire & Hurricane Memorial Building & RAF Museum	Community	50	57	7	Moderate
Mother Goose Nurseries	Educational	50	53	3	Minor
Minster Library & Community Centre	Community	50	50	0	No Change
Newington Community Centre	Community	50	51	1	Negligible

Receptor	Receptor Category	Impact threshold (dB L _{Aeq,16hr})	Noise level (dB L _{Aeq,16hr})	Exceedance (dB)	Magnitude of impact
Village Hall	Community	50	52	2	Negligible
St Johns Ambulance	Healthcare	50	51	1	Negligible
Ramsgate Christian Fellowship	Worship	50	50	0	No Change
Pie Factory Music	Acoustical	50	58	8	Moderate
Newington Road Surgery	Healthcare	50	54	4	Minor
Minster Surgery	Healthcare	50	57	7	Moderate
Dashwood Medical Centre	Healthcare	50	52	2	Minor

Permanent Noise Impacts on Community Receptors

- 12.7.64 The noise contours for the Proposed Development's probable route are presented in **Figures 12.4 to 12.7**.
- 12.7.65 The 50 dB L_{Aeq,16hr} daytime LOAEL contour in Year 20 (**Figure 12.6**) extends approximately 5.6 km to the west and 8 km to the east of the Proposed Development. This encompasses the communities of St. Nicolas at Wade to the west and Ramsgate to the east. The contour extends approximately 2.5 km north and south of the runway, encompassing the communities of Minster, to the south, St. Nicholas at Wade to the west, Manston to the north and Ramsgate and Pegwell Bay to the east. These communities will potentially be impacted by increased aircraft noise in the daytime. The magnitude of the impact will depend on the existing ambient noise level resulting from other noise sources in these communities. For example, aircraft noise will be less noticeable close to existing major roads and more noticeable in areas which are screened from existing noise sources.
- 12.7.66 The 40 dB L_{Aeq,8hr} night-time LOAEL contour in Year 20 (**Figure 12.7**) extends approximately 8 km to the west and 10 km to the east of the Proposed Development. This therefore encompasses the communities of St. Nicholas at Wade, Minster, Cliffsend, Manston, Pegwell Bay and Ramsgate. These communities will potentially be impacted by increased aircraft noise in the night-time. The magnitude of the impact will depend on the existing ambient noise level resulting from other noise sources in these communities.
- 12.7.67 The change in noise level at the communities described above in the long term, the magnitude of impact resulting from the Proposed Development has been estimated at baseline monitoring and observation locations and presented in **Table 12.29**. This baseline was presented earlier in this Chapter in **Table 12.2** and **Table 12.3**. The magnitude of impact has been estimated using the long-term change criteria presented in **Table 12.8**.
- 12.7.68 At many of the communities described above the predicted change in daytime and night-time noise is negligible.
- 12.7.69 During the daytime:
- ▶ Moderate adverse impacts are predicted in Ramsgate;
 - ▶ A moderate adverse impact is predicted at Pegwell Bay; and
 - ▶ Minor adverse impacts are predicted in Manston.
- 12.7.70 Considering that the impact is permanent and that a large number of dwellings within the communities are subject to minor to moderate adverse impacts, significant adverse effects have been identified at the communities of Ramsgate, Pegwell Bay and Manston as a result of the Proposed Development. The effect would be characterised as a perceived change in quality of life

for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities during the daytime.

12.7.71 During the night-time:

- ▶ Moderate adverse impacts are predicted in Ramsgate;
- ▶ Minor adverse impacts are predicted in Manston;
- ▶ A minor adverse impact is predicted in Wade; and
- ▶ A minor adverse impact is predicted in West Stourmouth;

12.7.72 Considering that the impact is permanent and that a large number of dwellings within the communities are subject to minor to moderate adverse impacts, significant adverse effects have been identified at the communities of Ramsgate, Manston, Wade and West Stourmouth as a result of the Proposed Development. The effect would be characterised as a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities during the night-time.

Table 12.29 Change in Noise - Year 20

Location	Indicative Baseline Daytime 07:00 to 23:00 (L _{Aeq,16hr})	Predicted Aircraft Noise Level 07:00 to 23:00 (L _{Aeq,16hr})	Noise Change	Magnitude of Impact (Long-term)	Indicative Baseline Night-time 23:00 to 07:00 (L _{Aeq,8hr})	Aircraft Noise Level 23:00 to 07:00 (L _{Aeq,8hr})	Noise Change	Magnitude of Impact (Long-term)
LT1 - Orchard Cottage, Birchington	53 dB	49 dB	+1.5 dB	Negligible	48 dB	42 dB	+1.0 dB	Negligible
LT2 - 14 Beamont Close, Manston	51 dB	50 dB	+2.5 dB	Negligible	45 dB	44 dB	+2.5 dB	Negligible
LT3 - Grove House, Manston	51 dB	54 dB	+4.8 dB	Minor	45 dB	46 dB	+3.5 dB	Minor
LT4 - St John's Avenue, Ramsgate	53 dB	47 dB	+1.0 dB	Negligible	45 dB	39 dB	+1.0 dB	Negligible
LT5 - 17a Cliff View Road, Ramsgate	51 dB	59 dB	+8.6 dB	Moderate	45 dB	51 dB	+7.0 dB	Moderate
LT6 - 45 Tothill Street, Minster	53 dB	52 dB	+2.5 dB	Negligible	48 dB	45 dB	+1.8 dB	Negligible
LT7 - 68 Windermere Avenue, Ramsgate	52 dB	57 dB	+6.2 dB	Moderate	42 dB	50 dB	+8.6 dB	Moderate
OBS 1 - St Nicholas at Wade	57 dB	52 dB	+1.2 dB	Negligible	45 dB	45 dB	+3.0 dB	Minor
OBS 2 - Beltinge -	60 dB	42 dB	+0.1 dB	Negligible	45 dB	35 dB	+0.4 dB	Negligible
OBS 3 - Avenue of	48 dB	42 dB	+1.0 dB	Negligible	45 dB	34 dB	+0.3 dB	Negligible

Location	Indicative Baseline Daytime 07:00 to 23:00 (L _{Aeq,16hr})	Predicted Aircraft Noise Level 07:00 to 23:00 (L _{Aeq,16hr})	Noise Change	Magnitude of Impact (Long-term)	Indicative Baseline Night-time 23:00 to 07:00 (L _{Aeq,8hr})	Aircraft Noise Level 23:00 to 07:00 (L _{Aeq,8hr})	Noise Change	Magnitude of Impact (Long-term)
Remembrance Herne Bay								
OBS 4 - Studio Herne Bay	54 dB	35 dB	+0.1 dB	Negligible	48 dB	29 dB	+0.1 dB	Negligible
OBS 5 - Sarre	57 dB	46 dB	+0.3 dB	Negligible	48 dB	39 dB	+0.5 dB	Negligible
OBS 6 - West Stourmouth	45 dB	43 dB	+2.1 dB	Negligible	33 dB	36 dB	+4.8 dB	Minor
OBS 7 - Grove Ferry, Upstreet	51 dB	40 dB	+0.3 dB	Negligible	36 dB	33 dB	+1.8 dB	Negligible
OBS 8 - Reculver	54 dB	35 dB	+0.1 dB	Negligible	33 dB	28 dB	+1.2 dB	Negligible
OBS 9 - Birchington-on-Sea	60 dB	36 dB	+0.0 dB	Negligible	51 dB	28 dB	0.0 dB	Negligible
OBS 10 - Staner Court, Ramsgate	48 dB	52 dB	+5.5 dB	Moderate	48 dB	45 dB	+1.8 dB	Negligible
OBS 11 - St Lawrence	54 dB	52 dB	+2.1 dB	Negligible	48 dB	44 dB	+1.5 dB	Negligible
OBS 12 - Ramsgate	51 dB	57 dB	+7.0 dB	Moderate	51 dB	50 dB	+2.5 dB	Negligible
OBS 13 - Pegwell	42 dB	48 dB	+7.0 dB	Moderate	42 dB	41 dB	+2.5 dB	Negligible
OBS 14 – Nethercourt Estate, Ramsgate	60 dB	61 dB	+3.5 dB	Moderate	54 dB	54 dB	+3.0 dB	Minor

Operational Noise – Road Traffic

- 12.7.73 This section assesses the impact of the combined impact of construction and operational traffic between Year 2 and Year 20.
- 12.7.74 It is expected that construction vehicles and operational HGV would access the site from the wider transport network via the A299, Minster Road and Spitfire Way. It is anticipated that staff vehicles and passenger terminal vehicles will use the full extent of the road network.
- 12.7.75 The number of operational HGV anticipated on site will increase across the four development phases, but will be up to approximately 600 two-way HGV movements per day in Year 20. The number of operational LGV and HGV anticipated will vary as the proposed development increases in capacity.
- 12.7.76 **Table 12.30** presents the predicted change in Basic Noise Level (BNL) adjacent to the sections of road likely to be used by construction and operational traffic (staff and/or HGVs). The BNL is the noise level 10 m from the road and is not intended to be representative of noise-sensitive receptors. The BNL has been calculated using the CRTN prediction methodology using traffic data

set out in **Chapter 14: Traffic and Transport**. BNLs have been predicted for the baseline scenario, using the 18-hour average weekly traffic data (AAWT), and the 'do something' scenarios in Years 2 and 20, by adding the forecast construction traffic data to the baseline.

12.7.77 The predictions show that the forecast change in noise level on all roads in Years 2 and 20 is less than 1 dB on all roads used by operational and construction traffic. According to the impact criteria in **Table 12.7** and **Table 12.8**, this is a negligible magnitude of impact for a short or long-term change in road traffic noise levels, which would not be significant at noise-sensitive receptors on the roads presented.

Table 12.30 Predicted Change in $L_{Aeq,16hr}$ Road Noise Level in Years 2 and 20 as a Result of Operational and Construction Traffic (dB relative to the without proposed development scenario)

Road	Year 2 (Noise Change)	Year 20 (Noise Change)
A256, south of the junction with Sandwich Road/Jutes Lane	0.0 dB	+0.1 dB
A299, east of the Sandwich Road/A256 junction	0.0 dB	0.0 dB
B2050 Manston Road, east of junction with Princess Margaret Avenue	0.0 dB	+0.1 dB
A254 Margate Road, south of the junction with Coxes Lane/Highfield Road	0.0 dB	0.0 dB
A256 Westwood Road, west of the junction with Northwood Road	0.0 dB	+0.1 dB
A254 Ramsgate Road, south of the junction with Farley Road	0.0 dB	0.0 dB
A254 Ramsgate Road, near junction with Connaught Road	0.0 dB	0.0 dB
A28 Canterbury Road, east of the junction with Hartsdown Road	0.0 dB	0.0 dB
A28 Canterbury Road, east of junction with Domneva Road	0.0 dB	0.0 dB
A299 Thanet Way, west of the roundabout junction with A28/Potten Street Road	+0.2 dB	+0.3 dB
A28 Canterbury Way, south west of the junction with Manor Road/Orchard lane	0.0 dB	0.0 dB
A253, west of the junction with Orchard Lane/Monkton Street	0.0 dB	0.0 dB
A299 Hengist Way, east of the roundabout junction with Tothill Street/B2190 Spitfire Way	0.0 dB	0.0 dB
B2190 Spitfire Way, east of the junction with Alland Grange Lane	+0.6 dB	+1.0 dB
Minster Road, south east of the junction with Plumstone Road	0.0 dB	0.0 dB
B2050 Manston Road, south east of the junction with Shottendane Road	+0.1 dB	+0.3 dB
Shottendane Road, north east of the junction with Park Lane	0.0 dB	+0.0 dB

Manston Road, north of junction with Bramble Lane	+0.1 dB	+0.3 dB
Manston Road, south of junction with Vincent Road	+0.1 dB	+0.3 dB
Manston Court Road, east of Valley Road	+0.1 dB	+0.3 dB
Manston Court Road, south of the junction with Preston Road	+0.2 dB	+0.6 dB
B2050 Manston Road, west of the junction with Greensole Lane	+0.1 dB	+0.4 dB

Operational Noise – Associated Development

- 12.7.78 The 'Northern Grass' area will be a business park for airport-related businesses and will comprise a mixture of B1 and B8 business use classes such as offices and distribution centres. The sum of new B1 and B8 building footprints within the Northern Grass area will not exceed 105,100m² with an approximate 25%/75% split of B1 to B8 development. This area of the Proposed Development will commence operation in Year 2. Development in this area is necessary to meet the needs and requirements of aviation related business interests, however, the precise layout, occupiers, activities and plant and equipment that will be operated in this area is unknown at this stage. Therefore, a qualitative assessment of operational noise from this component of the Proposed Development has been undertaken and certain development principles (mitigation) embedded within the Proposed Development design.
- 12.7.79 The potential sources of noise include:
- ▶ Increased LGV and HGV traffic on access roads to the Proposed Development (this forecast increase in traffic has been included in the road traffic noise assessment in the previous section);
 - ▶ Movement of LGVs and HGVs within the site of the Proposed Development;
 - ▶ Loading and unloading of cargo at cargo facilities; and
 - ▶ Noise from Heating, Ventilation and Air-conditioning of buildings which form part of the Proposed Development.
- 12.7.80 The closest noise-sensitive developments to the Northern Grass area include:
- ▶ Approximately 15 dwellings on Manston Road approximately 20m from the Proposed Development boundary at the north-west corner of the Northern Grass area; and
 - ▶ Approximately 20 dwellings on Manston Court Road which line the Proposed Development boundary at the north-east corner of the Northern Grass area;
- 12.7.81 These receptors have the potential to be affected by noise from the operation of secondary business infrastructure.
- 12.7.82 As the design of this area is developed, the Promoter has committed to take reasonable steps to minimise noise by implementing the following design principles:
- ▶ A landscaped area has been provided between the proposed business park and the houses immediately adjacent to its eastern boundary. This area will be safeguarded in future design iterations in order to protect the residential properties during construction and operation;
 - ▶ The buildings which will generate the least noise will be located in the most sensitive areas of the site close to existing residential development. Such activities could include offices, parkland/greenspace, attenuation ponds, the museums and associated facilities;

- ▶ Warehouse buildings shall be orientated such that loading/unloading activities face away from any existing residential dwellings;
- ▶ Doors or other openings on building facades facing existing residential dwellings shall be minimised or avoided. This is most important for industrial buildings but may also include other buildings where evening, weekend or night-time activities occur;
- ▶ Internal vehicular routes shall be located away from the most sensitive parts of the site and buildings shall be used to screen road noise from existing residential buildings; and

12.7.83

As described in **Section 12.5** environmental measures are to be incorporated into the Proposed Development. Taking account of the proposed uses of the Northern Grass area and the mitigation measures that will be implemented in the design of this part of the Proposed Development, it is considered that significant noise effects on nearby residential developments from the operation of secondary business infrastructure are unlikely.

12.8 Summary of Significant Effects

Receptor and effects	Significance Level	Rationale
Aircraft noise – permanent day-time effects on individual residential receptors	Significant	Up to 115 properties expected to be exposed to noise levels above the daytime SOAEL of 63 dB $L_{Aeq,16hr}$ Without mitigation, these dwellings will be exposed to significant annoyance and disturbance as a result of the Proposed Development. The noise insulation scheme will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents. However adverse impacts would remain in external areas such as gardens.
Aircraft noise – permanent night-time effects on individual residential receptors	Significant	Up to 225 properties expected to be exposed to noise levels above the night-time SOAEL of 55 dB $L_{Aeq,8hr}$ Without mitigation, these dwellings will be exposed to significant annoyance, disturbance and sleep disturbance as a result of the Proposed Development. The noise insulation scheme will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents, providing that the occupier enters into the noise insulation scheme.
Aircraft noise – permanent day-time effects on individual residential receptors	Significant	Up to eight properties expected to be exposed to noise levels above the daytime UAEL of 69 dB $L_{Aeq,16hr}$ Without mitigation, these dwellings will be exposed to unacceptable annoyance and disturbance as a result of the Proposed Development. Dwellings exposed to aircraft noise above the UAEL will be eligible financial assistance for moving away from the Proposed Development with as part of the dwelling relocation scheme. This mitigation will prevent unacceptable adverse effects of noise if occupier accepts the offer of assistance and relocates.

Receptor and effects	Significance Level	Rationale
Aircraft noise – permanent effects on non-residential receptors	Significant	Significant adverse effects have been identified at the following non-residential receptors on a precautionary basis: <ul style="list-style-type: none"> • Manston School House Nursery; • Chatham & Clarendon Grammar School; • The Elms Nursery School; • Priory County Infant School; • Masque Theatre School; • Fledglings Nursery School; • Ellington Infant School; • Minster Surgery; and • Christ Church; • Spitfire & Hurricane Memorial Building and RAF museum; • Pie Factory Music; and • Minster Surgery.
Aircraft noise – permanent community effects – daytime	Significant	In the following communities, aircraft noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities: <ul style="list-style-type: none"> • Ramsgate; • Pegwell Bay; and • Manston.
Aircraft noise – permanent community effects – night-time	Significant	In the following communities, aircraft noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities: <ul style="list-style-type: none"> • Ramsgate; • Manston; • Wade; and • West Stourmouth.

Inter-related effects

- 12.8.1 Inter-related effects resulting from noise in relation to other environmental topics are presented in **Chapter 7: Biodiversity, Chapter 9: Historic Environment, Chapter 11: Landscape and Visual Impact, Chapter 13: Socio Economics, Chapter 15: Human Health and Chapter 16: Climate Change.**
- 12.8.2 The inter-related effect of multiple topics (air quality, visual, traffic and transport, socio-economics, health and well-being in addition to noise) acting in combination on the same human receptors is discussed in **Chapter 18: Cumulative Effects.**
- 12.8.3 The traffic and transportation changes predicted as a result of the Proposed Development, which have been used to inform this noise assessment, are described in **Chapter 14: Traffic and Transportation.**
- 12.8.4 Over and above those effects described above and reported in other chapters no significant inter-related noise effects are expected.



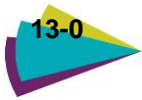
Cumulative effects

12.8.5 An assessment of cumulative effects is presented in **Chapter 18: Cumulative Effects**.

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13. Socio-Economics

13.1 Introduction

- 13.1.1 This Chapter sets out the findings of an assessment of the effects of the re-opening of Manston airport (the 'Proposed Development') on the socio-economic environment.
- 13.1.2 This Chapter should be read in conjunction with the Proposed Development description (**Chapter 3: Description of the Proposed Development**). This Chapter outlines the relevant policy, legislation and guidance that has informed the assessment and describes the data gathering methodology that was adopted. This leads on to a description of the overall baseline conditions, the scope of the assessment alongside the assessment methodology. The Chapter concludes with the results of the assessment.
- 13.1.3 This Chapter should be read as part of the wider Environmental Statement (ES), in particular the introductory chapters (**Chapters 1 – 5**), **Chapter 6: Air Quality**, **Chapter 12: Noise and Vibration**, **Chapter 14: Traffic and Transport**, **Chapter 15: Health and Wellbeing** and **Chapter 18: Cumulative Effects**.

Limitations and Assumptions

- 13.1.4 The assessment of direct employment effects has relied upon the use of secondary data within calculations and assumptions in order to generate an understanding of the potential effects arising from the Proposed Development. As such, there are limitations associated with the secondary data applied in each case. However, this assessment has utilised the guidance available at the time of writing. Where assumptions have been applied within the analysis, they are stated and referenced within the text.
- 13.1.5 This assessment has been based on the quantum of the Proposed Development and uses as described in **Chapter 3: Description of the Proposed Development** and shown on the application plans.

13.2 Policy, Legislation and Guidance

- 13.2.1 There are no legislative requirements in relation to the socio-economic effects of a development. Notwithstanding this, there is a body of guidance and related benchmark materials and data measures which governmental departments have adopted in conducting assessments.
- 13.2.2 These help to define the scope of assessment and inform the identification of particular local issues. Full details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1**.
- 13.2.3 **Table 13.1** sets out national and local policies and guidance relevant to the Proposed Development and its potential effects on socio-economic receptors.

Table 13.1 National and Local Planning Policies relevant to Socio-economics

Policy Document	Reference	Policy Information relevant to Socio-economics
National Planning Policy Framework (NPPF): Consultation (March 2018) ¹	Paragraph 8	Provides high level guidelines for planning for sustainable development, specifically in relation to socio-economics, identifies the importance of "ensuring that sufficient land of the right type is available in the right places at the right time to support growth and innovation."

	Paragraph 11	Presumption in favour of sustainable development including: <i>“local planning authorities should positively seek opportunities to meet the development needs of their area, and be sufficiently flexible to adapt to rapid change.”</i>
	Paragraph 82	<i>“Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development”</i>
	Paragraph 83	<i>Planning policies should:</i> a) <i>set out a clear economic vision and strategy which positively and proactively encourages sustainable economic growth, having regard to Local Industrial Strategies and other local policies for economic development and regeneration;</i>
National Planning Policy Framework (NPPF) (2012)	Paragraph 7	Provides high level guidelines for planning for sustainable development, specifically in relation to socio-economics, identifies the importance of <i>“ensuring that sufficient land of the right type is available in the right places at the right time to support growth and innovation.”</i>
	Paragraph 14	Presumption in favour of sustainable development including: <i>“local planning authorities should positively seek opportunities to meet the development needs of their area.”</i>
	Paragraph 17	<i>“... proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth.”</i>
	Paragraph 18	<i>“the Government is committed to securing economic growth in order to create jobs and prosperity, building on the country’s inherent strengths...”</i>
	Paragraph 19	<i>“The government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore, significant weight should be placed on the need to support economic growth through the planning system.”</i>
	Paragraph 20	<i>“To help achieve economic growth, local planning authorities should plan proactively to meet the development needs of business and support an economy fit for the 21st century.”</i>
	Paragraph 33	<i>“When planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service needs. Plans should take account of this Framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation.”</i>
South East Local Enterprise Partnership (2014) Strategic Economic Plan²	p.19	<i>“Our ambition is to:</i> <i>enable the creation of 200,000 sustainable private sector jobs over the decade to 2021, an increase of 11.4% since 2011;</i> <i>complete 100,000 new homes by 2021, which will entail, over the seven years, increasing the annual rate of completions by over 50% by comparison with recent</i> <i>years; and,</i> <i>lever investment totalling £10 billion, to accelerate growth, jobs and homebuilding.”</i>
	p.28	<i>“... the area around Manston and Discovery Park contains extensive land suitable for residential and employment use, and is well connected by new infrastructure. As a consequence, we are seeking an extension of the designated</i>

		<i>Discovery Park Enterprise Zone for Manston. A Manston Airport task force has been established with local MPs."</i>
South East Local Enterprise Partnership (2014) Kent and Medway Growth Deal³	p.159	<p>The Discovery Park and Manston Growth Deal: We will take forward a coordinated approach to the development of Discovery Park and Manston. We will:</p> <p>Consider extending Enterprise Zone designation to Manston Business Park, Manston Airport and the Richborough Corridor. We ask Government to permit Thanet District Council to retain 100% of business rate receipts within the Zone with no impact on their baseline, in order that discounts can be fully funded by receipts above the discount level.</p> <p>Allocate £3.5 million in Local Growth Fund finance to support commercial development at Manston and Discovery Park.</p> <p>Support SEFUND investment in commercial and residential development.</p>
Kent County Council (KCC) (2015) Refresh of the 14-24: Learning, Employment and Skills Strategy⁴	p.16	<p>Priorities and actions:</p> <p>Raise Attainment and Skills Levels</p> <p>Improve and extend Vocational Education, Training and Apprenticeships</p> <p>Increase Participation and Employment</p> <p>Target Support for Vulnerable Young People</p>
Kent Forum (2012) A Vision for Kent⁵		<p>Ambition 1: To grow the economy - For Kent to be open for business with a growing and successful economy and jobs for all.</p> <p>Ambition 2: To tackle disadvantage - For Kent to be a county of opportunity, where aspiration rather than dependency is supported and quality of life is high for everyone.</p> <p>Ambition 3: To put citizens in control - For power and influence to be in the hands of local people so they are able to take responsibility for themselves, their families and their communities.</p>
Thanet District Council (TDC) (2006) Thanet Local Plan⁶	Policy EC2	Kent International Airport: Policy framework for proposals designed to support the development, expansion and diversification of Manston.
TDC (2013) Thanet District Council Economic Growth and Regeneration Strategy and Plan 2013 – 2031⁷	Sections 5 and 6	<p>Vision: Accelerate economic growth and achieve greater productivity and profit for businesses; to create more jobs, and increased prosperity for residents.</p> <p>Critical Pathways:</p> <p>Create the right environment and conditions to deliver real economic growth</p> <p>Capitalise on the District's assets</p> <p>Maximise the potential of existing businesses</p> <p>Create an enterprising and aspirational labour force with the right education and skills</p>
TDC (2013) Destination Management Plan⁸	'What we want to achieve'	<p>Deliver quality experiences for existing markets, develop new experiences to grow market share and attract new higher spending visitors looking for short-breaks.</p> <p>Present the three towns more strongly together, playing to the strengths of each and making it easy for the visitor to explore along the coast and to get around.</p> <p>Invest in the experience of its beaches, Thanet's strongest natural assets – their development and management.</p> <p>Prioritise investment in new quality character accommodation to enable Thanet to grow the short break market - to achieve longer stays and higher spend.</p> <p>Make more of its location – the Isle, the big skies, the natural coastline and importantly its proximity to London by high-speed train and the market opportunities that bring.</p> <p>Stimulate the environment to encourage investment in new quality visitor attractions, visitor experiences and places to stay.</p> <p>Ensure tourism is one of the drivers of the local economy and put steps in place to enable that, including supporting tourism business sustainability, growth and inward investment</p>

13.3 Data Gathering Methodology

Desk Study

- 13.3.1 Baseline data for the assessment has been compiled from a number of sources in relation to population and economic structure, inclusive of the sources listed in **Table 13.2**. These data have been used to identify baseline conditions in the study area and identify any socio-economic characteristics, opportunities or challenges relevant to the construction and operation of the Proposed Development.

Table 13.2 Baseline Data Sources

Source	Data
Office for National Statistics (ONS) ⁹	2011 Census Data
NOMIS ¹⁰	Labour market statistics
Experian ¹¹	Economic profile (Standard Industrial Classification [SIC] by postcode)
TDC (2010) Employment Land Review ¹²	Economic profile
TDC (2012) Economic and Employment Assessment ¹³	Economic profile
TDC (2013) Destination Management Plan ¹⁴	Tourism statistics and strategy
TDC (2013) Thanet District Council Economic Growth and Regeneration Strategy and Plan 2013-2031 ¹⁵	Economic profile and strategy
TDC ¹⁶	District profile
KCC ¹⁷	Population profiles Education Health Business
Azimuth Associates: Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations (2017) [referred to in this Chapter as "E&S 2017"] ¹⁸	A report assessing the economic and social impacts of new airport operations at Manston.
RPS: Employment and Housing Land Technical Report (2018)	A report on the employment implications of providing a dedicated air freight facility, which offers passengers, executive travel, and aircraft engineering services at Manston and the likely consequential scale of any additional housing provision that might be required to house airport related workers (RPS Ref: PA/JCG21463) (based on forecasts in E&S 2017)

Survey Work

13.3.2 No survey work has been undertaken for this assessment as is standard for this topic.

Consultation

13.3.3 A Scoping Report (**Appendix 1.1**), including a chapter covering socio-economics, was produced and submitted to the Planning Inspectorate ('PINS') who provided a Scoping Opinion (**Appendix 1.2**). A summary of PINS' comments provided in its Scoping Opinion and responses to those comments is provided in **Table 13.3**.

13.3.4 In addition, since 2015 and throughout the assessment work, RiverOak Strategic Partners (hereafter referred to as 'RiverOak') has undertaken supporting work on potential socio-economic effects including other engagement and consultation.

13.3.5 A statutory consultation then took place from June to July 2017, consulting on the Preliminary Environmental Information Report (the 2017 PEIR) in accordance with the provisions of the Infrastructure and Planning (Environmental Impact Assessment) Regulations 2009 (hereafter referred to as the 2009 EIA Regulations). The 2017 PEIR included results of a preliminary air quality assessment. A further PEIR was produced for the 2018 consultation (the 2018 PEIR) which took place in January 2018, in accordance with the Infrastructure and Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 2017 EIA Regulations).

13.3.6 A summary of the consultee comments and responses provided is provided in **Table 13.3** along with a response to identify how the matter is dealt with in this report.

Table 13.3 Consultee Comments

	Comments and considerations		How addressed in this ES
PINS	The Secretary of State notes that the socio-economic baseline description includes consideration of health, crime, tourism and education indicators. The proposed effect of Manston Airport should be considered for each of the indicators described. The Applicant is referred to the Secretary of State's comments in Section 4 of this Scoping Opinion in relation to health impact assessment. The Secretary of State recommends that effects on tourism are considered in their own right, as currently this appears to be considered in terms of effects on businesses only.	Effects on tourism should be considered in their own right.	Tourism included as separate section (assessment included in section 13.8)
PINS	Significance criteria are set out in Scoping Report Tables 12.13 to 12.15. The description of large magnitude effects in Table 12.13 includes reference to "An effect that is likely to... significantly affect identified receptors". The Secretary of State considers that use of the term 'significantly' in this context is circular because significance of effect is determined by considering the magnitude of effect against the sensitivity of a receptor. The magnitude criteria are inconsistent as the definition of small and medium magnitude effects include 'number of receptors' as a criterion, whereas negligible and large magnitude effects focus appear to focus on 'identified receptors'. The Secretary of State considers that the criteria have potential to undervalue impacts on key local businesses, since the removal of such a business would be unlikely to be considered greater than a small degree of effect.	Significance criteria should be better thought out and consistent terminology used.	Criteria amended accordingly (section 13.7).

	Comments and considerations	How addressed in this ES
	<p>The Secretary of State also considers that the criteria for sensitivity are too narrow, since they only relate to economic change, whereas the list of effects in Scoping Report paragraph 12.6.1 includes amenity effects.</p> <p>Scoping Report Table 12.15 uses different terminology from Table 12.13 (small, medium, large vs low, medium, high). Terminology should be consistent in the ES.</p>	
PINS	<p>The Secretary of State recommends that the assessment of socioeconomic effects includes consideration of the potential opportunities arising from the proposed airport to create local skills and training opportunities. This should include consideration of the potential to create apprenticeship opportunities during construction and operation.</p> <p>The socio-economic assessment and in particular any skills and training opportunities should be developed in discussion with TDC and KCC as appropriate.</p>	<p>Potential opportunities such as the creation of apprenticeships should be considered and skills and training opportunities should be developed in discussion with TDC and KCC.</p> <p>Noted and incorporated into this assessment. Discussion with TDC and KCC to be conducted as part of pre-application discussions.</p>
Dover District Council	<p>Recommend giving consideration to hotels etc. within Sandwich Town due to its proximity to the site</p>	<p>The effect upon hotels etc. is considered specifically within 'Change to Existing Tourism and Recreational Activities'. Please refer to paragraphs 13.8.69 – 13.8.91.</p>
Stone Hill Park Limited	<p>Shortage of information re effect of proposal on educational and community facilities</p>	<p>This is discussed within 'Additional Burden on Local Services'.</p>
Stone Hill Park Limited	<p>Case for tourism benefits arising from a primarily freight focussed airport are unclear</p>	<p>Effects of the Proposed Development upon tourism are discussed within 'Disturbance to Existing Tourism and Recreational Activities'. Consideration is given to both the construction and operational phases of the development.</p>
Stone Hill Park Limited	<p>No assessment made of job creation and impact on TDC's objectively assessed housing need. Where would increase in housing land requirements be located? How would countryside be affected? Would there be a deficiency in infrastructure?</p>	<p>This is addressed within the Planning Statement and its associated appendices.</p>
Stone Hill Park Limited	<p>Assessment does not reflect fact that need case based on taking freight away from other UK airports. Effect of diversion of trade should be assessed</p>	<p>The demand for air freight is set to increase by more than 50% across the period 2015 to 2035. London's six airports - Heathrow, Gatwick, Stansted, Luton, London City and Southend - facilitate approximately 76% of the UK's air freight. However, the Airports Commission report shows that all London airports will be at capacity by 2030. Therefore, the Proposed Development will not take freight away from other UK based airports but instead will help meet air freight capacity requirements.</p>

	Comments and considerations	How addressed in this ES
Thanet District Council	Looking for surveys of vulnerable groups.	Primary research including surveys of vulnerable groups was not necessary in the context of this ES. Sufficient demographic information was available through readily available data sources including, but not limited to, the 2011 Census, NOMIS, Public Health England and the local plan.
Thanet District Council	More evidence required on economic benefits other than the Azimuth report	The main source will be the Azimuth report. It itself uses references which could otherwise have been framed as providing additional information. However, baseline data for the economy has also been collected from sources including NOMIS, Thanet Economic and Employment Assessment, Economic Growth Strategy for Thanet. These all provide context for which the economic factors are assessed against.

13.4 Overall Socio-Economic Baseline

Current Baseline

13.4.1 A general introduction to the geographical area of Thanet is provided in **Chapter 1: Introduction**.

13.4.2 The socio-economic baseline has been considered at three spatial levels (in line with the spatial scale of the assessment):

- ▶ The local level: Thanet District; The Additionality Guide¹⁹ advises the following:

'local level for projects that generate employment effects or other economic benefits is often considered to be within the relevant travel to work area'.

Therefore, as the Proposed Development is located within Thanet District, it is considered appropriate to assume that the 'local level' comprises of this authority. At this scale, detailed census data at Lower Super Output Area (LSOA)ⁱ level has been utilised, along with data derived from Local Authority surveys;

- ▶ The regional level: County (Kent) and additionally the south-east of England for contextual purposes, analysed through secondary data and providing a more general socio-economic overview; and
- ▶ The national level: England to provide context and a national level comparison.

Population

13.4.3 **Table 13.4** and **Figure 13.2** summarise the population profile in Thanet (i.e. the local level study area), as of 2015. They show, most notably, a relatively low proportion of those of working age and a relatively high proportion of elderly compared to Kent, the south-east and England more widely. The proportion of those aged 0 - 15 are in line with County, Regional and National figures.

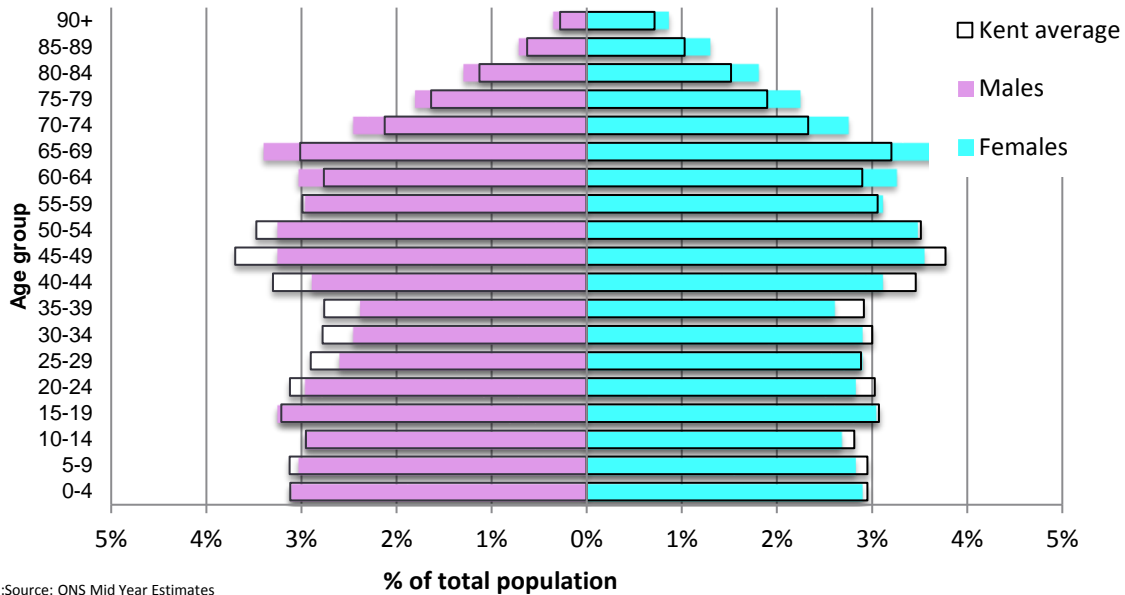
ⁱ A Lower Super Output Area is a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales.

Table 13.4 Population Profile (2015) by Geography

	Thanet		Kent		South-East		England	
	No.	% of total population	No.	% of total population	No.	% of total population	No.	% of total population
All People	139,800		1,524,700		8,947,900		63,258,400	
0-15	26,200	18.8%	291,900	19.1%	1,704,500	19.0%	11,872,700	18.8%
16-64	81,600	58.4%	932,500	61.2%	5,563,800	62.2%	40,066,400	63.3%
65+	31,900	22.8%	300,300	19.7%	1,679,600	18.8%	11,319,300	17.9%

Source: ONS Mid-Year Estimates

Figure 13.2 Population Profile in Thanet by Age and Gender

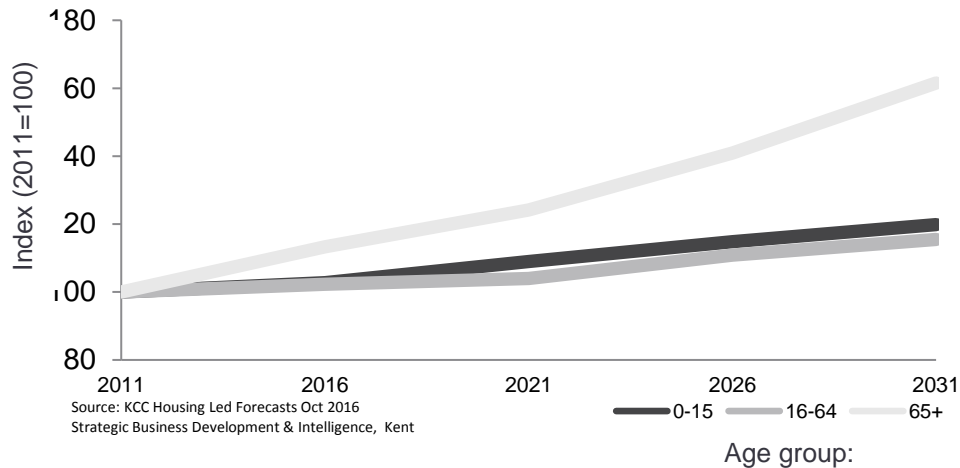


Source: ONS Mid Year Estimates
Presented by: Research & Evaluation, Kent County Council

Source: KCC²⁰

13.4.4 The population of Thanet is expected to continue to grow, with a predicted growth of 19.4% by 2036²¹. The projections forecast the trend of an ageing population (**Figure 13.3**), with a 64.6% increase in those aged 65+, perhaps also reflecting a significant inward net migration of those of pension age. This growth reflects a combination of the aging of the current cohort of those aged 50 – 65, which forms part of the ‘post-war bulge’, out-migration of those of working age and a falling birth rate.

Figure 13.3 Population Projections in Thanet by Age 2011 - 2031



NB: Forecast population growth from 2011 in Thanet area (2011=100)

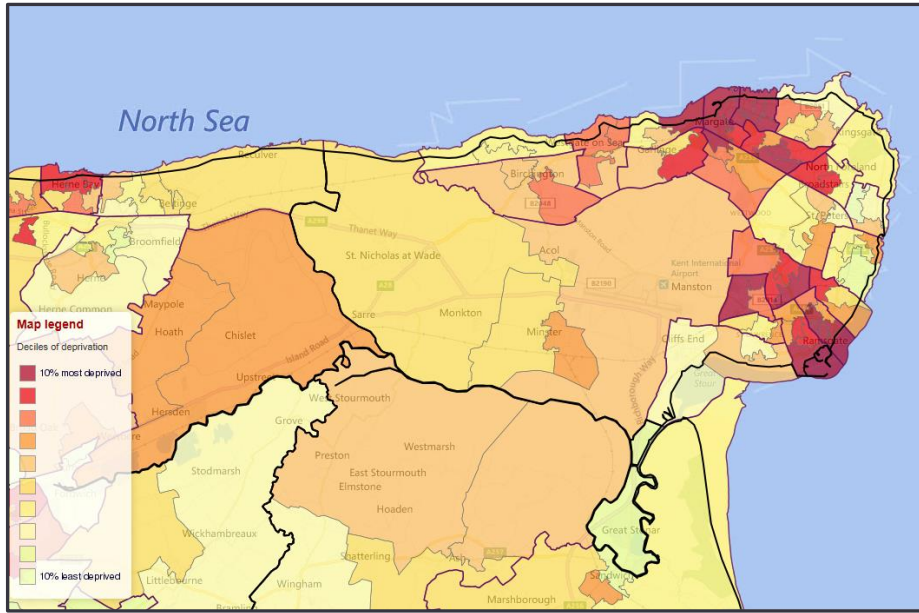
Source: KCC²²

Deprivation

- 13.4.5 The Index of Multiple Deprivation (IMD) is a composite measure which is defined by a number of domains or dimensionsⁱⁱ, including household income, education, health and living environment. The index offers a readily comparable measure, by area, of the degree to which communities may be struggling with particular issues. As a lower score indicates greater deprivation, the most deprived area is indicated by a rank of 1.
- 13.4.6 Thanet was the most deprived local authority in Kent the IMD2010 and remains Kent's most deprived local authority district in IMD2015.
- 13.4.7 Nationally, Thanet is ranked at 21 out of 326 authorities placing it within England's 10% most deprived of authorities²³. This disguises variability amongst local communities (**Figure 13.4**) in which all seven domains of deprivation are considered) where there are significant concentrations of relative deprivation, particularly in parts of the coastal towns.

ⁱⁱ There are seven domains (or dimensions) used in calculating the Index of Multiple Deprivation: Income, Employment, Health Deprivation and Disability, Education, Skills and Training Deprivation, Barriers to Housing and Services, Crime and Living Environment Deprivation.

Figure 13.4 Index of Multiple Deprivation (2015) at Neighbourhood (LSOA) Scale



Source: Department for Communities and Local Government²⁴

Education

13.4.8 In comparison to the national average, Thanet has a relatively high level of residents with either no qualifications or qualifications equal to one or more GCSE at grade D or below (**Table 13.5**), with a commensurately low relative proportion of residents with more advanced qualifications. There is clearly a significant skills gap which serves to suppress average wage levels and can prove unattractive to prospective and existing employers seeking to invest in the areaⁱⁱⁱ. Levels of educational attainment can be closely linked to the IMD (paragraphs 13.4.5 – 13.4.7), of which education is one dimension. Poor educational achievement can be difficult to improve and requires time to achieve.

Table 13.5 Qualifications by Geography (2015)

Qualification ^{iv}	Thanet	Kent	South-East	England
No Qualifications	8.0%	6.9%	8.6%	6.3%
Level 1	78.0%	87.0%	84.9%	88.5%
Level 2	62.1%	73.5%	73.6%	76.8%
Level 3	37.7%	53.8%	55.8%	58.8%
Level 4	22.6%	34.3%	37.1%	39.7%

ⁱⁱⁱ For more analysis of this issue, see Azimuth Associates (2017) Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations, Chapter 5

^{iv} Level 1: 1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level 1, Foundation GNVQ, Basic/Essential Skills; Level 2: 5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma; Apprenticeship; Level 3: 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advanced Diploma, NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma; Level 4 and above: Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional qualifications (for example teaching, nursing, accountancy); Other qualifications: Vocational/Work-related Qualifications, Foreign Qualifications (not stated/level unknown).

Other	14.0%	6.1%	6.5%	5.2%
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Source: NOMIS

Health

- 13.4.9 Health can reflect a range of other indicators such as deprivation, crime and unemployment. This is no exception for Thanet, where there is a higher proportion of vulnerable populations such as children in care, ex-offenders and people with mental health conditions. Most indicators relating to healthy lifestyles show that Thanet has statistically worse outcomes compared to the National average (**Table 13.7**). These include smoking prevalence (including smoking during pregnancy), excess weight in adults, physically active adults and prevalence of opiate and/or crack use. Further detail of the health of the population is set out in **Chapter 15: Health and Wellbeing, Appendix 15.1** and **Appendix 15.2**.
- 13.4.10 **Table 13.6** and **Table 13.7** set out the key health variables illustrating significantly higher levels of bad and very bad health, lower levels of very good health, combined with lower life expectancy in Thanet compared to that of the south-east or England.

Table 13.6 Key Health Variables by Geography (2011)

Variable	Thanet	Kent	South-East	England
Very Good Health	54,640	683,205	4,232,707	25,005,712
Good Health	47,109	510,399	2,989,920	18,141,457
Fair Health	22,377	194,931	1,037,592	6,954,092
Bad Health	7,785	58,536	291,456	2,250,446
Very Bad Health	2,275	16,669	83,075	660,749

Source: 2011 Census

Table 13.7 Health Statistics (2015)

Variable	Measure	Thanet	Kent	South-East	England
Infant Mortality	Rate per 1000	3.7		3.2	3.9
Life Expectancy at Birth; Males	Years	78.2	79.8	80.6	79.5
Life Expectancy at Birth; Females	Years	82.5	83.5	84.0	83.1
Excess weight in adults	Percent	67.5	65.5	59.7	61.3
Smoking prevalence in adults	Percent	18.1	15.2	14.6	15.5

Source: Public Health England²⁵

- 13.4.11 There are considerable variations in population health within Thanet and inequalities are wider than in any other district in Kent. Around one third of the Thanet population are in the most deprived

quintile nationally, with less than one in twenty in the least deprived quintile. The difference in life expectancy between the highest and lowest wards is 16.77 years²⁶.

Crime

13.4.12 Crime, as a general trend, has risen in Thanet since 2009 (**Table 13.8**) and across almost every type is higher than that of Kent as a whole (**Table 13.9**).

Table 13.8 Reported crime in Thanet (2009/10 – 2014/15)

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Cases	10,783	10,658	10,560	9,945	11,971	11,708

Source: Kent Police²⁷

Table 13.9 Recorded Crimes by Geography per 1,000 Population (2014/15)

Type of Crime	Thanet	Kent
Burglary dwelling (per 1,000 households)	9.9	7.1
Burglary other	4.0	4.3
Criminal damage offences	14.6	10.0
Robbery	0.9	0.5
Sexual offences	2.3	1.4
Shoplifting	8.9	6.5
Theft from motor vehicle	4.7	3.6
Theft of motor vehicle	1.4	1.3
Theft of pedal cycle	2.1	1.1
Theft offences	12.2	9.1
Vehicle interference	0.9	0.6
Violence against the person	23.7	15.6
Victim based crime	80.4	57.0

Source: KCC Community Safety Portal

Community Resources

Primary Schools

13.4.13 Across Kent there are 453 primary schools, of which 31 are located within Thanet²⁸. The total number of individuals enrolled during 2015 within Kent was 122,120 pupils, of which 11,360 were within Thanet. The exclusion rate of pupils within Thanet is higher than the Kent average, at 1% and 0.6% respectively. Of the schools across Thanet, 23% were classified as outstanding by Ofsted, this above the Kent (18.5%) average²⁹.

Secondary Schools

13.4.14 Across the county there are 99 secondary schools, of which 8 are based in Thanet³⁰. The total number of individuals enrolled during 2015 within Kent was 98,664 pupils, of which 8,390 were within Thanet. The exclusion rate of pupils within Thanet is similar to that of Kent, at 4.1% and 4.2% respectively. Of the schools across Thanet, 14.3% were classified as outstanding by Ofsted, this significantly lower than the Kent (31.3%) average³¹.

Post-16 Education

13.4.15 With respect to post 16-education, Canterbury and Medway are the primary centres for higher education due to the presence of the University of Kent, University of Greenwich and the University of the Creative Arts³².

13.4.16 The provision of facilities in Thanet is generally higher compared to the other districts of Kent. The district has a total of ten higher education facilities, of which one is a university campus^{33,34}.

13.4.17 The proportion of students progressing into Higher Education within Thanet is lower than the National and Kent average. Students achieving AAB grades in at least two facilitating subjects in Thanet is 11.6% compared to 17.0% in Kent and 15.6% nationally³⁵.

13.4.18 The following projects and proposals indicate the investment in post-16 education facilities across Thanet:

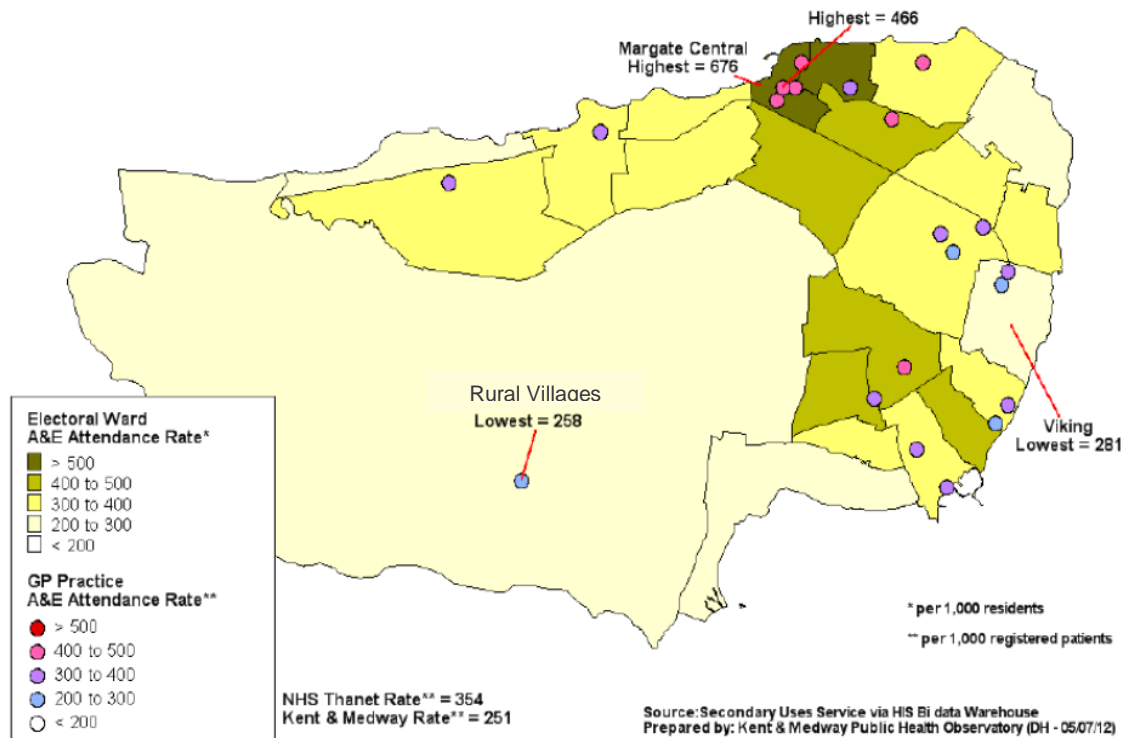
- ▶ East Kent College - Broadstairs Campus - Construction / Renewables / Engineering (2013);
- ▶ East Kent College - Broadstairs Campus - Nursery (2014);
- ▶ East Kent College - Broadstairs Campus - Classroom Modernisation (2014);
- ▶ East Kent College - Broadstairs Campus - Training Hotel (2015);
- ▶ East Kent College - Broadstairs Campus - Centre for Creative Industries (2015); and
- ▶ East Kent College - Broadstairs Campus - Final Phase of Development (2019+).

Healthcare Facilities

13.4.19 In addition to the Queen Elizabeth the Queen Mother Hospital in Margate, there are twenty primary care surgeries across Thanet, one located in the Rural Villages Ward (containing Manston Airport) where there is the lowest GP Practice A&E attendance rate (**Figure 13.5**).

13.4.20 Additional information on healthcare provision can be located within **Chapter 15: Health and Wellbeing**.

Figure 13.5 Primary Healthcare Facilities and A&E Attendance in Thanet (2013)



Source: KCC³⁶

Recreation Facilities

13.4.21 Reflecting the age structure and levels of deprivation in Thanet, participation in sport is lower than in Kent, the south-east and nationally. The following summary by TDC of provision and quality of recreation facilities across Thanet³⁷ also suggests problems with investment:

- ▶ There are 33 play areas across the district. The current level of provision equates to 0.2ha per 1,000 population (below the national recommended standard of 0.8ha per 1,000 population);
- ▶ The quality of these play areas is 'below average';
- ▶ Junior football pitches – insufficient supply;
- ▶ Outdoor tennis courts – poor quality sites, uneven distribution of facilities;
- ▶ Synthetic turf pitches – insufficient quantity and full-size pitch is of poor quality, poor accessibility for residents in Margate, Broadstairs and villages;
- ▶ Five a side pitches – poor accessibility for Broadstairs residents;
- ▶ Skate parks – well-used but in need of some refurbishment/modernisation;
- ▶ Changing provision for football and cricket facilities – only 'average' standard and significant scope for improvement;
- ▶ A significant deficit of youth facilities locally to accommodate the need generated by housing development in Thanet; and
- ▶ Existing level of provision 0.95ha per 1,000 population of 'Natural/Semi-Natural' green space (below the recommended minimum standard set by Natural England of 2ha per 1,000 population).

Employment

- 13.4.22 The NOMIS job densities report is available at local authority, sub-regional, regional and national level; it indicates the availability of employment and labour demand. The job density level as of 2014 within Thanet (the ratio of jobs available divided by the resident population ages between 16-64) is significantly lower, at 0.54 compared to the south-east (0.84) and national (0.81) levels, indicating a lower availability of employment in Thanet compared to the wider region.
- 13.4.23 Thanet has a relatively small population of working age compared to county, regional and national averages (**Table 13.10**). However, the differences in proportions are relatively small in nature (3% to 5%) and need to be placed in the context of the working age population forming the largest proportion of residents in Thanet (see **Table 13.2**).

Table 13.10 Working Age Population by Geography (2015)

	Thanet		Kent		South-East		England	
	Number	%	Number	%	Number	%	Number	%
Males	39,600	58.7%	461,500	61.7%	2,771,500	62.9%	19,963,000	64.1%
Females	42,000	58.2%	471,100	60.6%	2,792,300	61.5%	20,103,400	62.6%
Total	81,600	58.4%	932,500	61.2%	5,563,800	62.2%	40,066,400	63.3%

Source: ONS Mid-Year Estimates

- 13.4.24 The total employee jobs within Thanet for 2015 is outlined in **Table 13.11**. Thanet has a higher proportion of part-time employees compared to regional and national averages. This is also reflected in its smaller proportion of full-time employees.

Table 13.11 Employee Jobs (2015)

	Thanet		Kent		South-East		England	
	Number	%	Number	%	Number	%	Number	%
Total Employee Jobs	41,000	-	609,000	-	4,047,000	-	28,565,000	-
Full-Time	26,000	63.4	408,000	67.0	2,755,000	68.1	19,567,000	68.2
Part-Time	15,000	36.6	201,000	33.0	1,293,000	31.9	9,375,000	32.8

Source: ONS Mid-Year Estimates

- 13.4.25 The estimated economic activity of the resident population across Thanet, Kent, the South-East and England is set out in **Table 13.12**.

Table 13.12 Economic Activity by Geography (2015)

	Thanet	Kent	South-East	England
Economically Active (total of the resident population ages 16-64)	68.4%	78.2%	79.7%	77.3%
In Employment (as a proportion of the total individuals classified as 'economically active')	62.6%	73.9%	75.8%	72.4%
Employees (as a proportion of the total individuals classified as 'in employment')	53.2%	61.6%	64.1%	61.9%
Self-Employed (as a proportion of the total individuals classified as 'in employment')	8.8%	12.2%	11.4%	10.0%

Source: NOMIS

13.4.26 **Table 13.12** shows that the proportion of the resident population who are economically active in Thanet is substantially lower than the county, regional and national averages. A large proportion (62.6%) are classified as in employment and although lower, are comparable to trends in Kent, the south-east and England.

13.4.27 Unemployment is a problem in Thanet, with worklessness^v at significantly higher levels than Kent or nationally (**Table 13.13**). Whilst concentrated in the coastal towns and associated with wider social issues (see IMD above), the issue is nevertheless of concern. As of February 2013, the following wards showed out-of-work benefits being received for over 20% of the working age population: Cliftonville West 41.6%; Margate Central 41.1%; Newington 26%; Eastcliff 23.8%; Dane Valley 21.5%; Ramsgate Central Harbour 21%; and Northwood 20.1%.

Table 13.13 Worklessness in People Aged 16 – 64 (May 2015)

	Thanet District		Kent		England	
	Number	% of 16-64 age group	Number	% of 16-64 age group	Number	% of 16-64 age group
In receipt of out of work benefits	11,260	13.9%	74,980	8.1%	3,359,280	9.2%
Jobseekers	2,370	2.9%	12,880	1.4%	609,330	1.7%
Those claiming incapacity benefits	7,290	9.0%	49,540	5.3%	2,242,470	6.2%
Lone parents	1,240	1.5%	10,300	1.1%	406,630	1.1%
Others on income related benefits	360	0.4%	2,260	0.2%	100,850	0.3%

Source: DWP Longitudinal Study, ONS

^v Worklessness is difficult to define, but is often considered in terms of the unemployed / economically inactive. The unemployed population 'are people who are without a job, want a job, have actively sought work in the last 4 weeks and are available to start work in the past 2 two weeks or are out of work, have found a job and are waiting to start it in the next 2 weeks'. The economically inactive population are 'those without a job who have not actively sought work in the last 4 weeks, and/or are not available to start work in the next 2 weeks'. Source: http://www.neighbourhood.statistics.gov.uk/HTMLDocs/images/Worklessness%20topic%20profile_Final_tcm97-83621.pdf

Economy

- 13.4.28 Businesses in Kent are active internationally. A study commissioned by KCC established that 35% of Kent businesses are exporters, with manufacturing, professional services and ICT sectors being particularly reliant on overseas trade. Of these exporters, 85% export to the EU and 43% to the US³⁸. The same study identified that 25% of businesses import. Key import markets are the EU (72%), US (42%) and China (36%). Improvements to infrastructure (road, rail, airports, and ports) were explicitly identified as one of the 10 factors by participants as an external factor influencing company development.
- 13.4.29 Thanet has a distinctive local economy, nationally renowned for the strength of its tourism, culture and leisure sectors. Across the district there are major private sector employers, predominantly composed of advanced manufacturing and engineering businesses; in recent years it has seen an expansion in creative businesses locating to the area. Businesses are attracted by the proximity and communication links to both London and continental Europe, in addition to continued improvements the wider transport network (e.g. HS1)³⁹.
- 13.4.30 However, the district faces numerous challenges. Primarily, the skills profile could be strengthened; a significant proportion of the available jobs are 'low wage' and part time in character; and the number of jobs within the District needs to increase. There is also a need to diversify the business base, so it is less reliant on 'public sector' industries. Currently, the main public-sector industries within the district are associated with health, education and public administration.
- 13.4.31 **Table 13.14** provides the employee breakdown by industry sector within Thanet, the south-east and England, while **Table 13.15** provides the employee breakdown by occupation within Thanet, Kent, the south-east and England.

Table 13.14 Employment by Industry (2015)

	Thanet	South-East	England
All Industries			
B: Mining and Quarrying	0.0	0.1	0.2
C: Manufacturing	7.3	6.2	8.2
D: Electricity, Gas, Steam and Air Conditioning Supply	0.3	0.4	0.4
E: Water Supply, Sewerage, Waste Management and Remediation Activities	0.5	0.6	0.7
F: Construction	4.3	4.5	4.6
G: Wholesale and Retail Trade; Repair of Motor Vehicles	19.5	16.7	15.7
H: Transportation and Storage	3.7	4.4	4.6
I: Accommodation and Food Service Activities	9.8	7.4	7.3
J: Information and Communication	1.7	6.3	4.2
K: Financial and Insurance Activities	2.0	3.0	3.5
L: Real Estate Activities	1.5	1.8	1.7

M: Professional, Scientific and Technical Activities	4.3	9.1	8.4
N: Administrative and Support Service Activities	6.1	8.0	8.9
O: Public Administration and Defence	3.0	3.3	4.4
P: Education	14.6	10.5	9.1
Q: Human Health and Social Work Activities	19.5	12.7	13.3
R: Arts, Entertainment and Recreation	2.4	2.5	2.4
S: Other Service Activities	2.0	2.4	2.1

13.4.32 A large proportion of employees work within sector Q: Human Health and Social Work Activities and sector G: Wholesale and Retail Trade, compared to the regional and national averages. This corroborates the findings of the health sector being one of the largest public sector employees within the district (paragraph 13.4.30). The construction industry accounts for 4.3% of all employees, however, this is similar to the south-east and England averages.

Table 13.15 Employment by Occupation (2015)

	Thanet		Kent		South-East		England	
	Number	% of all people 16-64 in employment	Number	% of all people 16-64 in employment	Number	% of all people 16-64 in employment	Number	% of all people 16-64 in employment
All Occupations	58,800		709,800		4,413,600		30,198,500	
1. Managers, directors and senior officials	5,900	10.1	80,500	11.3	536,500	12.1	3,157,000	10.4
2. Professional occupations	9,800	16.6	138,600	19.5	960,800	21.7	6,004,400	19.8
3. Associate professional and technical occupations	6,300	10.7	96,600	13.6	671,900	15.2	4,270,900	14.1
4. Administrative and secretarial occupations	5,500	9.3	77,500	10.9	487,200	11.0	3,248,600	10.7
5. Skilled trades occupations	7,500	12.7	73,500	10.3	434,200	9.8	3,207,500	10.6
6. Caring, leisure and other	6,500	11.1	69,200	9.7	386,300	8.7	2,794,700	9.2

	Thanet		Kent		South-East		England		
	service occupations								
7.	Sales and customer service occupations	6,900	11.7	61,100	8.6	313,300	7.1	2,320,300	7.6
8.	Process, plant and machine operatives	3,500	5.9	42,800	6.0	220,200	5.0	1,911,600	6.3
9.	Elementary occupations	6,900	11.7	70,000	9.8	403,200	9.1	3,283,500	10.8

Source: NOMIS

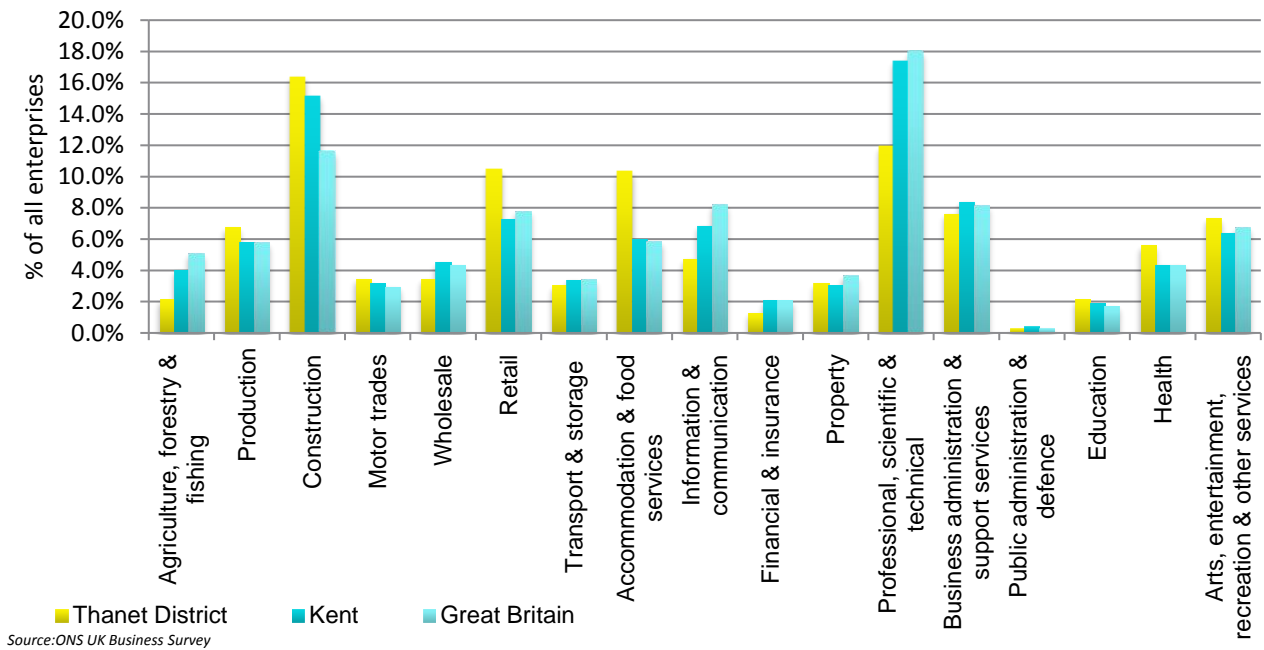
13.4.33 Thanet has slightly fewer (10.1% compared to 10.4%) managerial, administrative or professional individuals compared to the national average (**Table 13.15**) which translates into the lower proportions of social groups AB and C1 than Kent or nationally (**Table 13.16**). In turn, this is reflected in the profile of registered businesses (**Figure 13.6**). Businesses associated with the construction industry and those which are professional, scientific and technical account for the highest percent of all enterprises (approximately 16% and 12% respectively) across the district. Particularly for construction, this higher than the regional and national averages.

Table 13.16 Proportion of Workers by Social Group and Geography (2011)

Social Group	Description	Thanet	Kent	South-East	England
AB	Higher & intermediate managerial, administrative, professional occupations	15.88%	22.42%	27.61%	22.96%
C1	Supervisory, clerical & junior managerial, administrative, professional occupations	29.38%	31.89%	31.83%	30.92%
C2	Skilled manual occupations	23.59%	22.46%	21.34%	20.64%
DE	Semi-skilled & unskilled manual occupations, Unemployed and lowest grade occupations	31.14%	23.22%	19.22%	25.49%

Source: Census 2011

Figure 13.6 Registered Businesses by Geography (2015)



Source: KCC⁴⁰

13.4.34 The profile shown in **Table 13.16** is also reflected in the average weekly earnings of the district (**Table 13.17**) which are notably lower than those for Kent and nationally.

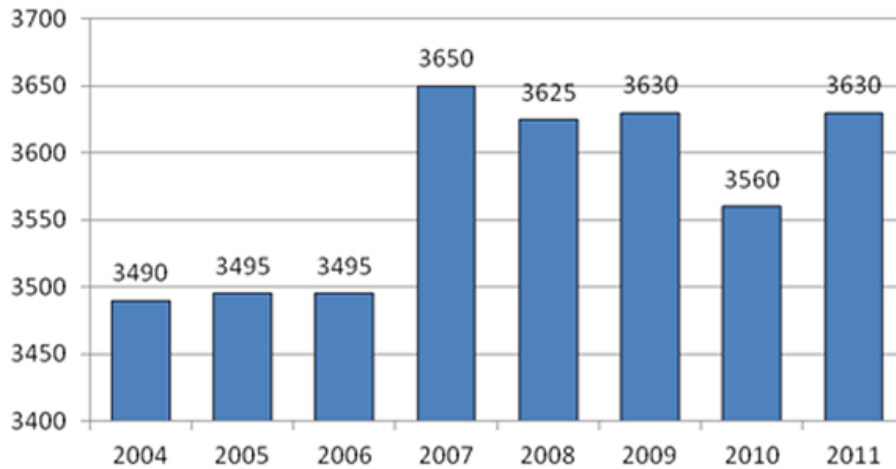
Table 13.17 Median Weekly Full-Time Earnings (£s) - Workplace Based (2015)

	Thanet	Kent	South-East	England
Males	451.5	554.3	626.4	569.9
Females	374.5	424.3	499.2	471.5
Total	415.8	504.1	574.9	529.0

Source: NOMIS - Annual Survey of Hours & Earnings⁴¹

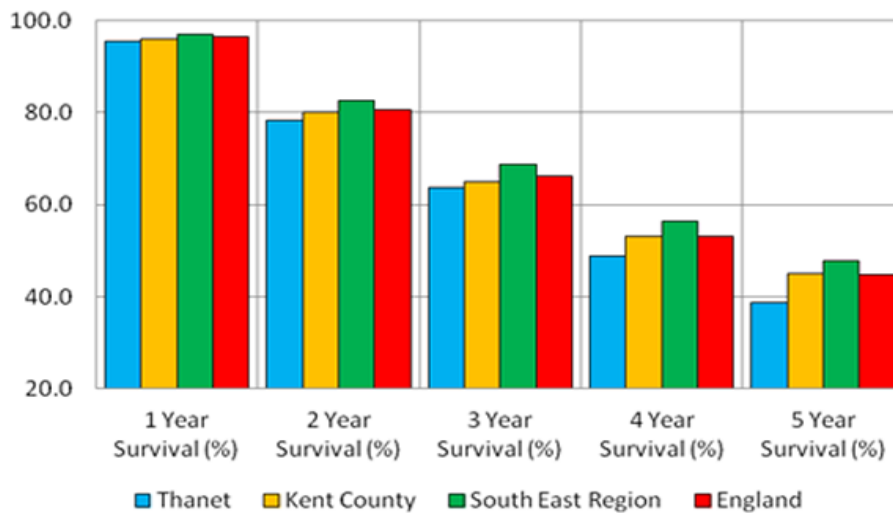
13.4.35 ONS data suggests that Thanet has approximately 3,500 VAT-registered businesses, a figure which has remained broadly steady (**Figure 13.7**), although 5-year survival rates are lower than Kent and nationally (**Figure 13.8**).

Figure 13.7 Number of VAT-registered businesses in Thanet (2004 – 2011)



Source: ONS⁴²

Figure 13.8 Five- Year Survival Rates of Businesses by Geography (2004-2011)



Source: ONS⁴³

13.4.36 **Table 13.18** summarises the number and type of businesses by postcode, revealing that there a significant number of businesses within the immediate vicinity of the Proposed Development (postcode CT12) and more widely in the surrounding towns of Margate, Ramsgate and Broadstairs, notably in respect of manufacturing, construction, retail, accommodation and other service activities.

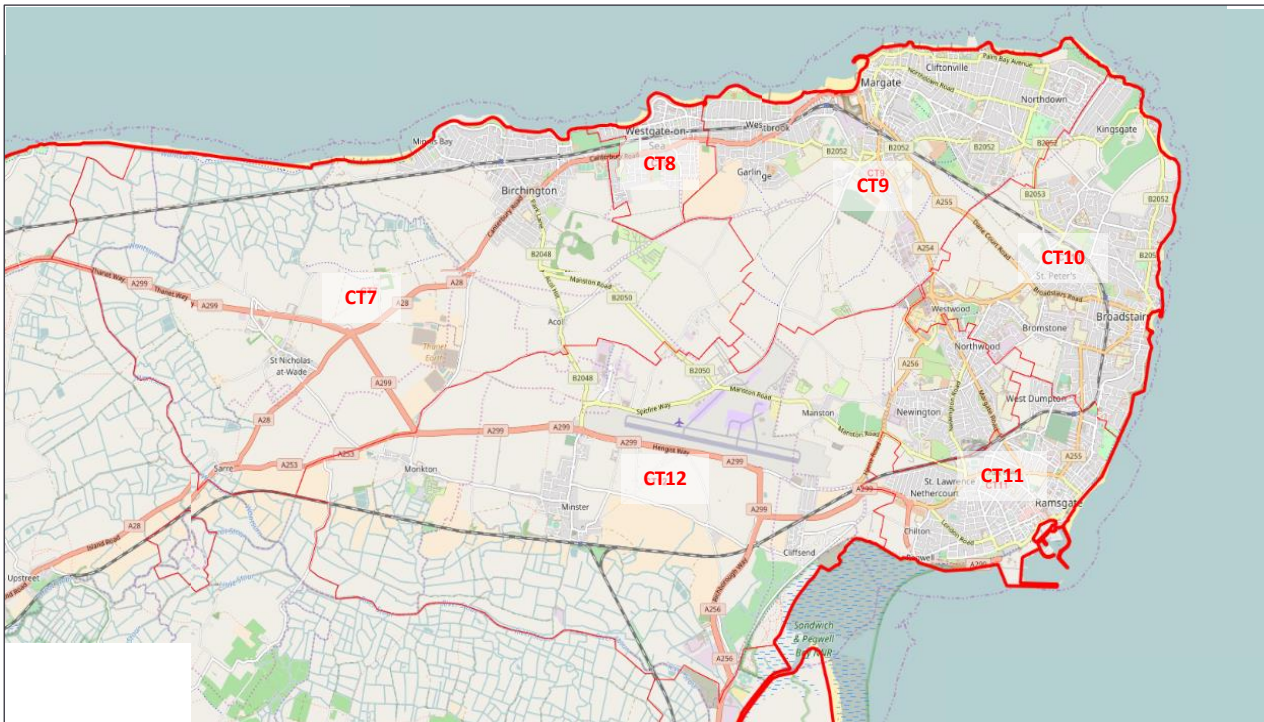
Table 13.18 Number of Business by SIC Section by Postcode (2007)

Standard Industrial Classification (SIC) 2007 Section	Postcode District					Total
	CT08	CT09	CT10	CT11	CT12	
SECTION A AGRICULTURE, FORESTRY AND FISHING	1	19	11	6	17	54
SECTION B MINING AND QUARRYING	0	0	0	0	2	2

Standard Industrial Classification (SIC) 2007 Section	Postcode District					Total
	CT08	CT09	CT10	CT11	CT12	
SECTION C MANUFACTURING	9	81	55	48	55	248
SECTION D ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	0	3	1	1	0	5
SECTION E WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	0	4	7	0	2	13
SECTION F CONSTRUCTION	19	155	116	91	76	457
SECTION G WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	34	232	211	160	102	739
SECTION H TRANSPORTATION AND STORAGE	5	34	21	25	30	115
SECTION I ACCOMMODATION AND FOOD SERVICE ACTIVITIES	17	156	113	110	43	439
SECTION J INFORMATION AND COMMUNICATION	9	44	39	51	18	161
SECTION K FINANCIAL AND INSURANCE ACTIVITIES	4	21	14	11	8	58
SECTION L REAL ESTATE ACTIVITIES	11	43	36	30	5	125
SECTION M PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	18	79	65	57	34	253
SECTION N ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	12	71	62	44	41	230
SECTION O PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	1	5	1	4	1	12
SECTION P EDUCATION	10	47	42	44	22	165
SECTION Q HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	30	122	78	61	26	317
SECTION R ARTS, ENTERTAINMENT AND RECREATION	5	68	29	35	11	148
SECTION S OTHER SERVICE ACTIVITIES	12	109	79	93	36	329
SECTION T ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFF GOODS-AND SERVICES	8	23	16	22	2	71
SECTION U ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES	0	1	0	0	1	2
Total	205	1,317	996	893	532	3,943

Source: Experian B2B Prospector

Figure 13.9 Postcodes within the Study Area



Thanet Economic and Employment Assessment⁴⁴ – Headline Observations

- 13.4.37 The Thanet Economic and Employment Assessment summarises the various socio-economic characteristics of Thanet and assesses the implications for economic development. In general, Thanet has a diverse economy with a still appreciable but declining manufacturing base offset by growth in the service sector including finance and real estate. Notable differences from UK averages are a lower proportion of firms in the knowledge economy and slightly higher numbers of both high growth firms and low growth firms.
- 13.4.38 The more specific principal conclusions of the Assessment are that:
- a. *“Thanet’s growth is currently below that of the South East and more in line with the UK as a whole.*
Within Thanet, the sectors which comprised the greatest contribution to Gross Value Added (GVA) include education, real estate, health and construction of buildings. The greatest growth over the last five years in Thanet has been in the service sectors and particularly in sectors such as finance and real estate. The majority of manufacturing sectors have continued to decline during this time, as has agriculture, forestry and fishing.
 - b. *Thanet’s business base is largely located in urban areas.*
There are some 5,000 businesses within Thanet. This figure is significantly higher than ONS data which suggests that there were 3,560 businesses in 2010. Around 80% of the companies identified in Thanet are single site. Around 13% are companies with headquarters in Thanet and multiple sites, either in Thanet or elsewhere.
 - c. *Home-working is relatively high in the district and is particularly popular in Margate and Ramsgate.*
A relatively high proportion of the businesses, particularly in ‘urban wards’ are home based. They account for over 5% of businesses, ranking Thanet in third place in Kent only behind Canterbury and Tunbridge Wells. In addition, around 9.4% of the working population in the district are home-based. In particular, Margate and Ramsgate have high proportions of home-based businesses.

- d. *Key sectors within the business base include wholesale and retail and construction.*
Wholesale and retail and construction business comprise a quarter of all businesses. The next largest sectors are other service activities, accommodation and food services, followed by professional, scientific and technical and admin and support services.
- e. *Tourism & green sectors, comprise a sizeable proportion of total businesses.*
There are over 530 businesses within the tourism sector representing 11% of the business base. Around 80 businesses have been identified in the primary green sector and 280 businesses in the broader secondary green sector. Combined, they represent 7% of the business base. Green businesses are more likely to be located in rural areas than other sectors, particularly secondary green sector businesses.
- f. *Businesses within the knowledge intensive sectors comprise a smaller proportion of the total than elsewhere.*
Thanet, despite its low base, has experienced strong growth within the knowledge intensive sectors over the last decade. Proportionally however, there still remain fewer businesses within knowledge intensive sectors in the district than other areas of Kent. At 18%, the proportion of knowledge intensive businesses compares to the England average of 23% and the South East as a whole of 27%. The local economy in Thanet has been shown to be dominated by manufacturing with this sector representing 50% of the key commercial sectors in Thanet which mainly include: Transport and Logistics, Retail and Wholesale and Engineering.
- g. *Historically the district has had just above average proportion of growth firms, but growth potential is lower.*
Within the UK, growth firms which have experienced employment growth of 5% or more over the last three years account for 7% of businesses, in Thanet they account for slightly more – 8%. The proportion of low growth or declining firms is however, also higher at 8% compared to 7% within the UK. In terms of growth potential, Thanet is broadly in line with the UK, particularly for high growth potential.
- h. *Exporting potential is much lower in Thanet than the UK*
Businesses that export make up only a small proportion of the UK economy yet are a key component of the growth strategy for the UK. Thanet is in line with the UK in terms of its current exports.
- i. *A significant amount of land is available for development in Thanet but there is strong competition from elsewhere in Kent.*
The Employment Land Review⁴⁵ for Thanet revealed that the total amount of employment floorspace is the second lowest in the East Kent region with only Shepway having less, however, overall stock has been increasing, particularly office and warehousing with the amount of factory space decreasing. In April 2008 there was approximately 100,000m² office floorspace, 335,000m² of factories and 155,000m² warehousing space. The total amount of employment floorspace is the second lowest out of the East-Kent Districts, with only Shepway having less. The amount of Office floorspace in Thanet is also lower than the other districts, with offices accounting for only 17% of the stock in the district. Factories account for 56% and warehouses 26%. The document also concludes that the age and quality of the employment building stock is highly dated with only 3% of the office stock being built post 1980.
- j. *An additional 3,100 jobs are likely to be created over the next two decades in Thanet with continued growth in the service sectors and declines within manufacturing.*
Net growth of £700 million in output over the next two decades is likely, taking the total to over £2 billion in 2031. The biggest growth will be in construction of buildings (net growth of £90 million), health (net growth of £90 million) and real estate (net growth of £70 million). The manufacturing sectors will experience the greatest losses, although these are not predicted to be as significant as the employment declines in these sectors, pointing to enhanced productivity.
- k. *Caring, leisure and other service occupations will grow strongly, alongside professional occupations in which Thanet is currently under-represented.*

There will be strong growth in the caring, leisure and other service occupations, as well as strong growth within the professional occupations. Based upon the existing occupation and skills profile this suggests that there could be challenges in ensuring that local residents are able to maximise the potential. This is particularly the case within professional services, in which Thanet is under-represented compared to the region and England.

13.4.39 The Draft Economic Growth Strategy⁴⁶ which sets out ambitions for Thanet identifies particular potential for growth linked to its location:

“Thanet has a distinctive local economy with substantial opportunities for sustainable and high quality economic growth. Particularly with HS1 in place, Thanet now has significant locational advantages deriving from its proximity to both London and continental Europe”.

The Strategy also confirms the need to address employment and employment prospects, stating that:

“The skills profile could be strengthened; too many jobs are “low wage” and part time in character and the number of jobs within the District needs to grow.

The establishment of the Thames Estuary 2050 Growth Commission, announced in the 2016 Budget Strategy, also aims to support high productivity clusters, attract and retain skilled workers, and make the most of infrastructure opportunities in the area⁴⁷.

Employment Land Review – Key Findings

13.4.40 The key findings of the Employment Land Review are summarised below. They are as follows:

- ▶ The amount of Office and Distribution floorspace has increased in the last four years, however, the amount of factory space has decreased. Vacancy levels are relatively low, indicating either a stagnant property market, or a high level of demand for the type of property provided in the district;
- ▶ The provision of quality and affordable start-up space is good;
- ▶ The quality of the majority of property is quite poor, with a significant amount dating pre-1940, and very little being built recently. Although, property is being maintained to a standard required to be occupied;
- ▶ There is a significant amount of land identified and available for employment development, totally approximately 87ha on allocated and retained sites. Competition is rife from the rest of Kent, in particular from strategic employment sites in closer proximity to London;
- ▶ In neighbouring districts, a significant amount of land is available and provides alternative locations and competition for Thanet. In particular development at Ashford and Canterbury will provide the greatest competition for investment opportunities in East Kent;
- ▶ Past development rates fluctuate significantly and where high levels of completions or losses are apparent, these are usually associated with single large developments. This indicates an unpredictable rate of development and inward investment; and
- ▶ There has been very little employment land lost to residential development, especially compared to other districts in Kent.

Tourism Profile

13.4.41 The UK is the eighth largest international tourism destination ranked by visitor numbers⁴⁸. For Kent, since 2002 the value of tourism has risen by approximately 49%. In 2015, the county recorded in excess of 60 million visitors. Outside of London, Kent remains the third most visited destination in the UK⁴⁹.

13.4.42 The profile of visitors to Thanet is as follows⁵⁰:

- ▶ 75% are day visitors;

- ▶ 66% are adult-only couples & groups - higher in Ramsgate, lower in Broadstairs;
- ▶ Most are from the UK – less than 10% come from overseas;
- ▶ By far the strongest reason to visit is the seaside/beaches;
- ▶ Most travel by car;
- ▶ Most visit in the summer – with a significant peak in August; and
- ▶ New attractions include the Turner Gallery in Margate which between April 2011 and April 2014 received 1.2 million visitors, contributing £30m to the local economy and supporting 130 jobs.

13.4.43 Thanet and East Kent has numerous tourist attractions; in addition to the scenic coastline, beaches, countryside, Thanet's attractions include:

- ▶ Dreamland;
- ▶ Charles Dickens related attractions;
- ▶ Margate Winter Gardens;
- ▶ Historic Manston;
- ▶ Hornby visitor centre;
- ▶ Quex Park and Cotton Powell Museum;
- ▶ James Bond – related attractions;
- ▶ Hornby Visitor Centre;
- ▶ Westwood Cross Shopping Centre;
- ▶ Port of Ramsgate and the Royal Harbour;
- ▶ The Turner Contemporary Art Gallery;
- ▶ Sailing Events; and
- ▶ The Open at Royal St. George's Golf Course in Sandwich.

13.4.44 Despite the wealth of attractions, the number of day visits to the district fell below those of other areas in East Kent. In 2015, Thanet recorded 3.4 million day visits with an associated spend of £119.4 million, this is significantly lower than Canterbury, Shepway, Dover and Ashford. As a total of day visits, Thanet accounted for just 6% in 2015.

13.4.45 Tourism currently accounts for around 3,800 jobs across Thanet and is concentrated in the coastal towns of Margate, Broadstairs and Ramsgate. There are over 530 businesses across the district, representing 11% of the business base and 9% of total employment (compared to around 8% for the South East as a whole)⁵¹. The tourism and leisure sector is identified as one of a suite of opportunity sectors for Kent⁵².

13.4.46 Thanet's Draft Economic Growth Strategy⁵³ identifies the 'heritage, culture and visitor economy' as a sector with growth potential, with the ambition to "*rebuild our reputation as the UK's favourite visitor destination*" which might be achieved through⁵⁴:

"Support for the sector at a strategic level within local policy and planning is key to unlocking the growth opportunities;

Identification and targeting of those businesses which have real growth potential within the business base and providing them with the support and guidance required to grow further;

The expansion and development of transport infrastructure namely Manston Airport will further boost the tourism sector enhancing access to the area; and

Positive Planning to unlock opportunities – identifying and supporting the development of key sites e.g. development of Dreamland to raise the quality of the tourism offer attracting a more affluent / active population. In line with this, there is also a need for quality accommodation and hotel provision.”

13.4.47 These approaches sit within the county-wide strategy of the Kent & Medway Tourism Development Framework which seeks to:

- ▶ *“Help existing businesses improve their performance and develop further, in line with evolving market requirements;*
- ▶ *Identify, encourage and support additional visitor economy businesses and facilities that will enhance Kent’s attractiveness as a destination and increase market penetration, particularly through generating more staying visits;*
- ▶ *Make the most of opportunities for visitor economy development afforded by on-going investment in regeneration programmes and projects;*
- ▶ *Focus on local distinctiveness to enable Kent and its individual destinations to stand out from the crowd but also combine to offer a range of complimentary offers to potential visitors;*
- ▶ *Ensure that key public and private sector players work together as effectively as possible towards achieving agreed tourism development priorities;*
- ▶ *Improve the skills of people who work in Kent’s tourism industry and the quality of welcome and service received by visitors; and*
- ▶ *Deliver and sustain a quality tourism product for visitors.”*

13.4.48 At the local level, the specific intention⁵⁵ is that there should be effort to:

- ▶ *“Deliver quality experiences for existing markets, develop new experiences to grow market share and attract new higher spending visitors looking for short-breaks;*
- ▶ *Present the three towns more strongly together, playing to the strengths of each and making it easy for the visitor to explore along the coast and to get around;*
- ▶ *Invest in the experience of its beaches, Thanet’s strongest natural assets – their development and management;*
- ▶ *Prioritise investment in new quality character accommodation to enable Thanet to grow the short break market - to achieve longer stays and higher spend;*
- ▶ *Make more of its location – the Isle, the big skies, the natural coastline and importantly its proximity to London by high-speed train and the market opportunities that brings; and*
- ▶ *Stimulate the environment to encourage investment in new quality visitor attractions, visitor experiences and places to stay.”*

Future Baseline

13.4.49 For the purposes of the ES it is not expected that the future socio-economic baseline will significantly change.

13.5 Environmental Measures Incorporated into the Proposed Development

13.5.1 This section lists the environmental measures relevant to socio-economics which have been incorporated into the design of the Proposed Development.

13.5.2 How these environmental measures influence the assessment of significance is discussed in **Section 13.6**. However, the broad approach adopted is that where achievable and agreed environmental measures have been incorporated into the design, the effect that those

environmental measures have on the likely significant effects is taken into account during this assessment. In some cases, a potential effect may require no further consideration following incorporation of appropriate environmental measures and, if this is the case, this has been stated.

13.5.3

A summary of the environmental measures that have been incorporated into the proposals to date in order to avoid, reduce or compensate for likely significant adverse socio-economic effects is provided below in **Table 13.19**.

Table 13.19 Rationale for the Incorporation of Environmental Measures

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures
Local Population: Individuals of Working Age	<ul style="list-style-type: none"> • Generation of employment opportunities in the construction sector and within airport related industries. • Reduction in levels of unemployment within the local area (i.e. Thanet). 	<ul style="list-style-type: none"> • Implementation of measures to optimise local recruitment during construction and operation, including measures to ensure linkages to local training initiatives and/or agreements relating to local recruitment. • There is further scope to employ those who are currently unemployed; assumption that approximately 1,800 jobs^{vi} may be provided to those currently unemployed, if the unemployment rate were to drop as a result of the Proposed Development so that it is more in line with the Kent average.
Local Businesses	<ul style="list-style-type: none"> • Disruption to the local road network during construction impacting on employee and customer access. • Aircraft noise and traffic volumes during operation impacting on employees and customers. • Increase in economic activity as a result of temporary construction workers and further, via influx of passengers using the Proposed Development. • Construction and operational activities will lead to an increase in spending in the local economy by contractors and airport employees. 	<ul style="list-style-type: none"> • Carefully designed programme of traffic management during construction to minimise disruption. Specific measures are outlined within the Preliminary Construction Traffic Management Plan appended to the Traffic Assessment. • Traffic control during operation (refer to the Surface Access Strategy and Traffic Plan, appended to the Transport Assessment). • Scope for additional measures to optimise the spending by contractors in the local economy during the construction phase of the Proposed Development, by voluntary measures to place contracts with local firms and purchase from local suppliers.
Tourism	<ul style="list-style-type: none"> • Increased visitor numbers, in conjunction with increased incomes from employees at the Proposed Development will likely lead to increased usage and therefore a higher demand for tourism facilities / attractions. • Disruption to the local road network during construction impacting on employee and visitor access. • Aircraft noise during operation impacting on amenity. 	<ul style="list-style-type: none"> • Carefully designed programme of traffic management to minimise disruption and subsequent access to facilities. Specific measures are outlined within the Preliminary Construction Traffic Management Plan appended to the Traffic Assessment. • Noise control during operation to reduce effects on amenity.

13.6 Scope of the Assessment

13.6.1

This section sets out information on:

- ▶ The process whereby receptors are identified;

^{vi} Refer to the Housing and Employment Statement.

- ▶ The potential receptors that could be affected by the Proposed Development; and
- ▶ The likely effects on receptors that could be caused by the construction and operation of the Proposed Development.

13.6.2 The scope of assessment has been informed by:

- ▶ The Scoping Report (**Appendix 1.1**);
- ▶ Consultee responses to the Scoping Report (**Appendix 1.2**);
- ▶ Consultee responses to the 2017 PEIR and 2018 PEIR;
- ▶ The results of the work detailed in **Section 13.4**; and
- ▶ The design of the Proposed Development.

13.6.3 The assessment aims to identify the likely significant effects of the Proposed Development including forecasts developed as part of the business case, but is not an evaluation of the business case or its forecasts.

Approach to Identifying Receptors

13.6.4 The identification of receptors is based on relevant guidance and the professional judgement of a qualified technical specialist who has undertaken a desk study for the site location.

13.6.5 In some cases, even without quantified information, it is reasonable to assume that some potential receptors will not experience significant effects. This is sometimes the result of tried and trusted mitigation measures that have been incorporated into the Proposed Development design, which might reasonably be expected to be effective (see **Section 5.5**).

13.6.6 The following considerations have been taken into account in identifying potential receptors:

- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
- ▶ The sensitivity of the receptors to the changes that are likely to occur;
- ▶ The likely magnitude, duration and other characteristics of the effects;
- ▶ The importance or value of the receptor at a local, regional and national level; and
- ▶ Relevant best practice and guidance where specialist methodologies have been developed as detailed below.

Potential Receptors

13.6.7 This section identifies the potential receptors that have been identified based on the above factors and on the Scoping Opinion received from PINS. The receptors listed in **Table 13.20** are considered capable of being likely to be significantly affected and will therefore be taken forward for further assessment within the ES.

Table 13.20 Potential Receptors

Receptor	Reason for Selection
Local / Regional Population	<p>Effects on the local community and across Kent from temporary and permanent employment and training opportunities arising from both the construction and operational phases.</p> <p>Effects on the local community from temporary and permanent health, amenity and population-related changes to the environment such as disruption, noise and dust from increased road traffic and demand for local services and resources. This is assessed in the work of other environmental disciplines and can be located within Chapter 6: Air Quality, Chapter 12: Noise and Vibration, Chapter 14: Traffic and</p>

Receptor	Reason for Selection
Local / Regional businesses	<p>Transport and Chapter 15: Health and Wellbeing.</p> <p>Effects on businesses resulting from construction such as purchases of goods and services. Effects during operation include additional demand for services from local, regional and national supply chains.</p> <p>Effects on local business (other than those specifically related to tourism) during construction, such as due to noise, disruption and temporarily increased demand locally, and during operation from more permanent effects such as noise from aircraft operations, changes in traffic patterns and greater business activity related to the airport.</p>
Tourism	<p>Effects such as noise and traffic congestion on tourism receptors within the immediate vicinity of the airport, settlements nearby (notably the coastal resorts of Ramsgate, Broadstairs and Margate) and other potentially affected tourist receptors in the wider area (e.g. Canterbury).</p>

Spatial and Temporal Scope

- 13.6.8 The scope of assessment of socio-economic effects is defined spatially in terms of the geographic areas of Thanet, Kent County and England. The extents of the study areas considered in this Chapter are as outlined at paragraph 13.4.2.
- 13.6.9 Temporally, the scope covers construction and operation phases (i.e. Year 0-20 inclusive).

Effects Considered Elsewhere in the ES

- 13.6.10 The following effects are considered elsewhere in this ES:
- ▶ Effects in relation to motorised users - in particular with reference to severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety - during construction and operation are considered in **Chapter 14: Traffic and Transport**; and
 - ▶ The potential for disturbance and health of residents during construction and operation will be considered in **Chapter 4: Air Quality**, **Chapter 6: Landscape and Visual**, **Chapter 10: Noise and Vibration**.

Likely Significant Effects

- 13.6.11 The likely significant effects from the Proposed Development that are considered within this Chapter are outlined below:
- ▶ Direct employment opportunities for the local population;
 - ▶ Indirect and induced employment opportunities for the local population;
 - ▶ Change to the operation of businesses due to traffic during construction;
 - ▶ Additional burden on local services such as education, health and recreation;
 - ▶ Crime and safety; and
 - ▶ Change to existing tourism and recreational activities during construction and operation in specific localities.

Inter-related Effects

- 13.6.12 Potential inter-related effects are as follows:
- ▶ There is the potential for socio-economic changes (such as generation of employment and supply chain spending) associated with the Proposed Development to have an effect upon

wellbeing and human health, alongside. The effect of socio-economic changes on health, alongside other factors such as air quality, noise, visual and traffic changes, has been addressed within **Chapter 15: Health and Wellbeing**.

- ▶ There is the potential for inter-related effects associated with multiple topics (noise, visual, traffic and transport, air quality and health and wellbeing, in addition to socio-economics) acting in combination on the same human receptors (such as motor users, non-motor users, occupiers of properties and users of open space). The likelihood and significance of such inter-related effects is discussed in **Chapter 18: Cumulative Effects**.
- ▶ There is the potential for tourism and visitor attraction effects in relation to heritage assets which are considered in this Chapter.. Heritage assets are described in **Chapter 9: Historic Environment**.
- ▶ There is the potential for socio-economic effects as a result of changes in amenity value of receptors due to noise, particular for visitor attractions. Noise changes are described in **Chapter 12: Noise and Vibration**, however the assessment of the effect of noise on amenity receptors is presented in this Chapter.
- ▶ Some of the effects of traffic and transport changes on motorised users (e.g. effects on amenity, tourism and recreational activities due to disruption to the local road network) are considered in this Chapter. The prediction of traffic and transport changes are discussed in **Chapter 14: Traffic and Transport**.

Cumulative Effects

- 13.6.13 The potential for cumulative effects is provided through an assessment in **Chapter 18: Cumulative Assessment** and includes potential cumulative effects of the Proposed Development together with other identified major development proposals that were scoped into the assessment.
- 13.6.14 From a socio-economic perspective, potential cumulative effects are considered to be limited to the following:
- ▶ Construction employment: A number of strategic projects have been identified and collectively these could bring cumulative effects in relation to demand and employment of construction staff;
 - ▶ Operational employment: A number of strategic projects have been identified and collectively these could bring cumulative effects in relation to demand and employment of staff across multiple sectors including hospitality, healthcare, transport and industrial occupations; and
 - ▶ Accommodation: It is acknowledged that a proportion of staff employed (e.g. specialist contractors) may be housed within existing accommodation (e.g. hotels, B&Bs etc.) within the local area. Occupancy of these facilities alongside similar occupancy from other major projects could lead to cumulative effects on the availability of accommodation in the local area.

13.7 Assessment Methodology

- 13.7.1 In order to assess the changes resulting from the Proposed Development, it is necessary to establish the baseline situation and then identify any changes resulting from the construction and operation of the Proposed Development. This assessment comprises a qualitative assessment that has been informed by baseline data from the study area.

Methodology for Predicted Effects

Direct Employment Opportunities for the Local Population and Indirect and Induced Employment

- 13.7.2 The assessment of effects relating to employment opportunities during the construction and operational phases have been considered using a qualitative approach. All analysis uses secondary data from NOMIS (publicly available via ONS) alongside data from the E&S 2017 report.
- 13.7.3 For the purpose of this assessment and to provide an indication of the extent of change over time, Years 1, 3, 8, 15 (mid-points of the construction phases) 2 (operation commencement) and 20 (full operation) from **Table 13.23** are analysed within the assessment. These years match the phasing years for the Proposed Development (refer to **Table 3.1** in **Chapter 3: Description of the Proposed Development**).
- 13.7.4 Although a small proportion of operational workers are expected on site in Year 1, reflecting employment by the airport operator in advance of the commencement of operations, these have not been assessed since this assessment considers operational commencement only.

Change to the Operation of Businesses

- 13.7.5 The change to the operation of local businesses located within the surrounding area during the construction phase has been considered. A qualitative approach has been used to determine the likely effects.
- 13.7.6 A high-level desktop review of the local businesses within the immediate vicinity of the Proposed Development has been undertaken to establish a baseline view. This has provided an overview of the business locations, the uniqueness or degree of specialisation of the businesses, and the availability of alternative premises.

Additional Burden on Local Services

- 13.7.7 The additional burden on local services within the surrounding area during the construction phase has been considered. A qualitative approach has been used to determine the likely effects.

Crime and Safety

- 13.7.8 The effect of crime within the surrounding area, particularly within the construction phase, has been considered. A qualitative approach has been used to determine the likely effects.

Change to Existing Tourism and Recreational Activities

- 13.7.9 The assessment of changes to existing tourism and recreational activities has been considered qualitatively.
- 13.7.10 A high-level desktop review of local tourist attractions and typical visitor numbers for Thanet has been undertaken to establish a baseline view. This has subsequently been compared to anticipated passenger forecasts, as outlined in the E&S 2017 report.

Significance Evaluation Methodology

- 13.7.11 There is no definitive guidance on significance criteria for socio-economic effects and accordingly the assessment draws on existing good practice. Criteria in **Table 13.21** and **Table 13.22** have been formulated through professional judgement and best practice for NSIPs. The assessment methodology should be read in conjunction with the scope of the socio-economic assessment which is outlined in **Section 13.6**.
- 13.7.12 In the absence of accepted criteria for assessing the significance of socio-economic impacts, the scale of any impacts is assessed in relation to the magnitude of change against the sensitivity of the baseline position. The magnitude of an effect represents its severity with key factors to be considered including the extent (number of groups and/or people, households or businesses

affected) and the value of the resource. **Table 13.20** details the guideline criteria for assessing the effect magnitude. Some receptors will experience direct effects (such as through the construction of the Proposed Development), but the majority are likely to experience indirect effects.

Magnitude of Change

- 13.7.13 The magnitude of an effect on a receptor reflects consideration and analysis relating to:
- ▶ Spatial extent (localised/isolated or widespread);
 - ▶ Duration (short-term [less than 1 year], medium term [1-10 years] and long-term [10 years+]);
 - ▶ Permanency of the effect; and
 - ▶ Likelihood of the effect occurring.

- 13.7.14 The magnitude of change criteria is provided in **Table 13.21**

Table 13.21 Magnitude of Effect

Magnitude of Effect	Criteria
High	An effect that will significantly change baseline conditions and/or will be very likely to affect large numbers of businesses and/or people (number depending on the local context) and/or persists over many years.
Moderate	An effect that can be demonstrated to change the baseline conditions and is likely to affect a moderate number of businesses and/or people (number depending on the local context) and/or of medium duration.
Low	An effect that will result in a perceptible difference from baseline conditions and is likely to or may affect a small number of businesses and/or people (number depending on the local context) and/or is of short duration.
Negligible	An effect that does not result in a variation beyond the baseline conditions and/or is unlikely to measurably affect the well-being of businesses and/or people.

- 13.7.15 The assessment considers both economic and social resources. The framework set out in **Table 13.21** is suitable for assessing direct effects such as an increase in job opportunities.

Sensitivity

- 13.7.16 The sensitivity of a receptor relates to the potential for a receptor to resist or overcome an effect. The criteria for sensitivity are the same for both direct and indirect amenity effects, as set out in **Table 13.22** and have been formulated through professional judgement.

Table 13.22 Receptor Sensitivity

Receptor Sensitivity	Criteria
Very High	The receptor is of international importance and/or has little or no capacity to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
High	The receptor is of national importance and/or has little capacity to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.

Moderate	The receptor is of regional or local importance and/or has some capacity to absorb change and/or largely recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
Low	The receptor is of local importance and/or has the ability to absorb change and/or completely recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
Very Low	The receptor is of local importance and/or is able to absorb change and/or recover or adapt to the change and is not specifically for the use by sensitive groups such as older people, children, and people of poor health.

13.7.17 Sensitivity is a key dimension to the assessment of amenity effects. Key receptors are communities and community services resources, tourism resources and specialised manufacturing which are sensitive to noise and/or vibration effects. When a resource is considered to be sensitive to amenity effects and has a high or medium magnitude, the overall effect is considered to be significant.

Determination of Significance

13.7.18 The assessment of likely significant environmental effects as a result of the Proposed Development has taken into account both the construction phase and operational phase. The significance level attributed to each effect has been assessed based on the magnitude of change due to the Proposed Development and the sensitivity of the affected receptor. The following terms have been used to define the significance of the effects identified (as outlined in **Table 13.22**):

- ▶ Major effect: where the Proposed Development could be expected to have a considerable effect (either positive or negative) on socio-economics;
- ▶ Moderate effect: where the Proposed Development could be expected to have a noticeable effect (either positive or negative) on socio-economics;
- ▶ Minor effect: where the Proposed Development could be expected to result in a small, barely noticeable effect (either positive or negative) on socio-economics; and
- ▶ Negligible: where no discernible effect is expected as a result of the Proposed Development on socio-economics (i.e. the effect is insignificant).

13.7.19 **Table 13.23** sets out the approach to determining significance.

Table 13.23 Determining Significance

Sensitivity of Receptor	Magnitude of Effect			
	High	Moderate	Low	Negligible
Very High	Major– significant	Major significant	Moderate - significant	Minor– significant
High	Major– significant	Major - significant	Moderate - significant	Negligible – not significant
Moderate	Major– significant	Moderate - significant	Minor – significant	Negligible - not significant
Low	Moderate– significant	Minor– significant	Negligible - not significant	Negligible - not significant

Magnitude of Effect				
Negligible	Minor– significant	Negligible - not significant	Negligible - not significant significant	Negligible - not significant

13.8 Assessment of Effects

Direct Employment Opportunities for the Local Population

- 13.8.1 As the site is located within the district of Thanet, it has been considered appropriate to assume that the 'local level' comprises the local authority area.
- 13.8.2 Given the scale of the Proposed Development, strong transport connections, economic linkages and travel to work patterns, the employments are considered to extend beyond Thanet. As such, the 'regional level' has been set as the county of Kent.

Construction Phase

- 13.8.3 The construction of the Proposed Development will occur over four phases (as outlined in paragraph 13.7.3); construction jobs are anticipated to be created in each of these phases.
- 13.8.4 Estimates for the construction phase have been taken from the E&S 2017 report. This has predicted the number of construction jobs via making comparisons with similar projects (i.e. with an annual turnover of between £30 million to £40 million per annum). The forecasts for the four construction phases amount to 600-700 construction workers on site, with an average of 210 workers on site at any time. For the purpose of this assessment, the average number of workers has been used.
- 13.8.5 It is anticipated that there will be employment opportunities for individuals employed in Construction (Sector F). It is also anticipated that employment opportunities associated with such works will be made available to the local workforce where possible, although the installation of specialist plant may not be able to be completed by typical or local construction workforces. Measures to facilitate this are outlined within paragraph 13.8.33 below.

Local Level: Thanet

- 13.8.6 The total number of employee jobs estimated within the local level study area is approximately 41,000 (**Table 13.14**), as of 2015. Within Thanet, 4.3% of these were in Sector F: Construction (again 2015 data), which equates to 1,750 jobs. Based on the assumption that an average of 210 jobs will be generated in each phase, this represents approximately 12% of the employee jobs in Sector F: Construction at the local level. Therefore, the magnitude of change is considered to be high.
- 13.8.7 For all assessment years (Years 1, 3, 8 and 15), the sensitivity of economic receptors at the local level is high, given the high levels of unemployment within Thanet and given that Thanet is in the top 10% of most deprived authorities.
- 13.8.8 Accounting for the magnitude and sensitivity, there is likely to be a direct effect on employment receptors at the local level of **major beneficial significance**.

Regional Level: Kent

- 13.8.9 The total number of employee jobs estimated within the regional study area is approximately 609,000, as of 2015 (**Table 13.14**). Within Kent, 5.6% were in Sector F: Construction (again 2015 data), which equates to 34,000 jobs. Based on the assumption that an average of 210 jobs will be generated in each phase, this represents approximately 0.6% of the employee jobs in Sector F:

Construction at the regional level. Therefore, the magnitude of change is considered to be negligible.

- 13.8.10 For all assessment years (Years 1,3, 8 and 15), the sensitivity of economic receptors at the regional level is low, given the lower levels of unemployment within Kent.
- 13.8.11 Accounting for the magnitude and sensitivity, there is likely to be a direct effect on economic receptors at the regional level of **negligible significance**.

Operational Phase

- 13.8.12 For the operational phase, the E&S 2017 report highlights that there are numerous estimates for the relationship between direct employment and one million passengers / 100,000 tonnes of freight moved through airports. For the purpose of this assessment, the East Midlands estimate has been utilised to estimate direct jobs for the Proposed Development, since this is a ratio for a UK airport with a freight focus, aligning with the future operation of the Proposed Development.
- 13.8.13 **Table 13.24** shows the employment forecasts for the operation of the Proposed Development across the 20-year construction and full operation (commencing in Year 2) period. They are calculated from the forecasts of freight and passenger traffic in the operation plans multiplied by the estimates of number of jobs per tonne of freight and per million passengers.
- 13.8.14 It is anticipated that the Proposed Development will create 23,235 Full Time Equivalent (FTE) roles by Year 20, with annual increases in the availability of jobs.

Table 13.24 Forecast Job Creation

Year	Direct Jobs ^{vii}	Indirect/Induced Jobs ^{viiiix}	Catalytic Jobs ^x	Total Job Creation
Y1	116	0	0	116
Y2	856	1,542	0	2,398
Y3	1,551	2,791	6,203	10,545
Y4	2,085	3,753	8,341	14,179
Y5	2,150	3,870	8,601	14,621
Y6	2,446	4,438	9,862	16,766
Y7	2,576	4,638	10,306	17,520

^{vii} Direct impacts – all jobs directly related to operational and management activities at the airport, included jobs at the airport operator as well as at other businesses on or near the airport site.

^{viii} Indirect impacts – jobs related to the supply chain for the provision of products and services required by or at the airport and by its users.

^{ix} Induced impacts – jobs created from the additional expenditure generated by the direct and indirect activities, such as increased economic activity in towns near the airport.

^x Catalytic impacts – jobs occurring in the wider economy as a result of activities related to the aviation sector more generally, such as tourist income, increased trade and the knock-on impacts of firms' locational and business decisions from access to aviation infrastructure.

Year	Direct Jobs ^{vii}	Indirect/Induced Jobs ^{viiiix}	Catalytic Jobs ^x	Total Job Creation
Y8	2,645	4,762	10,581	17,988
Y9	2,668	4,803	10,673	18,143
Y10	2,749	4,948	10,996	18,693
Y11	2,812	5,062	11,249	19,124
Y12	2,890	5,202	11,561	19,653
Y13	2,947	5,305	11,789	20,042
Y14	3,018	5,432	12,072	20,522
Y15	3,094	5,570	12,378	21,042
Y16	3,164	5,695	12,656	21,515
Y17	3,224	5,802	12,894	21,920
Y18	3,301	5,942	13,205	22,448
Y19	3,349	6,029	13,397	22,775
Y20	3,417	6,151	13,668	23,235

Source: E&S 2017

13.8.15 According to the E&S 2017, direct jobs are anticipated to include, but are not limited to, the following:

- ▶ Passenger services;
- ▶ Freight services;
- ▶ Air Traffic services;
- ▶ Rescue and firefighting services;
- ▶ Airport operations;
- ▶ Maintenance;
- ▶ Motor transport;
- ▶ Site and freight security; and
- ▶ Administration.

- 13.8.16 The anticipated workforce is evaluated collectively against the existing Transportation and Storage (Sector H), Administrative and Support Service Activities (Sector N) and Other Services (Sector S) at the local and regional levels to determine the magnitude of change. These industries (hereafter referred to as 'Airport Industry Sectors') have been selected as they are those which most closely align with the anticipated direct jobs to be created (paragraph 13.8.15)^{xi}. Statistics for the south-east region and England have been provided within the baseline for context and to determine the sensitivity of the local and regional effects.
- 13.8.17 It is expected that by Year 20 that the Proposed Development will create 23,235 jobs, of which 3,417 will be direct jobs. These direct jobs are expected to increase quickly and steadily throughout that period, from 116 in year one, to 1,551 by year three (**Table 13.24**).
- 13.8.18 It is anticipated that employment opportunities associated with direct jobs will be made available to the local workforce, where possible. Measures to facilitate this are outlined within paragraph 13.8.33 below.

Local Level: Thanet

- 13.8.19 For all assessment years, the sensitivity of economic receptors at the local level is high, given the high levels of unemployment within Thanet and given that Thanet is in the top 10% of most deprived authorities.

Table 13.25 Job Creation in Airport Industry Sectors at the Local Level

Phase	Year	Direct Job Creation	Total number of employee jobs within Thanet (2015)	Opportunities in specific sectors within Thanet (2015)	% of jobs in Airport Industry Sectors
1st Year of Operation	Year 2	856			17.8%
Phase 2	Year 3	1,551	41,000	4,800	32.3%
Phase 3	Year 8	2,645			55.1%
Phase 4	Year 15	3,094			64.5%
Full Operation	Year 20	3,417			71.1%

Source: NOMIS

- 13.8.20 As highlighted in **Table 13.25**, the total number of employee jobs estimated within the local level study area is approximately 41,000, as of 2015. Within Thanet, 11.7% of these were in Airport Industry Sectors (again 2015 data), which equates to 4,800 jobs.
- 13.8.21 For Year 2:

^{xi} Employee jobs by industry sectors are inclusive of the following: B: Mining and Quarrying, C: Manufacturing, D: Electricity, Gas, Steam and Air Conditioning Supply, E: Water Supply, F: Construction, G: Wholesale and Retail Trade, H: Transportation and Storage, I: Accommodation and Food Services, J: Information and Communication, K: Financial and Insurance Activities, L: Real Estate Activities, M, Professional, Scientific and Technical Activities, N: Administrative and Support Service Activities, O: Public Administration and Defence, P: Education, Q: Human Health and Social Work Activities, R: Arts, Entertainment and Recreation and S: Other Service Activities.

- ▶ Based on the assumption that 856 direct jobs will be generated, this represents approximately 17.8% of employee jobs in Airport Industry Sectors at the local level. Therefore, the magnitude of change at the local level is considered to be high.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **major beneficial significance**.

13.8.22 For Year 3:

- ▶ Based on the assumption that 1,551 direct jobs will be generated, this represents approximately 32.7% of employee jobs in Airport Industry Sectors at the local level. Therefore, the magnitude of change at the local level is considered to be high.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **major beneficial significance**.

13.8.23 For Year 8:

- ▶ Based on the assumption that 2,645 direct jobs will be generated, this represents approximately 55.1% of employee jobs in Airport Industry Sectors at the local level. Therefore, the magnitude of change at the local level is considered to be high.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **major beneficial significance**.

13.8.24 For Year 15:

- ▶ Based on the assumption that 3,094 direct jobs will be generated, this represents approximately 64.5% of employee jobs in Airport Industry Sectors at the local level. Therefore, the magnitude of change at the local level is considered to be high.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **major beneficial significance**.

13.8.25 For Year 20:

- ▶ Based on the assumption that 3,417 direct jobs will be generated, this represents approximately 71.1% of employee jobs in Airport Industry Sectors at the local level. Therefore, the magnitude of change at the local level is considered to be high.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **major beneficial significance**.

Regional Level: Kent

13.8.26 For all assessment years, the sensitivity of economic receptors at the regional level is low, given the low levels of unemployment within Kent compared with the national averages.

13.8.27 As highlighted in **Table 13.26**, the total number of employee jobs estimated within the regional study area is approximately 609,000, as of 2015. Within Kent, 16.7% of these were in Airport Industry Sectors (again 2015 data), which equates to 102,000 jobs.

13.8.28 For Year 2:

- ▶ Based on the assumption that 856 direct jobs will be generated, this represents approximately 0.8% of employee jobs in Airport Industry Sectors at the regional level. Therefore, the magnitude of change at the regional level is considered to be negligible.
- ▶ Accounting for the sensitivity, there is likely to be a direct, long-term, permanent effect on economic receptors at the regional level of **negligible significance**.

13.8.29 For Year 3:

- ▶ Based on the assumption that 1,551 direct jobs will be generated, this represents approximately 1.5% of employee jobs in Airport Industry Sectors at the regional level. Therefore, the magnitude of change at the regional level is considered to be low.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the local level of **negligible significance**.

13.8.30 For Year 8:

- ▶ Based on the assumption that 2,645 direct jobs will be generated, this represents approximately 2.5% of employee jobs in Airport Industry Sectors at the regional level. Therefore, the magnitude of change at the regional level is considered to be moderate.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the regional level of **minor beneficial significance**.

13.8.31 For Year 15:

- ▶ Based on the assumption that 3,094 direct jobs will be generated. This represents approximately 3.0% of employee jobs in Airport Industry Sectors at the regional level. Therefore, the magnitude of change at the regional level is considered to be moderate.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the regional level of **minor beneficial significance**.

13.8.32 For Year 20:

- ▶ Based on the assumption that 3,417 direct jobs will be generated, this represents approximately 3.3% of employee jobs in Airport Industry Sectors at the regional level. Therefore, the magnitude of change at the regional level is considered to be negligible.
- ▶ Accounting for the sensitivity, there is likely to be a direct effect on economic receptors at the regional level of **minor beneficial significance**.

Table 13.26 Job Creation in Airport Industry Sectors at the Regional Level

	Direct Job Creation	Total number of employee jobs within Kent (2015)	Opportunities in specific sectors within Kent (2015)	%
Year 2	856			0.8%
Year 3	1,551	609,000	102,000	1.5%
Year 8	2,645			2.5%
Year 15	3,094			3.0%
Year 20	3,417			3.3%

Source: Azimuth Report

Additional Measures during Construction and Operation

- 13.8.33 In addition to the direct job creation referred to above, there is further scope to introduce specific measures that would target the employment of local staff and in particular those who are currently

unemployed or seeking work within the aviation. Agreed commitments by RiverOak are inclusive of the following:

- ▶ Working with East Kent College (or another party such as Canterbury Christ Church) to locate an aviation college on or close to the Proposed Development site;
- ▶ Providing practical support to the long-term unemployed (as per Stansted Airport Skills Academy) such as:
 - ▶ Informal 'meet the employer' events, interview preparation;
 - ▶ Help with CVs; and
 - ▶ Careers guidance.
- ▶ Financial support such as paying for public transport to interviews and training sessions;
- ▶ Working with local councils and third sector organisations to help promote job opportunities to local people, particularly to the long-term unemployed;
- ▶ Working with Further Education (FE) and Higher Education (HE) to promote apprenticeships at all levels;
- ▶ Working with FE/HE to develop courses (where not currently available) relevant to the job opportunities created by the operation of the Proposed Development;
- ▶ Working with other employers to provide 'hands on' training opportunities; and
- ▶ Working with other employers to provide equipment (such as out of service aircraft/aircraft parts) to support FE/HE delivery of courses.

Mitigation

- 13.8.34 Given that the effects of the Proposed Development are assessed as positive for employment generation, there is no requirement for mitigation.

Indirect and Induced Employment

- 13.8.35 For the construction phase, no estimations were provided in the E&S 2017 for indirect and induced employment opportunities. Therefore, these have been calculated using the factors in the Additionality Guidance⁵⁶, with an assumed multiplier of 1.5 on the basis that the level of multiplier effects is considered to be 'medium', as there are anticipated to be 'average linkages' associated with the Proposed Development.
- 13.8.36 For the operational phase, generation of indirect and induced employment opportunities associated with the Proposed Development have been taken from the E&S 2017, as shown in **Table 13.21**.
- 13.8.37 At this stage, it is not possible to isolate the Industry Sector where the impact may occur. Therefore, these figures have then been evaluated against the total number of employees in all Industry Sectors within the local and regional levels to determine the magnitude of change. This is because it is anticipated that the indirect and induced employment associated with the construction and operational phases could have an influence across all industry sectors.
- 13.8.38 Positive effects result from increased income generated from construction and operational employees spend on services such as accommodation and food, as well as potential income for local construction and supply companies, in turn providing employment opportunities.
- 13.8.39 Construction and operational activities will lead to an increase in spending in the local economy by contractors and airport employees. Such multiplier effects are anticipated both in terms of the sourcing of local supplies (indirect employment across wider supply chains), and local spend by construction workers on the Proposed Development (induced employment) within and outside of their working hours.

- 13.8.40 Using the assumed multiplier outlined in paragraph 13.8.35 and based on the assumption that there will be an average of 210 construction employees^{xii} on site for each construction phase (Year 1, Year 3, Year 8 and Year 15), it is estimated that there will be an additional 105 per annum indirect and induced jobs per year. Therefore, there is estimated to be a total of 315 jobs per annum.

Construction Phase

Local Level: Thanet

- 13.8.41 The total number of employees across all industry sectors at the local level is 41,000. Based on a comparison between the estimated jobs per annum (paragraph 13.8.40) and the total number of employee jobs available at the local level across industry sectors, the estimated indirect and induced employment associated with the Proposed Development represents approximately 0.7% of jobs across all industry sectors. Therefore, the magnitude of change is negligible.
- 13.8.42 For all assessment years, the sensitivity of economic receptors at the local level is high, given the high levels of unemployment within Thanet and given that Thanet is in the top 10% of the most deprived authorities.
- 13.8.43 Therefore, it is anticipated that there will be an effect of **negligible significance**.

Regional Level: Kent

- 13.8.44 The total number of employees across all industry sectors at the regional level is 609,000. Based on an evaluation against the total number of employee jobs available at the regional level across industry sectors, the estimated indirect and induced employment associated with the Proposed Development represents approximately 0.05%. Therefore, the magnitude of change is negligible.
- 13.8.45 For all assessment years, the sensitivity of economic receptors at the local level is low, given the low levels of unemployment across Kent.
- 13.8.46 Therefore, it is anticipated that there will be an effect of **negligible significance**.

Operational Phase

Local Level: Thanet

- 13.8.47 The total number of employees across all industry sectors at the local level is 41,000. Based on an evaluation against the total employee jobs available at the local level across industry sectors, the estimated indirect / induced employment associated with the Proposed Development for each assessment year is outlined below. For all assessment years, the sensitivity of economic receptors at the local level is high, given the high levels of unemployment within Thanet and given that Thanet is in the top 10% of most deprived authorities.
- 13.8.48 For Year 2:
- ▶ The estimated indirect / induced employment is 1,542, representing approximately 3.8% of jobs across all industry sectors. Therefore, the magnitude of change is moderate. There is likely to be an effect of **major beneficial significance**.
- 13.8.49 For Year 3:
- ▶ The estimated indirect / induced employment is 2,791, representing approximately 6.8% of jobs across all industry sectors. Therefore, the magnitude of change is high. There is likely to be an effect of **major beneficial significance**.

^{xii} Refer to the Employment and Housing Report.

- 13.8.50 For Year 8:
- ▶ The estimated indirect / induced employment is 4,762, representing approximately 11.6% of jobs across all industry sectors. Therefore, the magnitude of change is high. There is likely to be an effect of **major beneficial significance**.
- 13.8.51 For Year 15:
- ▶ The estimated indirect / induced employment is 5,570, representing approximately 13.5% of jobs across all industry sectors. Therefore, the magnitude of change is high. There is likely to be an effect of **major beneficial significance**.
- 13.8.52 For Year 20:
- ▶ The estimated indirect / induced employment is 6,151, representing approximately 15.0% of jobs across all industry sectors. Therefore, the magnitude of change is high. There is likely to be an effect of **major beneficial significance**.

Regional Level: Kent

- 13.8.53 The total number of employees across all industry sectors at the regional level is 609,000. Based on an evaluation against the total employee jobs available at the local level across industry sectors, the estimated indirect / induced employment associated with the Proposed Development for each assessment year is outlined below. For all assessment years, the sensitivity of economic receptors at the regional level is low, given the low levels of unemployment within Kent.
- 13.8.54 For Year 2:
- ▶ The estimated indirect / induced employment is 1,542, representing approximately 0.3%. Therefore, the magnitude of change is negligible. There is likely to be an effect of **negligible significance**.
- 13.8.55 For Year 3:
- ▶ The estimated indirect / induced employment is 2,791, representing approximately 0.5%. Therefore, the magnitude of change is negligible. There is likely to be an effect of **negligible significance**.
- 13.8.56 For Year 8:
- ▶ The estimated indirect / induced employment is 4,762, representing approximately 0.8%. Therefore, the magnitude of change is negligible. There is likely to be an effect of **negligible significance**.
- 13.8.57 For Year 15:
- ▶ The estimated indirect / induced employment is 5,570, representing approximately 0.9%. therefore, the magnitude of change is negligible. There is likely to be an effect of **negligible significance**.
- 13.8.58 For Year 20:
- ▶ The estimated indirect / induced employment is 6,151, representing approximately 1.0%. Therefore, the magnitude of change is negligible. There is likely to be an effect of **negligible significance**.
- 13.8.59 There may be scope for additional measures to optimise the spending by contractors in the local economy during the construction phase of the Proposed Development, by voluntary measures to place contracts with local firms and purchase from local suppliers.

Change to Local Businesses

Construction and Operational Phase

- 13.8.60 It is likely that the local economy in Thanet will benefit from construction work associated with the Proposed Development, as there are established firms and the proportion of businesses in Thanet providing construction services and accommodation and food services is higher than the England average. Construction Phases 2 – 4 will lead to further injections of expenditure into the local and regional economies with similar direct, indirect and induced effects.
- 13.8.61 Positive effects result from increased income generated from construction employees spend on accommodation and food, as well as potential income for local construction and supply companies, in turn providing employment opportunities. The magnitude of this effect is considered to be low, and the sensitivity of the receptor moderate with an overall effect of **minor beneficial significance**.
- 13.8.62 The predicted effects are centred on disruption to the local road network during construction impacting on employee and customer access to local businesses. Business premises surrounding the Proposed Development are predominantly clustered to the north-east, within Manston Business Park, with a small proportion of businesses clustered directly south of the A299 along Laundry Road. Manston Holiday Park and Manston Golf Centre are located north / north-east of the site, with their main access along Manston Road.
- 13.8.63 The peak level of construction traffic is lower than proposed operational traffic and therefore is anticipated to have a lower overall effect. However, there will be a higher volume of HGVs utilising the wider road network during construction (see **Chapter 14: Traffic and Transport**). The greatest increases in HGV traffic are on the A299 dual carriageway to the west and along Spitfire Way leading to the A299 from the site. HGVs are limited to these routes due to the existing constraints identified on the surrounding road network (e.g. height restrictions, traffic calming). This may have an effect and result in access limitations to Manston Business Park, since its main access point is along Spitfire Way. Additionally, businesses located within this area may see a reduction in drive-by traffic, owing to individuals avoiding routes utilised by HGV and other traffic during the construction phase of the Proposed Development. This could result in a reduction in trade, prompting a reduction in business activity, the net result being a loss of income to the business.
- 13.8.64 Analysis has shown Spitfire Way to be particularly sensitive to construction traffic delays and severance, however, these effects will be mitigated via road widening, pedestrian routes, appropriate road signage (for further information please refer to the Construction Traffic Management Plan appended to the Transport Assessment). Environmental measures to mitigate direct effects include implementation of a pattern of lorry movements. Given that appropriate mitigation is planned and the effects, especially during construction are only temporary, it is anticipated that the effect to businesses will be minimal. The magnitude of this effect is considered to be low, and the sensitivity of the receptor also low with an overall effect of **negligible significance**.

Additional Burden on Local Services

- 13.8.65 Whilst limited elements of the construction phase will require the employment of specialist contractors, it is assumed the majority of operatives on-site will be from the surrounding area (i.e. Kent) and the resources and skills necessary to construct the Proposed Development are available locally. As such, the majority of construction employment opportunities will be made available to employees in Kent. Given that the large majority of workers will reside close to the site, it is anticipated that the majority of construction workers will continue to reside within their current locations. Therefore, there is unlikely to be a significant increase in demand for educational and healthcare services, community facilities and accommodation local to the site. Therefore, it is considered that there will not be a significant effect.
- 13.8.66 The majority of the operational workforce are expected to reside in the local community and surrounding area. Since the local population will not increase due to additional in-migration of new

workers, there will not be additional pressures from a new burden on local community services such as schools, health and recreation. Therefore, it is considered that there will not be a significant effect.

Crime and Safety

- 13.8.67 The site security arrangements for the Proposed Development during the construction phase will be in line with the requirements set out in the Construction (Design and Management) Regulations 2015 and appropriate levels of security (e.g. CCTV) will be provided. Therefore, there is unlikely to be significant effects in relation to crime and it is considered that there will not be a significant effect.

Change to Existing Tourism and Recreational Activities

- 13.8.68 Tourism receptors in the vicinity of the Proposed Development may experience effects resulting from the increased activity in the geographical area, in both construction and operational phases. Such effects include changes in access to attractions (for example to Manston Golf Centre) and the amenity value of attractions (for example increased traffic, noise or dust affecting the pleasantness of attractions).

Construction Phase

Local Level: Thanet

Economic

- 13.8.69 The predicted economic effects to the tourism industry is similar to that for local businesses (see paragraphs 13.8.60 – 13.8.64); effects are centred on potential disruption to the local road network during construction, impacting upon employee and customer access to local attractions. Key tourist and recreational premises surrounding the Proposed Development include Nelson Park Riding Centre, Manston Court Holiday Park, Manston Golf Centre, St. Augustine's Golf Club, Minster Abbey, Bradgate Caravan Park and Monkton Nature Reserve.
- 13.8.70 The peak level of construction traffic is lower than proposed operational traffic and therefore is anticipated to have a lower overall effect. However, there will be a higher volume of HGVs utilising the wider road network during construction (see **Chapter 14: Traffic and Transport**). The greatest increases in HGV traffic are on the A299 dual carriageway to the west and along Spitfire Way leading to the A299 from the site. HGVs are limited to these routes due to the existing constraints identified on the surrounding road network (e.g. height restrictions, traffic calming).
- 13.8.71 Direct access is not anticipated to be significantly affected to the premises referred to in paragraph 13.8.69, since none are directly accessed from Spitfire Way or the A299. Both these routes may act as through roads to reach facilities, however, alternative routes to all facilities are available. Additionally, a suite of mitigation measures (as outlined in the Construction Traffic Management Plan appended to the Transport Assessment) are planned, including appropriate road signage and a pattern of lorry movements. As such, although slight delays may be experienced to reach tourist attractions and recreational facilities, it not anticipated that there will be a significant loss to income or a reduction in passing customers. Therefore, it is anticipated that the economic effect to tourist attractions will be minimal. The magnitude of this effect is considered to be low, and the sensitivity of the receptor also low with an overall effect of **negligible significance**.

Amenity

- 13.8.72 In terms of indirect impacts, such as increased traffic, noise or dust, detailed assessments have been undertaken in **Chapter 6: Air Quality**, **Chapter 12: Noise and Vibration** and **Chapter 14: Traffic and Transport**.

- 13.8.73 Based on these assessments and the appropriate mitigation being implemented, overall amenity effects during construction are anticipated to be of low magnitude, and low sensitivity. Therefore, **the effect is of negligible significance.**

Regional Level: Kent

Economic

- 13.8.74 Given the scale of the Proposed Development, it is not anticipated that the regional study area (Kent) will be adversely impacted; traffic effects will largely be localised, resulting in little impact upon the day to day running, access to and ultimately economic impact upon tourist and recreational facilities. Therefore, the magnitude of the effect is considered low and the sensitivity low, leading **to no significant effects**

Amenity

- 13.8.75 In terms of indirect impacts, such as increased traffic, noise or dust, detailed assessments have been undertaken in **Chapter 6: Air Quality**, **Chapter 12: Noise and Vibration** and **Chapter 14: Traffic and Transport**.
- 13.8.76 Given the scale of the Proposed Development, it is not anticipated that the regional study area (Kent) will be adversely impacted; traffic effects will largely be localised, as will noise effects. Therefore, the magnitude of the effect is considered low and the sensitivity low, leading **to no significant effects.**

Operational Phase

Local Level: Thanet

Economic

- 13.8.77 As outlined in paragraph 13.4.41, Thanet has approximately 3.1 million visitors annually, of which 75% are day visitors. This means that the remaining 775,000 individuals are overnight stay visitors. Anticipated passenger numbers associated with the operation of the Proposed Development are as follows:
- ▶ Year 5: 686,672;
 - ▶ Year 10: 975,591; and
 - ▶ Year 20: 1,407,753.
- 13.8.78 By Year 20, this additional influx of people, if assumed to all be overnight stays, results in a net increase of 81.6% compared to current annual tourist visitors to Thanet. As in paragraph 13.8.77, if 75% of visitors are day visitors, one can assume that the remaining 25% are overnight stays. If the remaining 25% of visitors in Year 20 (351,938 individuals) are overnight stays, there is potential for a net increase of approximately 45.4%.
- 13.8.79 The volume of visits and spend by overseas visitors is affected by a number of factors including changes in the economic activity and disposable income in the origin countries and the relative value of sterling against the origin country currencies. For the 587 tourism businesses within the surrounding area, the increased visitor numbers in conjunction with increased incomes from employees at Manston will likely lead to increased demand for tourism facilities and associated spending in the locality. This could result in improvements to their volume of trade.
- 13.8.80 As an example, there are potential beneficial effects associated with use of local accommodation (e.g. hotels / hostels / B&Bs within surrounding communities of Sandwich, Manston, Ramsgate, Margate). There may be a rise in demand for short stay accommodation, for instance, from passengers staying overnight prior to their flight. However, the proportion of these individuals requiring local accommodation and/or visiting specific tourist attractions is likely to depend on the air routes served from the Proposed Development and so remain inherently variable. Whilst the

tourism sector will benefit from increased economic activity as a result of airport operations, establishing a specific connection between the tourism sector / attractions and airport activity is unclear.

- 13.8.81 The magnitude of economic effects on tourism is particularly difficult to predict as it depends on a number of different markets and possible influences (paragraph 13.8.79). The magnitude is conservatively assessed as low and the receptor sensitivity as moderate, to give an assessment of minor beneficial. Therefore, a **minor beneficial significant** effect is anticipated.

Amenity

- 13.8.82 In terms of indirect impacts, such as increased traffic, noise or dust, detailed assessments have been undertaken in **Chapter 6: Air Quality**, **Chapter 12: Noise and Vibration** and **Chapter 14: Traffic and Transport**.
- 13.8.83 It is anticipated that tourism will not be affected by the effects of surface transport disruption (see **Chapter 14: Traffic and Transport**). The increased population passing through the nearby area and the increased income in the local workforce associated with locals visiting tourist attractions will add to the potential tourist activity, but the level is uncertain and is likely to be small compared to existing levels of tourist activity.
- 13.8.84 The operational effects of traffic and noise (surface and air) are the main factors affecting amenity related to tourism. As reported in **Chapter 12: Noise and Vibration**, it is anticipated that there will be perceived changes in the acoustic character of open spaces within the following communities in Thanet: Ramsgate; Manston; Wade; and West Stourmouth. Whilst the tranquil conditions of sites may be affected by aircraft noise, this is not expected to adversely affect tourism businesses. The Proposed Development is anticipated to attract more people to the area and from this perspective, the number of people using tourist related amenities will likely rise. The increase in surface traffic is small compared to existing flows and the levels of noise increase are small in comparison to existing levels at the most exposed locations which include the centre of Ramsgate, the port and the main beach (see **Chapter 12: Noise and Vibration**).
- 13.8.85 Overall, amenity effects associated with tourism during operation are anticipated to be of low magnitude, while the sensitivity of the receptor is high. Therefore, the anticipated effect is of **moderate beneficial significance**.

Regional Level: Kent

Economic

- 13.8.86 The expected growth in passenger numbers as a result of the Proposed Development will provide beneficial external economic impacts through expenditure in Kent and elsewhere within the UK, for instance on accommodation, retail, catering, business and entertainment.
- 13.8.87 East Kent is relatively well connected to London; the county has 179 railway stations and major routes such as the M20, A2/M2 and A21 form important local and strategic links out of the county. The public rail network is divided between the High-Speed line that runs from London to continental Europe and the local network, serviced by Southeastern. There is also an extensive bus network, primarily run by Stagecoach in the East. Consequently, these services provided in the local tourist sector also serve the larger London tourist market. These local providers are likely to benefit from the increased connectivity provided by the Proposed Development and their clients from the larger London market are likely to be unaffected by local health and amenity effects.
- 13.8.88 East Kent also benefits from long-term tourism, including language school students. In 2013, language schools contributed £33.6 million to the Thanet economy. Long-term visits of this nature would be more readily facilitated and encouraged via the operation of passenger services.
- 13.8.89 The magnitude of economic effects on tourism is particularly difficult to predict as it depends on a number of different markets and possible influences (paragraph 13.8.79). The magnitude is conservatively assessed as low and the receptor sensitivity as moderate, to give an assessment of **minor beneficial significance**.

Amenity

- 13.8.90 In terms of indirect impacts, such as increased traffic, noise or dust, detailed assessments have been undertaken in **Chapter 6: Air Quality**, **Chapter 12: Noise and Vibration** and **Chapter 14: Traffic and Transport**.
- 13.8.91 Given the scale of the Proposed Development, it is not anticipated that the regional study area (Kent) will be adversely impacted; traffic effects will largely be localised, as will noise effects. Therefore, the magnitude of the effect is considered low and the sensitivity low, leading to **no significant effects**.

13.9 Conclusions on Significance Evaluation

- 13.9.1 The conclusions on the significance of all those effects that have been subject to assessment in **sections 13.8 to 13.11** are summarised in **Table 13.27**.

Table 13.27 Summary of Significance of Effects

Likely Significant Effects	Magnitude of Effect	Sensitivity	Significance Level	Rationale
Direct employment opportunities for the local population (construction phase)	Local Level: high Regional Level: low	Local Level: high Regional Level: low	Local Level: Major beneficial significance Regional Level: Negligible significance	High levels of unemployment in Thanet and the district is within the top 10% of most deprived authorities. Lower levels of unemployment across Kent.
Direct employment opportunities for the local population (operational phase)	Local Level: high Regional Level: low / moderate	Local Level: high Regional Level: low	Local Level: major beneficial significance Regional Level: negligible / minor beneficial significance	High levels of unemployment in Thanet and the district is within the top 10% of most deprived authorities. Lower levels of unemployment across Kent.
Indirect and induced employment opportunities for the local population (operational phase)	Local Level: negligible Regional Level: negligible	Local Level: high Regional Level: low	Local Level: negligible significance Regional Level: negligible significance	High levels of unemployment in Thanet and the district is within the top 10% of most deprived authorities. Lower levels of unemployment across Kent.
Indirect and induced employment opportunities for the local population (construction phase)	Local Level: moderate / high Regional Level: negligible	Local Level: high Regional Level: low	Local Level: major beneficial significance Regional Level: negligible significance	High levels of unemployment in Thanet and the district is within the top 10% of most deprived authorities. Lower levels of unemployment across Kent.

Likely Significant Effects	Magnitude of Effect	Sensitivity	Significance Level	Rationale
Change to local businesses	Low	Low	Negligible significance	Disruption is localised to predominantly A299 and Spitfire Way. Appropriate mitigation is planned so it is anticipated that the effect to businesses will be minimal.
Additional burden on local services	Low	Low	No significant effect	The majority of the operational workforce are expected to reside in the local community and surrounding area. Since the local population will not increase due to additional in-migration of new workers, there will not be additional pressures from a new burden on local community services such as schools, health and recreation.
Crime and Safety	Low	Low	No significant effect	The site security arrangements for the Proposed Development during the construction phase will be in line with the requirements set out in the Construction (Design and Management) Regulations 2015 and appropriate levels of security (e.g. CCTV) will be provided. Therefore, there are unlikely to be significant effects.
Change to existing tourism and recreational activities (Economic for construction phase)	Local Level: low	Local Level: moderate	Local Level: Minor beneficial significance	The magnitude of economic effects on tourism is particularly difficult to predict as it depends on a number of different markets and possible influences. The expected growth in passenger numbers as a result of the Proposed Development will provide beneficial external economic impacts through expenditure in Kent and elsewhere within the UK, for instance on accommodation, retail, catering, business and entertainment.
	Regional Level: low	Regional Level: moderate	Regional Level: minor beneficial significance	
Change to existing tourism and recreational activities (Economic for operational phase)	Local Level: low	Local Level: moderate	Local level: minor beneficial significance	The magnitude of economic effects on tourism is particularly difficult to predict as it depends on a number of different markets and possible influences. The expected growth in passenger numbers as a result of the Proposed Development will provide beneficial external economic impacts through expenditure in Kent and elsewhere within the UK, for instance on accommodation, retail, catering, business and entertainment.
	Regional Level: low	Regional Level: moderate	Regional Level: minor beneficial significance	

Likely Significant Effects	Magnitude of Effect	Sensitivity	Significance Level	Rationale
Change to existing tourism and recreational activities (Amenity for construction phase)	Local Level: low	Local Level: high	Local Level: moderate beneficial significance	<p>Given the scale of the Proposed Development, it is not anticipated that the regional study area (Kent) will be adversely impacted; traffic effects will largely be localised, as will noise effects.</p> <p>The increase in surface traffic is small compared to existing flows and the levels of noise increase are small in comparison to existing levels at the most exposed locations which include the centre of Ramsgate, the port and the main beach.</p>
	Regional Level: low	Regional Level: low	Regional Level: negligible significance	
Change to existing tourism and recreational activities (Amenity for operational phase)	Local Level: low	Local Level: high	Local Level: moderate significance	<p>Given the scale of the Proposed Development, it is not anticipated that the regional study area (Kent) will be adversely impacted; traffic effects will largely be localised, as will noise effects.</p> <p>The increase in surface traffic is small compared to existing flows and the levels of noise increase are small in comparison to existing levels at the most exposed locations which include the centre of Ramsgate, the port and the main beach.</p>
	Regional Level: low	Regional Level: low	Regional Level: no significant effect	

Inter-related Effects

- 13.9.2 Socio-economics changes as a result of the Proposed Development, such as direct employment generation and supply chain spending, may have an effect upon on human health. This effect has been addressed within **Chapter 15: Health and Wellbeing**. It is anticipated that the effects will be significant and beneficial.
- 13.9.3 Potential inter-related effects related to multiple topics (noise, visual, traffic and transport, air quality and health and well-being in addition to socio-economics) acting in combination on the same human receptors (such as motor users, non-motor users, occupiers of properties and users of open space) is discussed in **Chapter 18: Cumulative Effects**. There are no inter-related effects anticipated that are related to socio-economic changes.
- 13.9.4 Some of the effects of traffic and transport changes on motorised users (as set out in **Chapter 14: Traffic and Transport**) has been discussed within the assessment (**Section 13.8**). It has been determined that effects on employee and customer access to local businesses, and effects on amenity, tourism and recreational activities due to disruption to the local road network is unlikely to be significant as it is assumed that appropriate traffic management regimes would be imposed upon all developments taking into account any overlaps between construction periods as well as operational requirements.
- 13.9.5 The changes to the amenity value of existing tourist and visitor attractions due to noise is not considered to be significant.

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14. Traffic and Transport

14.1 Introduction

- 14.1.1 This Chapter sets out the results of an assessment of the traffic and transport related environmental effects of the Proposed Development. It outlines the key traffic and transport aspects of the Proposed Development, relevant policy, legislation and guidance, the data gathering methodology, the baseline conditions, scope and methodology alongside the results. This Chapter should be read in conjunction with the Proposed Development description (**Chapter 3: Description of the Proposed Development**).
- 14.1.2 **Figure 14.1** shows the location of the Proposed Development in the context of the wider highway network with the Proposed Development site shown in **Figure 1.1** in **Chapter 1: Introduction**, which sets out the proposed masterplan layout for the site.

14.2 Key Traffic and Transport Aspects of the Proposed Development

Site Context

- 14.2.1 The Proposed Development site is well located to access key highway routes in the area which comprise: the A299 which links to the M2 and the A28 to Canterbury and the M20; and the A256 which links to Dover. Access to the A299 from the site is via the Manston Road (B2050) and the Spitfire Way (B2190) which are the roads which bound the site.
- 14.2.2 The key local aspects of the local highways network are set out in further detail in **Section 14.5**, which includes key local context maps showing the site and key local highways infrastructure.

Proposed Site Access Points

- 14.2.3 As shown in the masterplan, the following access points are proposed:
- ▶ Cargo Facility – new access onto Spitfire Way in the form of a roundabout;
 - ▶ Passenger Terminal – existing access onto Manston Road will be upgraded to a signal junction;
 - ▶ 'Northern Grass' area – new southern access onto Manston Road in the form of a signal junction;
 - ▶ 'Northern Grass' area – new western access onto Manston Road in the form of a priority junction; and
 - ▶ Fuel Farm – existing access onto Canterbury Road West will remain unchanged.
- 14.2.4 The accesses have been designed in accordance with the national design standards set out in the Design Manual for Roads and Bridges (DMRB) and have been based on junction modelling to ensure that the design has capacity to accommodate the full development and future traffic flows. The following sets out the details of the proposed accesses. The detailed plans of the proposed accesses are set out in the Transport Assessment (TA) provided to support this DCO application.

Cargo Facility Access with Spitfire Way

- 14.2.5 The Cargo Facility and associated vehicle parking for Heavy Goods Vehicles (HGVs) and staff will be served by one access which will form a new junction off Spitfire Way. This is proposed to be a three-arm roundabout.

Passenger Terminal Access with Manston Road

- 14.2.6 The Passenger Terminal and associated car parking for passengers and staff will be served by one access, which remains in the existing location. The junction will be upgraded to a fully signalised junction, linked with a second new junction to the west (The 'Northern Grass' area Southern Access).
- 14.2.7 The junction has been designed to incorporate pedestrian crossing facilities across the Airport access arm and across Manston Road.

'Northern Grass' Area Southern Access with Manston Road

- 14.2.8 The 'Northern Grass' area will be served by two accesses, the main one from Manston Road, which will be a three-arm signalised junction and will be linked with the Passenger Terminal junction to optimise traffic flow throughput.
- 14.2.9 The junction has been designed to incorporate pedestrian crossing facilities across the Airport access arm and across Manston Road.

'Northern Grass' Area Western Access with Manston Road

- 14.2.10 The second access to the 'Northern Grass' area will be from Manston Road, to the west of the site. This will be a ghost island priority junction which incorporates a right turn lane.

Fuel Farm Access

- 14.2.11 The existing access to the fuel farm off Canterbury Road West is an established access to the facility that has been designed to accommodate large tankers hence it is not proposed to be amended.

Other Proposed Local Highways Improvements

- 14.2.12 As part of the Proposed Development, the Spitfire Way/Manston Road junction will be upgraded to a signalised crossroad. Both Spitfire Way and Manston Road will be widened to form a 7.3m carriageway, with pedestrian footways provided on the southern side of Manston Road and eastern side of Spitfire Way between the Cargo Facility and the Passenger Terminal junctions. Further details on the nature and design of these improvements will be provided within the TA, which forms part of the Development Consent Order (DCO) application.

14.3 Policy and Legislative Context

- 14.3.1 The assessment has been undertaken in accordance with relevant traffic and transport related planning policy, legislation and guidance at the national, regional and local level. This helped identify any requirements which the Proposed Development needs to consider, aiding the process of defining the scope of assessment and informing the identification of local issues.

Policy and Guidance Context

- 14.3.2 Policy and guidance documents relevant to traffic and transport environmental effects of the Proposed Development are listed in **Table 14.1**.

Table 14.1 National and Local Planning Policies relevant to Traffic and Transport

Policy Reference	Policy Information Relevant to Traffic and Transport
National Planning Policy Framework (NPPF): Draft for Consultation (March 2018)¹	<p>Chapter 9 Promoting sustainable transport - the key changes relate to:</p> <ul style="list-style-type: none"> • Transport impacts should address highway safety as well as capacity and congestion; • Designs should priorities pedestrian and cycle movement, followed by access to high quality public transport; and • The importance of creating high quality places. <p>Paragraph 103b reflects the housing White Paper proposal that authorities should be expected to identify additional development opportunities arising from strategic infrastructure investment.</p> <p>Paragraph 105f sets out new policy to recognise the importance of maintaining a national network of general aviation facilities.</p> <p>Policy on assessing the transport impact of proposals (now at paragraphs 108-110) has been amended to refer to highway safety as well as capacity and congestion in order to make it clear that designs should prioritise pedestrian and cycle movements, followed by access to high quality public transport (so far as possible) as well as to reflect the importance of creating well-designed places.</p>
National Planning Policy Framework (NPPF) (2012)²	<p>The NPPF outlines the Government's planning policies and how they are expected to be applied. The NPPF states that <i>"the purpose of the planning system is to contribute to the achievement of sustainable development."</i> Paragraphs 29 to 32 encourage sustainable transport modes for the movement of goods and people and for plans and decisions to take account of whether safe and suitable access to sites can be achieved for all people, whilst ensuring developments are designed to accommodate the efficient delivery of goods and supplies, give priority to pedestrian movements, and create safe and secure layouts which minimise conflicts between traffic and pedestrians.</p> <p>Paragraph 32 identifies that development should only be prevented or refused on transport grounds where the residual cumulative impacts of the development are severe.</p>
Kent County Council (KCC) Local Transport Plan 4: Delivering Growth without Gridlock 2016–2031³	<p>It is identified in LTP4 that the <i>"elected members of KCC fully support the continued regeneration of Manston and East Kent and are supportive of a business park or an airport, depending upon the viability of such plans and their ability to deliver significant economic growth and job opportunity."</i></p> <p>Within the local priorities, infrastructure improvements such as the A299 Thanet Way, the East Kent Access scheme and the introduction of High Speed rail services have helped to address isolation issues of Thanet district. Further improvements identified include an inner circuit of new and improved highway routes, including improved links to Westwood Cross, the Westwood Relief Strategy – Westwood Road to Margate Road Link and the Thanet Parkway railway station.</p>
KCC Freight Action Plan (2012)⁴	<p>The Freight Action Plan has been produced with a vision to <i>"promote safe and sustainable freight distribution networks into, out of and within Kent, which support local and national economic prosperity and quality of life, whilst working to address any negative impacts on local communities and the environment both now and in the future."</i></p> <p>Objective six encourages sustainable distribution that involves more efficient transport and warehousing.</p> <p>The Airport would achieve this through the co-location of the 'Northern Grass' area which will enable local storage of freight cargo.</p>
The Thanet Local Plan Saved Policies (2006)⁵	<p>Policy TR3 – Provision of Transport Infrastructure states that <i>"The district and county councils will ensure, by means of a legal agreement that proper provision is made for transport infrastructure that is necessary and relevant to the development to be permitted. Proposals for transport infrastructure will be assessed in terms of their impact on capacity and safety of the transport network together with their social and economic impacts."</i></p>

Guidance Documents

- 14.3.3 Current guidance for assessing potentially significant environmental effects is the Institute of Environmental Assessment (IEA) publication Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic⁶ (hereafter referred to as GEART). This has been utilised within this assessment.

14.4 Data Gathering Methodology

14.4.1 The following section sets out the data gathering methodology that has been used to inform the assessments within this Chapter.

Desk Study

14.4.2 The desk study included a review of the overall network, public transport and accident data. Further detail is set out in the following sections.

Network Review

14.4.3 A detailed review of the local highways network and Public Rights of Way (PRoW) was undertaken to inform an understanding of the study area, including sensitive locations such as schools, areas with high pedestrian flows and congested sections of the local road network. This review was undertaken using street mapping, aerial photography and Google traffic.

14.4.4 For PRoW, the details of the local routes and nature of these routes has been taken from the “Public Rights of Way Map”⁷ online mapping available on the KCC website.

Local Public Transport Facility Review

14.4.5 A review of existing public transport facilities (bus/rail stops and interchanges) and routes (rail lines and bus routes) was undertaken.

14.4.6 Detailed information on the local bus stops and route has been obtained from the “Thanet Bus Map” and from the Travel Line South East journey planner website⁸.

14.4.7 Rail information on train times has been extracted from the National Rail Enquires website⁹.

14.4.8 The details of the baseline review of the public transport infrastructure locally is contained within the Transport Assessment, though that information has been used to assist in the identification of receptors in this Chapter.

Accident Data

14.4.9 Personal Injury Accident (PIA) data recorded by the police has been reviewed. The PIA data categorises whether the accident is slight, serious or fatal in nature and includes information on the location of the accident, the time it took place, the weather and light conditions, motorised and non-motorised users involved and casualty numbers. The data also sets out the causation factors of the accidents which have been identified by the police.

14.4.10 Records of the PIA have been obtained from KCC for just over a six-year period, dating from June 2011 to September 2017. Full details of the accident records are provided as **Appendix 14.1**. The accident data assessment area is shown in **Figure 14.2**.

Survey Work

14.4.11 A site visit was undertaken on 27 September 2017 and included detailed notes and photographs recorded on a GPS iPad system. The following was included during the site visit:

- ▶ All roads and junctions that formed part of the study area;
- ▶ All proposed site accesses locations;
- ▶ The PRoW affected by the Proposed Development were walked;
- ▶ Peak hour observations of traffic conditions were made on the A299;

- ▶ On-site observations of the operation of signalised junctions within the study area were recorded;
- ▶ Road width measurements of Spitfire Way and Manston Road were taken;
- ▶ Observations of sustainable transport provision such as pedestrian footways, bus stops etc. were made;
- ▶ A visit to Ramsgate train station was made, including observation of key traffic and pedestrian routes to and from the station; and
- ▶ Observations were made of key sensitive locations identified as part of the desk top review.

Baseline Traffic Data and Surveys

14.4.12 Traffic count surveys were commissioned to understand the existing traffic conditions within the study area. **Table 14.2** provides a summary of the traffic count surveys commissioned and traffic data obtained as well as provides the source of information.

Table 14.2 Summary of Traffic Surveys and Data Information

Source	Survey Information
360TSL	Manual classified turning counts (MCC), automatic traffic counts (ATC) and queue surveys commissioned on links and at junctions anticipated to be affected by the proposals – March 2017.
PCC Traffic Information Consultancy Limited	Following discussions with KCC, additional MCC counts and ATC's as well as queue surveys were commissioned on the links and at the junctions anticipated to be affected by the proposals– October 2017.
Highways England (HE)	Traffic data for the strategic HE road network has been extracted through the HE traffic data portal ¹⁰

14.4.13 As per **Table 14.2**, 360TSL were commissioned to undertake a series of traffic counts and queue surveys. MCC traffic surveys were undertaken on Wednesday 1 March, Thursday 2 March and Thursday 9 March 2017 at the following junctions, for the period of 06:00 - 24:00:

- ▶ 1 – A256 / Sandwich Road;
- ▶ 2 – A256 / A299/Cottingham Link Road;
- ▶ 3 – A299 / Canterbury Road West;
- ▶ 4 – A299 / B2190 (Minster Road) / B2190 (Tothill Street);
- ▶ 5 – B2190 / Minster Road;
- ▶ 6 – A253 (Canterbury Road) / A299 / Willetts Hill / Seamark Road;
- ▶ 7 – A299 / A28 (Canterbury Road) / Potten Street Road;
- ▶ 8 – A28 (Canterbury Road) / The Square (Station Road);
- ▶ 9 – B2050 (Park Lane) / Acol Hill / B2050 (Manston Road);
- ▶ 10 – B2050 (Manston Road) / Shottendane Road / Margate Hill;
- ▶ 11 – B2190 (Spitfire Way) / Columbus Avenue;
- ▶ 12 – B2050 (Manston Road) / Manston Road / B2190 (Spitfire Way);
- ▶ 13 – B2050 (Manston Road) / Manston Court Road;
- ▶ 14 – A28 (Canterbury Road) / B2052 (George V Avenue);

- ▶ 15 – B2052 (Heartsdown Road) / B2052 (Tivoli Road) / B2052 (College Road) / Nash Road / Empire Terrace / Manston Road (Coffin Corner);
- ▶ 16 – A254 (Ramsgate Road) / B2052 (College Road) / B2052 (Beatrice Road);
- ▶ 17 – A254 (Margate Road) / A254 (Ramsgate Road) / Star Lane / Poorhole Lane;
- ▶ 18 – Star Lane Link / Manston Court Road;
- ▶ 19 – A256 (New Haine Road) / New Cross Road;
- ▶ 20 – A256 (Hain Road) / B2050 (Manston Road);
- ▶ 21A – A256 (Haine Road) / Canterbury Road West / A256; and
- ▶ 21B – A299 (Canterbury Road East) / A299 (Hengist Way) / Sandwich Road / A256 (Lord of the Manor Roundabout).

14.4.14

Following discussion with KCC, a series of additional MCC traffic counts were commissioned in October 2017 to widen the scope of assessment, undertaken by PCC Traffic Information Consultancy Limited. The counts were undertaken at the following junctions:

- ▶ 22 – B2052 (Tivoli Road) / Tivoli Road / B2052 (Beatrice Road);
- ▶ 23 – B2050 Park Lane / A28 (Canterbury Road);
- ▶ 24 – Star Lane / Nash Road;
- ▶ 25 – B2050 Manston Road / Tesco Supermarket Access;
- ▶ 26 – B2050 (Manston Road) / B2014 (Newington Road);
- ▶ 27 – B2014 (Newington Road) / A255 (High Street); and
- ▶ 28 – A255 (High Street) / A255 (Park Road) / Wilfred Road / Grange Road.

14.4.15

The above junction traffic counts data has been supplemented by ATC data within the area to better understand the seven-day traffic conditions. The ATC data has been collected for a period of one week starting 07 March 2017 and for a 24-hour period per day (360TSL). The ATC survey locations are as follow:

- ▶ ATC1 - A256 north of Sandwich;
- ▶ ATC2 – A299 near to Windermere Avenue;
- ▶ ATC3 – Manston Road near to Princess Margaret Avenue;
- ▶ ATC4 – A254 near Coxes Lane;
- ▶ ATC4A – A256 west of Northwood Road;
- ▶ ATC5 – A254 near Farley Road;
- ▶ ATC6 – A254 near Connaught Road;
- ▶ ATC7 – A28 near Westbrook Road;
- ▶ ATC8 – A28 near Domneva Road;
- ▶ ATC9 – A299 east of Grays;
- ▶ ATC10 – A28 Canterbury Road east of Sarre;
- ▶ ATC11 – A253 east of Sarre;
- ▶ ATC12 – A299 between Minster Road and Canterbury Road West; and

- ▶ ATC13 – B2190 Spitfire Way between Minster Road and Manston Road.

14.4.16 Following discussion with KCC, a series of additional ATC counts were undertaken in October 2017 to widen the scope of assessment at the following locations (PCC):

- ▶ ATC 14 – Minster Road (South of Acol);
- ▶ ATC 15 – Manston Road (North of Woodchurch Road);
- ▶ ATC 16 – Shottendane Road between Minster Road and Park Road;
- ▶ ATC 17 – Manston Road, north of junction with Bramble Lane;
- ▶ ATC 18 – Manston Road, south of junction with Vincent Road;
- ▶ ATC 19 – Manston Court Road, east of Valley Road;
- ▶ ATC 20 – Manston Court Road, south of the junction with Preston Road; and
- ▶ ATC 21 – Manston Road (East of Manston).

14.4.17 The locations of the relevant traffic counts are included in **Figure 14.3**.

14.4.18 In addition, traffic flow information for the strategic road network (M2, A2 and A20) was extracted from the Department for Transport (DfT) online traffic count system. This data, however, only provides 24-hour Annual Average Daily Traffic (AADT).

14.4.19 This information provides the base network flows for the local highways network. Full details of the traffic counts are provided as **Appendix 14.2**.

14.4.20 It should be noted that the data collection exercise undertaken in March 2017 resulted in some issues with the final data collected. The traffic counts undertaken on highway links was found to have double counted HGVs in some locations where congestion was noted at the time of the surveys. A detailed explanation as to how this is resolved is set out later in this Chapter, however, it is not considered that this would undermine the overall analysis.

Highway and Junction Models

14.4.21 KCC and Thanet District Council (TDC) have commissioned a SATURN model, known as the strategic transport model, as part of the transport evidence base for the emerging Local Plan and to support the Transport Strategy for the district. At the time of the preparation of this DCO for submission the strategic transport model could not have been used as it was not ready for developers to use in late 2017. It would have been best practice to use the strategic model if available but a robust spreadsheet model, as developed and discussed with KCC, forms a solid basis for future traffic generation, distribution and impact assessments.

14.4.22 The robust spreadsheet model is based on the traffic survey count data and assumptions on growth for the future years. Individual junction models have been built using industry standard software – Junctions 9 for priority junctions and roundabouts and the LinSig software for signal junctions.

14.4.23 It is the intention to use the strategic transport model post submission of the DCO as agreed with KCC and RiverOak Strategic Partners Limited (RiverOak) remains committed to this and to amend the TA and supporting transport documentation for the DCO application as appropriate, including relevant mitigation schemes. A formal request has been made to use the model and discussions with KCC over the specification for the use of the model and programme are on-going and will be confirmed post DCO submission.

Consultation

14.4.24 Since 2015, RiverOak and Amec Foster Wheeler as highways consultant have engaged with consultees who have an interest in potential traffic and transport effects as part of the wider

scoping/consultation effort for the Proposed Development. A Scoping Report (**Appendix 1.1**), including a chapter covering traffic and transport, was produced and submitted to the Planning Inspectorate (PINS) who distributed it to stakeholders and provided a Scoping Opinion (**Appendix 1.2**). An initial Preliminary Environmental Information Report (PEIR) was then submitted by the applicant for consultation and review in summer 2017. Amec Foster Wheeler has also held meetings with KCC, HE (in relation to the strategic road network) and with Network Rail (in relation to the rail network). Finally, a second PEIR consultation was undertaken in early 2018.

14.4.25 A summary of the consultation response is set out in the following tables:

- ▶ **Table 14.3** – Consultee responses to the Scoping Report;
- ▶ **Table 14.4** – PINS responses to the Scoping Report;
- ▶ **Table 14.5** – Responses to June 2017 statutory consultation;
- ▶ **Table 14.6** – Consultation with KCC – including comments on Transport Scoping Note;
- ▶ **Table 14.7** – Consultee response to January 2018 PEIR; and
- ▶ **Table 14.8** – Consultation with KCC during preparation of the ES.

14.4.26 It should be noted that the text in the **Tables 14.3** to **14.7** refers to other documents prepared to support the DCO application, with particular reference to the TA. The TA provides the details of some of the technical background to the provision of development traffic flows as well as mitigation schemes required to support the Proposed Development. The TA needs to be read in conjunction with this Chapter to understand the traffic and transport issues associated with the development proposals. Appended to the TA are a range of other documents which also provide further background on mitigation proposals and these are set out in Table 14.9 of the TA.

Table 14.3 Consultee Responses to the Scoping Report

Consultee	Comments and Considerations	How This Has Been Addressed
Cliffsend Parish Council	<p>The response from Cliffsend Parish Council related to the Stone Hill Park proposals, however some of the comments and observations apply to the Proposed Development. They are as follows:</p> <p>The existing highway network is overcrowded and the proposals need to be adequate and delivered in a timely manner.</p> <p>There is concern over:</p> <ul style="list-style-type: none"> • Canterbury Road West becoming a rat run; • Extra traffic on the Sandwich Road and Southern Lord of the Manor roundabout; • The inadequacy of Manston Road heading towards Haine Road & Westwood Cross Roads; • The suitability of the highway network for Birchington bound traffic via Acol; • Construction haul routes; and • The location of extra bus stops. 	<p>These comments are noted and have been considered in the development of the masterplan, TA and accompanying documents. All roads mentioned in the comments are included in the study area for the Proposed Development.</p> <p>The development traffic will not need to use Canterbury Road west apart from a short section from the A299 and proposed fuel farm site.</p> <p>It is not anticipated that development traffic will use Sandwich Road along Pegwell Bay.</p> <p>Development traffic is anticipated to route onto the Southern Lord of the Manor Roundabout. The TA identifies the impact and mitigation requirements.</p> <p>The section of Manston Road along the site frontage will be improved through widening and the provision of pedestrian facilities. It is not anticipated that Manston Road east of the passenger terminal access will be a key route to and from the site as airport signage will be via Spitfire Way. However, traffic originating from Ramsgate would be anticipated to use this route as an access from Ramsgate. The TA identifies the impact and mitigation requirements.</p> <p>It is not anticipated that development traffic would route along Minster Road through Acol with Birchington bound traffic routeing along the B2050 (Manston Road/Park Lane) to Birchington.</p>

Consultee	Comments and Considerations	How This Has Been Addressed
Highways England	<p>There is concern about the potential impact of freight-related trips on the M2 and A2 therefore traffic impacts on these roads should be assessed during the construction and operational phases including where necessary, junction modelling.</p> <p>Justification of assumptions should be provided to ensure a robust assessment.</p> <p>The EIA and TA should be mutually compatible.</p>	<p>The details of the provision for improved or relocated bus stops are provided within the Airport Surface Access Strategy, TA and other documents.</p> <p>A meeting was held with HE on the 28 September 2017 and it was agreed that the TA will provide a chapter setting out the impacts on the M2/A2 and any other key parts of the strategic highways network that may be affected (such as the A20).</p> <p>The TA and environmental assessment will be using the same traffic flow figures based in the same methodology.</p> <p>Details of the environmental impacts on the HE network are set out later in this chapter for the M2, A2 and A20.</p>
Kent County Council	<p>There will be a requirement for a full transport assessment using any strategic transport model that KCC may have developed.</p> <p>This will inform a requirement for more detailed modelling processes at individual junctions.</p> <p>Assessments should be made on existing PRoW, historic footpaths and public access; dog walking and recreation routes.</p>	<p>A TA has been provided to support this DCO application.</p> <p>A meeting was held on the 11 September 2017 to agree a way forward with the development of the TA with KCC. Whilst it is acknowledged that the TA would normally use the KCC strategic transport model to assess the impact of the Proposed Development, this is not currently completed or available for use. It is intended that testing will be undertaken as soon as it is available, but this is likely to be post-submission of the DCO application.</p> <p>As is common practice in situation where detailed strategic models are not available, a robust spreadsheet model has been developed which has informed this Chapter and the TA, the methodology of which has been consulted on with KCC and comments taken onboard.</p> <p>In addition to the TA a PRoW Management Plan is provided to support the DCO application which will include the impacts on local PRoW and effects on public access, dog walking and recreation routes.</p>
Minster Parish Council	<p>Consideration of improving the road infrastructure from the Minster roundabout to the main airport entrances.</p> <p>Better definition of the local road network is required.</p>	<p>Road infrastructure proposals to accommodate the Proposed Development include widening Spitfire Way and Manston Road and improvements to the Spitfire Way/Manston Road junction are proposed to support the development. Details of these mitigation schemes will be included within the TA.</p> <p>This Chapter sets out a detailed breakdown of the local highways network and the scope of the assessment. This is the scope of the assessment that is proposed to be used in all the documents prepared to support the DCO application.</p>
National Grid	<p>The construction and operation of the Richborough Connection Proposed Development (RCP) should be considered in the cumulative assessment.</p>	<p>The Richborough Connection Project (RCP) is at its closest point 7.5km from the site boundary.</p> <p>However, the application (15/00136) for the RCP has been included within the list of considered committed developments considered within the cumulative assessments in the environmental assessments. However, related to this Chapter, according to the National Grid Development website the major construction work will be complete on the Richborough connection by August 2018 which is before the first year of construction of the Proposed Development. As such, with no cross over of RCP</p>

Consultee	Comments and Considerations	How This Has Been Addressed
Royal Mail	<p>Concerned with disruption to Royal Mail's road operations.</p> <p>More information on:</p> <ul style="list-style-type: none"> • Construction phase length; • The extent and phasing of the proposed employment development; • Cumulative traffic impact during the construction and operation phases; and • The disruption to major road users. 	<p>traffic on our construction and operational period, the RCP has not been considered further.</p> <p>The TA prepared to support this application provides information on the issues raised by Royal Mail.</p>
Thanet District Council	<p>Would like the operational and junction capacity assessment to be included in the ES Chapter.</p> <p>A 5% threshold should be used for operational capacity of the highway.</p>	<p>It is not usual practice to include junction capacity assessments within the Chapter, but this is included in the TA provided to support the DCO.</p> <p>This Chapter has considered the assessment thresholds set out in GEART will be applied as is standard practice.</p>
Police	<p>Kent Police consider that the existing road infrastructure leading to and in the vicinity of the site require significant investment to allow for increased traffic volume and growth.</p> <p>Local roads can become congested, particularly those to the North and East of the site and a detailed road strategy and infrastructure plan would be required.</p> <p>Roads to the west and east would require significant work. The roads to the north of the site are wholly inappropriate for use in conjunction with a cargo hub.</p> <p>Traffic count locations are limited and may not present a reliable baseline at this time. Other data collection should be broadened in order to get a more accurate picture of what is required in this case.</p> <p>A broader, county view should be taken including the A2, M2, A256, A28 and future road infrastructure Proposed Developments such as the proposed Lower Thames Crossing.</p> <p>A Transport Assessment, a Travel Plan, and a Traffic Management plan are essentials for this Proposed Development from construction through to completion and daily business.</p> <p>Manston Airport is currently a contingency site for Operation Stack and the implications on this if the Proposed Development were to occur before Manston are no longer required.</p>	<p>The TA has set out the required improvements to mitigate the impact of the development traffic both locally and in the wider context for junctions or highways links.</p> <p>A Surface Access Strategy (SAS) and Construction Traffic Management Plan (CTMP) have also been provided to support the DCO.</p> <p>The roads to the east of the Passenger Terminal access are not anticipated to be used by HGVs or development traffic other than that originating from Ramsgate and environs. The HGVs to and from the Cargo area and 'Northern Grass' area are proposed to route along Spitfire Way, Minster Road and onto the A299. This route has been identified as requiring a road widening scheme from the junction of Spitfire Way and Columbus Avenue. This route was identified as key given the nature of where these HGVs are required to route to and from is predominantly to the east and the London area and Ashford or south to Dover, essentially from the A299.</p> <p>The data collection has been supplemented with further counts undertaken in October 2017.</p> <p>A broader view has now been taken after discussion with HE and KCC. Details of the impacts on the A2, M2, A28 and A256 are included in this Chapter and other supporting documents.</p> <p>To support the DCO application a TA, Travel Plan, CTMP and PRoW Management Plan have also been prepared.</p> <p>The use of the site for Operation Stack is a temporary measure, regardless of the development proposals. It should also be noted that although an agreement exists between the owner of the Site, Stone Hill Park Limited and the Secretary of State for Transport regarding the use of the Site in connection with Operation Stack, the site has never actually been used for the parking of lorries as part of Operation Stack.</p>

Table 14.4 PINS Response to the Scoping Report

PINS Comments and Considerations	How This Has Been Addressed
<p>The Secretary of State drew particular attention to the plan to scope out 'potential noise, vibration, visual, dust, dirt, air pollution and ecological effects as a result of traffic and transport associated with the Proposed Development. It is the opinion of the Secretary of State that they should be assessed as part of the ES but is content for them to be presented within the relevant topic chapters.</p>	<p>The effects scoped out will be assessed within the wider chapters as follows;</p> <ul style="list-style-type: none"> • Noise and Vibration – Chapter 12: Noise and Vibration; • Dust, Dirt Air Pollution – Chapter 6: Air Quality; and • Ecological Effects – Chapter 7: Biodiversity.
<p>The Secretary of State welcomes the proposed assessment of traffic related environmental effects based on the GEART as well as the preparation of a separate TA, Traffic Management Plan (TMP) and Travel Plan (TP). The study area and methodology for these assessments should be agreed with the local highways authority (KCC), TDC and Highways England, where appropriate. The assessment should include consideration of freight related trips on the strategic road network (e.g. M2 and A2).</p>	<p>Meetings have since taken place to agree a wider scope of assessment within Thanet District with KCC, which incorporates the same study area as that included in the strategic transport model.</p> <p>It was also agreed to include not just the M2 and A2, but the A20 and any other elements of the HE network that might be affected. Although not all of these routes are assessed in this Chapter, they are covered in the TA.</p>
<p>The Secretary of State would expect on-going discussions and agreement, where possible, with the relevant authorities regarding transport and highways proposals.</p>	<p>On-going consultation and meetings on traffic and transport are being undertaken and an agreement will be reached where possible. It is proposed that a Statement of Common Ground (SoCG) will be prepared with KCC Highways and HE before the examination of the DCO application commences.</p>
<p>The Secretary of State requires robust justification for the use of professional judgement in moderating any assessment of significant effects.</p>	<p>Where the assessment of effects is considered to differ from the theoretical, robust justification will be provided.</p>
<p>The Secretary of State supports the principle of a proportionate EIA but requires that sufficient information is presented in the ES to justify the exclusion of effects that do not trigger the thresholds and are therefore considered not significant</p>	<p>The ES ensures that data gathered and analysed in addition to the assessment methodology will provide sufficient justification for exclusion or inclusion.</p>
<p>The Applicant's attention is drawn to the comments, contained in Appendix 3 of this Opinion, of Highways England; of KCC, in relation to the revision of their Local Transport Plan, and potential impacts on Pegwell Bay; of TDC, particularly in relation to operational and junction capacity of the area road network; and of Royal Mail, particularly in relation to potential additional vehicle movements during the operational phase of the Proposed Development, and the need for thorough consultation</p>	<p>See Table 14.3.</p>
<p>The Applicant should also take into account National Grid's and Royal Mail's comments, contained in Appendix 3, about potential cumulative effects on construction traffic routes of the Proposed Development together with the RCP</p>	<p>See Table 14.3.</p>

14.4.27 Local stakeholders also responded to the summer 2017 (June) Section 42 consultation (PEIR) documentation and these responses are detailed in **Table 14.5**.

Table 14.5 Consultee Response to June 2017 Statutory Consultation

Consultee	Comments and Considerations	How This Has Been Addressed
Thanet District Council	<p>We are concerned about the potential impacts on the network surrounding the site from both construction and operational phase given the likely level of traffic generated by the Proposed Development, especially regarding Spitfire Way, Spitfire Junction and Manston Court Road. At this stage in the process there is insufficient information to consider these impacts. We therefore await further information about the scope of the transport assessment, which should include any additional housing requirement (see Economic impacts section), the methodology for distributing trips on the network and physical improvements to the network as well as mitigation measures in due course.</p>	<p>The impacts of the construction and operational traffic on Spitfire Way, Manston Road and Manston Court Road (and associated junctions) is set out in the TA and this Chapter. This Chapter sets out the environmental impacts while the TA sets out capacity and safety issues with the local network.</p> <p>The study area of the TA has now been established in a local context, comprising 29 key junctions. In a wider context, impacts on the key elements of the strategic road network have also been established.</p> <p>The methodology of the traffic generation and distribution methodology undertaken to inform this Chapter is set out in the TA.</p>
Thanet District Council	<p>We request that we are directly involved in coordinating the list of committed development to be included within the future baselines with KCC.</p>	<p>A meeting was held on the 11 September 2017 with TDC and KCC to agree an approach for the development of the TA. Whilst it is acknowledged that the TA would normally use the KCC strategic transport model to assess the impact of the Proposed Development, this is not currently completed or available for use. It is intended that testing will be undertaken as soon as it is available, but this is likely to be post-submission of the DCO application.</p> <p>In the absence of the availability of the strategic transport model, a detailed traffic and transport spreadsheet model has been developed which has informed this Chapter and the TA. The methodology of this model has been consulted on with KCC and comments taken onboard.</p> <p>A growth rate has been applied to the study area highway network to account for the housing and employment growth identified in the draft Local Plan. This is considered to be a robust approach.</p>
Thanet District Council	<p>An assessment of the impact from the Proposed Development on the Thanet Transport Strategy must also be included within the submission, which should also be taken into account when agreeing modelling scenarios with KCC.</p>	<p>As previously identified, the strategic transport model is not currently available for developers to use and will not be available before the Manston Airport DCO submission.</p> <p>However, a formal request to use the model in the post submission period has been made. It is anticipated that further modelling of the local highways network will be undertaken.</p>
Thanet District Council	<p>Operational and junction capacity assessment should be included within the ES.</p>	<p>As set out above, the junction capacity analysis is set out in the TA to support the DCO.</p>
Cogent Land LLP	<p>CL consider that the following matters need to be considered and assessed thoroughly before any proposed plans to expand the airport are taken further:</p> <ul style="list-style-type: none"> • Clarification on Multi-Modal Split; • Clarification on Travel Patterns; • Traffic Distribution; and • Committed Development/Transport Schemes. 	<p>Details on multi modal split, travel patterns, and traffic distribution are set out in the TA which also sets out the traffic generation methodology.</p> <p>As the local transport model is not available to use at this stage of the planning process, a growth rate has been applied across the whole highway network within the study area. This is considered a robust approach and further details are set out within this Chapter.</p>

Consultee	Comments and Considerations	How This Has Been Addressed
Dover District Council	Dover District Council (DDC) supports the Applicant's intention to submit the following supporting documents as part of the formal DCO application: Operational Traffic Management Plan; Travel Plan; Public Transport Access Strategy; and Pedestrian, Cycle and Equestrian Access Strategy. The District Council is keen to engage with the Applicant as the preparation of these documents advances to ensure the provision of necessary infrastructure to accommodate visitors and staff, as well as sustainable links to the development site for residents in the Dover District.	At this stage, no further discussion has taken place with DDC. Further comments have been received on the January 2018 PEIR consultation. We note DDCs support of the documents being prepared to support the DCO application. Sustainable links to the site from the Dover District will predominantly be via rail with a proposed shuttle bus to the site. Details of this are set out in SAS, provided to support the DCO.
Kent County Council	Resilient and reliable surface access on the strategic road network will be essential for freight traffic using Manston Airport. With the anticipated increase in traffic through growth at the Port of Dover and the future demand once the Lower Thames Crossing is constructed (anticipated to be 2026), a series of wider network improvements are needed. The location of Manston gives it direct free-flow access between the M2 and the A299, but the M2 has limited capacity being only two lanes in each direction from the A299 to M2 Junction 4.	The capacity impacts on the A2 and M2 as well as other key parts of the strategic highways (A2) network are set out in the TA. Environmental impacts at three of the strategic highways network links are set out in this Chapter.
Kent County Council	Kent Highways and Transportation has not been invited by RiverOak to engage in any discussions relating to this proposal. Therefore, the County Council has not had an opportunity to discuss the relationship with an emerging Thanet Transport Strategy. KCC, as Local Highway Authority, would welcome the opportunity to discuss how these proposals could more appropriately reflect or respond to this emerging strategy in due course.	Meetings and on-going consultation has been undertaken with the KCC highways team, which has informed the study area and scope and methodology for assessment. Meetings were held on 11 September 2017 and 4 December 2017. Various responses to consultation periods and ad hoc phone conversations and email correspondence have also helped inform the development of the TA and related documents.
Kent County Council	The consultation documents suggest a significant expansion in aviation and other associated operations to those previously present on the site in its former aviation capacity. This in turn would generate a significant increased traffic demand on the surrounding highway network. Therefore, the reopening and redevelopment of this site should also be complemented by appropriate highway links. These are currently limited in the locality, particularly to the north east. Given the scale and location of the proposal, an agreed solution to delivery of key strategic improvements in the area will be essential to accommodate increased traffic activity and ensuring that highway safety and amenity is managed in future years.	Key improvements are set out in the masterplan, provided as part of the DCO application. This includes the improvements to the key links and junctions adjacent to the airport. Not included in the master plan are off-site junction and link improvements which are required. This is included within the TA.
Kent County Council	Paragraph 14.1.5 (pg. 14-1) suggests that the site has good access to the surrounding highway network. However, KCC, as Local Highway Authority, considers that access around parts of the site is not currently satisfactory and consists of local routes with constrained geometry and junctions.	Good access to the surrounding network specifically refers to an appropriate route from the site to the A299. It is understood that some of the other routes to the north and east present issues in some of the current link and junction restrictions. In this submission, a number of local and wider improvements are proposed to support the Proposed Development. Details of this are set out in the TA. It is noted, however, that widening of Spitfire Way and Manston Road from Columbus Avenue to the Airport Terminal access is a key necessary improvement that's been included.

Consultee	Comments and Considerations	How This Has Been Addressed
Kent County Council	It is suggested that all HGV access to the site would take place from the A299 (via the B2190 approaching the site to its northern boundary). The B2190 Spitfire Way beyond the Manston Business Park is subject to a lower standard (both in terms of restricted geometry and construction) and as such it is likely that this section of road would need to be improved to reflect the proposed uses on the site and the type of vehicle movements associated with it. It is also suggested that staff and passenger terminal vehicles will make use of the full extent of the highway network, which is a reasonable assumption to make as these trips have the potential to be more local in nature.	<p>Airport routing for traffic and HGVs will be along appropriate roads and as such the proposed key route is from the A299 onto Minster Road and then Spitfire Way. It is proposed to widen Spitfire Way from Columbus Avenue to a new signalised junction with Manston Road. Manston Road will also be widened to the Main Airport Terminal access.</p> <p>The traffic and transport methodology does take into account local traffic routing to and from the north and east using Manston Road and Manston Court Road. The impacts of this traffic in capacity terms is set out in the TA, while the environmental impacts are set out in this Chapter.</p>
Kent County Council	The proposed complementary business/ industrial uses on the Northern Grass will potentially generate more local based trips, thus rendering local routes such as Manston Court Road and Manston Road as an attractive route to certain destinations. Whilst limited transport information has been provided to date, without a comprehensive package of improvements to cater for trip origins and destinations to the north, the proposals in their current form could lead to the use of inappropriate minor highway routes for both walking and cycling and/ or a proliferation of trips by private car on roads which are not suitable for additional traffic loading.	<p>The traffic flow methodology and associated figures included in the TA set out the proposed distribution, specifically of staff based trips and its impact on the peak hours and the Airport Peak hour on the local highways network and resultant mitigation required.</p> <p>The environmental impact on Manston Court Road and Manston Road, with particular regard to pedestrian and vehicular modes will be assessed within this Chapter.</p>
Kent County Council	There is no specific reference to the need for corridor improvements aside from a new junction at Spitfire Way/ Manston Road, although a comprehensive transport assessment will be required by the applicant to provide more fully informed recommendations in relation to wider highway impacts and subsequent mitigation requirements. The emerging Thanet Local Plan seeks to introduce policy to secure an enhanced package of connected highway improvements/ routes, to complement the existing primary highway route corridors. This methodology also forms part of the emerging Local Transport Plan 4. It would appear that with some changes to the proposed layout, there is scope to provide a new highway route through the Northern Grass to connect to Manston Court Road, however an appropriate mechanism to facilitate an improved vehicle/ pedestrian and cycle route to Westwood should also form part of this methodology. This is currently absent from the proposals subject to the current consultation	<p>Corridor improvements have now been proposed for the Manston Road/Spitfire Way corridor so a consistent 7.3m wide carriageway is provided.</p> <p>The TA sets out wider improvements for capacity and safety effects.</p> <p>A meeting was held on the 11 September 2017 with KCC to agree an approach for the development of the TA. Whilst it is acknowledged that the TA would normally use the KCC strategic transport model to assess the impact of the Proposed Development, this is not currently completed or available for use. It is intended that testing will be undertaken as soon as it is available, but this is likely to be post-submission of the DCO application.</p> <p>In the absence of the availability of the strategic transport model, a detailed traffic and transport spreadsheet model has been developed which has informed this Chapter and the TA. The methodology of the model has been consulted on with KCC and comments taken onboard.</p>
Kent County Council	Paragraph 14.1.7 (pg. 14-2) indicates that some 4,300 staff could be employed at the airport (with up to 1,500 being present on site at any one time). This represents the potential for a considerable number of trips for staff alone although no modal split figures are provided. This section also suggests that a high proportion of passengers will travel to the site by private vehicle, either by parked car or drop off, although at this stage it is unclear where these figures are derived from. Rail travel is not listed as one of the possible modes of travel, however there is potential to promote further modal shift in view of the proposed delivery of the Thanet Parkway Railway Station (with appropriate bus shuttle services to complement it). It is considered that	<p>Revised staff numbers split across specific jobs and sites are provided within the TA, specifically within the traffic generation methodology section. This includes for modal split targets. This identifies the number of staff who may wish to access the site via rail (and then a local bus service).</p> <p>The TA also sets out a detailed breakdown modal split for staff trips.</p> <p>At this stage, Thanet Parkway station is not a committed scheme locally and not within current local transport policy. As such, it has not been included in rail calculations. This could be</p>

Consultee	Comments and Considerations	How This Has Been Addressed
	Thanet Parkway would significantly enhance the sustainability credentials of the site.	considered a robust worst-case approach focusing all rail trips to Ramsgate station and vehicular trips.
Kent County Council	Chapter 9 of the 2017 Consultation Overview Report makes reference to sections of the highway that could be adversely affected by the Proposed Development. The list is extremely limited and refers only to the roads immediately surrounding the site. Local impacts on Manston Court Road, Manston Road, the A299 and parts of the A256 are notably absent from this initial list with some of these links being missing from the screening assessment data tables. The nature of the uses intended on the site could have a material impact on the primary road network, which in turn feeds into the strategic road network falling under the jurisdiction of Highways England. It is anticipated that the scope of junctions and links that will need to be assessed will increase as further transport assessment work is undertaken.	The study area has been broadened following consultation with KCC and includes junctions and links in Ramsgate, Birchington and Margate. The assessment now also includes locations along the strategic road network as agreed with HE.
Kent County Council	Taken at face value, at this stage, it would appear that the proposed uses on the site would make this site a destination for many new and existing residents for work based trips. Therefore, it is essential that appropriate links (vehicular and non-vehicular) to the wider highway network are provided to reflect this anticipated demand. Until such time that further transport modelling/ assessment work has been submitted by the applicant, it would be difficult at this stage to identify the extent of any impact and the subsequent mitigation package that might be necessary.	A series of highways improvements related to access and improvements to the local highways network are proposed as part of the DCO submission within the TA. These junctions and improvements are focused on the ability to deliver the development at peak operating capacity in Year 20.
Kent County Council	It is essential that any further transport assessment work is fully scoped with Kent Highways and Transportation at an early stage to avoid potential delays later in the Development Consent Order process.	Meetings and on-going communication has been undertaken with the KCC Highways team to establish a wider study area and agree/confirm other matters, the specifics of which are detailed within Tables 14.3 to 14.6 . It is considered that further consultation and work with KCC will be required to undertake a second set of junction modelling post DCO submission with the local strategic transport model.
Cliffsend Parish Council	Must ensure any traffic does not use Canterbury Road West.	The only traffic that would use this route would be the fuel tankers travelling to the fuel farm, as was the case when the airport was last operational. No traffic is proposed to continue past this point into the village of Cliffsend.
Spitfire and Hurricane museum	Social: improve public transport options (bus etc.)	A SAS for the Proposed Development has been submitted in support of the DCO application, as well as a Travel Plan. These documents set out in detail the anticipated future year improvements to public transport to and from the airport but also the local area improvements that may result.
St Johns College Cambridge	Thanet and Kent Councils are proposing a new strategic route within the Local Plan which will serve the Proposed Developments within the Local Plan. It is important that the EIA which accompanies the DCO application is required to include this completed road network as one of its scenarios. The Proposed Development which is subject to this DCO application will need to proportionately and fairly contribute	Corridor improvements have now been proposed for the Manston Road/Spitfire Way. The TA prepared to support the DCO application has set out wider improvements for capacity and safety effects.

Consultee	Comments and Considerations	How This Has Been Addressed
	towards the proposed road network in the Thanet Local Plan.	<p>A meeting was held on the 11 September 2017 with KCC to agree an approach for the development of the TA. Whilst it is acknowledged that the TA would normally use the KCC strategic transport model to assess the impact of the Proposed Development, this is not currently completed or available for use. It is intended that testing will be undertaken as soon as it is available, but this is likely to be post-submission of the DCO application.</p> <p>In the absence of the availability of the strategic transport model, a detailed traffic and transport spreadsheet model has been developed which has informed this Chapter and the TA. The methodology of the model has been consulted on with KCC and comments taken onboard.</p>
Thanet Green Party	<p>The very substantial increase in road traffic that would arise from a freight hub would aggravate both the noise and air pollution problems caused by the planes themselves. We understand that aviation fuel would have to be delivered by road as Manston is not part of the national fuel pipeline system that connects large UK airports. The need to transport such fuel and store it safely in the immediate neighbourhood of the former airport gives rise to concerns in itself, and the number of vehicle movements required would add to both noise and particulate pollution. They would also increase volumes of heavy traffic on roads not suitable for them, leading to congestion, delays and a vicious circle of further pollution.</p>	<p>Noise and Air quality issues will be addressed in Chapter 6: Air Quality and Chapter 12: Noise and Vibration. The proposals for fuel are as they were when the previous aviation operations were in place at the site, with tankers routing along the A299 and then a short distance along Canterbury Road West into the existing fuel farm. The majority of tanker journeys would therefore be along the strategic road network and then the A299 and only a short distance on local roads.</p> <p>Estimates of the HGV trips per hour to and from the fuel farm are provided in the TA. This indicates only a peak of 2 tanker movements (one in and one out) per hour.</p>

Table 14.6 Consultation with KCC – Comments on Transport Scoping Note

KCC Comments and Considerations	How This Has Been Addressed
<p>It is noted that 2446 parking spaces are proposed. It will be necessary for this level of parking to be justified through the final Transport Assessment.</p>	<p>A revised masterplan design has been provided as part of this submission with updated car parking numbers for staff and passengers.</p> <p>With the final design established, the TA will set out in detail the justification for all car parking spaces, the split between passenger and staff parking, the split between long stay and short stay parking, details on how the car park will operate and any other car parking matters. Details regarding car parking will also be included in the SAS for the Airport.</p>
<p>It is stated that it is likely that the vast majority of flights would occur between 07:00 and 23:00 hours, however the anticipated traffic flow figures appear to suggest an even split if movements across the whole 24-hour day. Further justification will be required to substantiate this approach.</p>	<p>A revised and detailed traffic generation methodology for the Airport has been provided in the TA. This considers a detailed breakdown of flights across the day and the times vehicles may route to and from the Airport.</p>
<p>Flights destined for later departure times may result in some passengers arriving prior to booking in time, which in turn could coincide with road network peaks. Allowance for such occurrences should be made in peak hour trip generation figures.</p>	<p>A detailed breakdown of the times of arrivals and departures has now been made in the revised traffic generation methodology.</p> <p>It has been proposed that:</p> <ul style="list-style-type: none"> • 20% of all passengers would arrive 2 hours before a flight; • 80% of passengers would arrive 3 hours before a flight; and

KCC Comments and Considerations

How This Has Been Addressed

	<ul style="list-style-type: none"> All passengers would depart the airport 1 hour after an arrival flight has landed. <p>These figures are based on average travel patterns at comparable airports in the UK.</p>
<p>A proportionally low level of passenger numbers has been estimated within the highway network peak hours. Future operators are at this time undefined and the flight patterns unknown. Therefore, in order for an appropriately robust assessment to be provided, the maximum number of flights capable of being handled by the facility within the peak hour should be considered for robust assessment purposes.</p>	<p>The revised traffic flow methodology is based on a flight schedule developed via considering arrivals and departures to similar sized or natured airports (obtained from Civil Aviation Data for October 2017). This has now provided a flight schedule on which the traffic generation of passengers can be based on. This is set out in the TA.</p> <p>It should be noted that due to the nature of flights arriving and departing, the peak traffic generation falls in the mid afternoon and not within the traditional highways network peak hours.</p>
<p>Passenger travel model assumptions are noted, but the submission lacks further clarification in relation to the data sources that have been used to inform such forecasts. Given the location of the site, staff and passenger travel plans may have limited scope for success. At this point in time there is no basis on which to assess the likely feasibility/likelihood of achieving the stated modal shift across the 20-year period. Rail is a feasible travel alternative for staff and passengers in the medium term, however this would rely on regular shuttle bus services being provided to link the airport to the station.</p>	<p>Details of the mode share targets and the justification for these will be provided within the SAS for the airport which supports the DCO application.</p> <p>The figures have recently been revised based on details from aviation and airport experts consulting on this DCO application.</p>
<p>There is a significant amount of staff trips associated with the aviation uses, which in turn could generate a material impact on the road network. It is essential that this element of the assessment is undertaken using robust estimates.</p> <p>On initial inspection, it is unrealistic to assume that all staff movements would occur outside of the network peak hours and that staff will all follow the same shift patterns. It would be very difficult to monitor or ensure future compliance with such a regime and in turn this could potentially underestimate the peak hour impact of staff movements.</p>	<p>A revised traffic generation methodology has been prepared, which set out in detail the types of jobs related to the aviation uses. It breaks these down by shift patterns, shift times, staff numbers and likely modal split targets.</p> <p>This information has been tested to provide a robust estimate of how staff trips would actually impact the local highway network and the times these would impact the network.</p> <p>This robust assessment now takes into account some staff trips occurring in the peak hour based on a better understanding of 24-hour shift pattern working (unlikely to affect peak hour) and traditional working day work patterns (likely to affect traditional highways network peak hours).</p>
<p>The mix of uses on the Northern Grass is assumed to be 10% office, 40% light industrial and 50% warehousing. As these uses have significantly different trip profiles, it is important that they are defined in the final TA and application documentation, so that they can be conditioned as such. If unconditional consent is sought for any combination of potential uses, then the worst-case scenario in terms of peak hour traffic generation would need to be assessed, in this case B1 office.</p> <p>The location filters appear to be generally acceptable, however it is noted that suburban areas are included in the business park analysis, which should be removed as the site is not in a suburban location. Population filters have not been applied, which could have a bearing on final trip rate outputs. I suggest that TRICS outputs are recalculated considering local demographics and as such the trip rates shown in Table 3.5 are not agreed at this stage.</p>	<p>The figures used for the split of land uses on the 'Northern Grass' area have changed significantly and are now as follows:</p> <ul style="list-style-type: none"> 25% B1 (Office); and 75% B8 (Warehousing). <p>The zonal masterplan for the 'Northern Grass' area has defined this split and the total GFA of the development in this area.</p> <p>Compared to the previous estimates for the land use on the 'Northern Grass' area this is a more robust traffic scenario with B1 office development having been increased from 8% to 25%.</p> <p>The TRICS rates have not been changed in line with the comment due to the lack of comparable sites within the defined restrictions suggested which would lead to a less robust assessment than that which has been calculated.</p>
<p>The [construction] Traffic figures are noted; however, the final TA should outline how the impact of these movements will be managed. This could be dealt with</p>	<p>A PCTMP is provided as part of the final DCO submission, which will set out the mitigation required to facilitate the construction of the site.</p>

KCC Comments and Considerations	How This Has Been Addressed
through an associated Construction Management Plan.	
The peak traffic flow scenario for both development and network traffic need to be examined, with the scenario for both development and network traffic need to be examined, with the scenario generating the highest overall flows through a given junction being assessed/ modelled in more detail. The figures presented in Table 3.8 and 3.9 will need to be revised to encompass the comments outlined within this correspondence.	This has been undertaken in the TA provided, to support the DCO application. In this Chapter, the network peaks and 24-hour period have been used as basis for assessment as is standard in environmental assessments of traffic impact. However, within the TA all junctions and links that form part of the study area will be assessed for the AM and PM peaks, as well as the development peak which falls between 13:00 – 14:00.
The scope of junction to be assessed within the TA should be based on the local traffic conditions. It is noted that a blanket 50 vehicle per hour threshold for further assessment is proposed. Junctions that are severely congested could be disproportionately impacted by traffic increases, lower than 50 vehicles per hour. I recommend that existing flows on each link are examined and any links which are subject to a 5% increase or greater are examined/assessed in more detail.	Of the junctions selected to form the scope of assessment, these will be assessed to understand capacity impacts should there be any increase above 1 vehicle to complete a robust set of assessments.
The transport assessment is not based on the KCC strategic transport model which KCC suggests was available to the Applicant.	A further call was held with KCC Highways on 31 May 2018 in order to establish the status of KCC's Strategic Transport Model (STM) and to understand whether and how Thanet's emerging local plan was included within it. It was also the intention to understand whether KCC had any concerns regarding the Amec Foster Wheeler model developed for the Manston Airport proposals in the absence of an STM and if so what those concerns might be. At the time of this meeting KCC were unable to confirm whether the STM was available or whether a validation report for the model had been prepared. KCC were not prepared or able to provide details regarding any perceived limitations of the model created by Amec Foster Wheeler however they continued to suggest that their preference would be that all developments should be modelled using the STM.

14.4.28 KCC also responded to the January 2018 Section 42 consultation (PEIR) documentation and these responses are detailed in **Table 14.7**.

Table 14.7 KCC Response to January 2018 PEIR

KCC Comments and Considerations	How This Has Been Addressed
At this point in time, the freight cargo tonnage figures used to inform this traffic generation calculations are taken at face value, as they have simply been provided by the client team. As these figures are used to form the basis of traffic impact estimates, it is important that there is a restriction imposed on the level of freight that the airport would be permitted to handle. In the absence of such a restriction, it is essential that the maximum freight handling capacity is robustly identified and justified, as this could have a material bearing on subsequent peak hour freight traffic figures.	The figures used to build the first principles traffic and transport model are based on estimates provided by the aviation experts imbedded within the project team alongside experience at other airports. In terms of restrictions, there are no restrictions proposed as part of the traffic and transportation traffic generation assessments. These have been based on the aviation expert's predictions of freight tonnages.
A 30% reduction in cargo tonnage has been applied to allow for efficient HGV movements (i.e. those that	The figures used to build the first principles traffic and transport model (including the 30% reduction in cargo tonnage for efficient HGV

KCC Comments and Considerations

How This Has Been Addressed

enter and leave the site full). However, it is unclear where this figure has been derived from. It is essential that any reductions are fully justified using an appropriate evidence base. There is an assumption that the cargo movements will take place evenly across a 24-hour day, however in reality, there are likely to be peaks and troughs throughout the day. Whilst it is understandable that for ease of assessment, a simplistic view has been taken, for a robust assessment to be undertaken, it would be necessary to look at a worst-case scenario. A worst-case scenario would be the maximum amount of freight that could be theoretically handled at the airport within any given hour applied to the network peak, for assessment purposes.

movements) are based on estimates provided by the aviation experts imbedded within the project team alongside experience at other airports.

The assumption that cargo movements take place evenly across the hour is based on how these sites traditionally operate. It is acknowledged that a worst-case of the maximum HGVs leaving in an hour could have been undertaken, but considering the low numbers of freight HGVs entering and exiting the network in an hour (in Year 20, 5 arrivals and 5 departures per hour) it is deemed that this would not be a material impact.

A similar methodology should also be applied to proposed passenger flights. Whilst an attempt to estimate likely passenger numbers has been provided, a number of assumptions have been made that could have an impact on subsequent traffic generation. For a robust assessment to be undertaken, a realistic maximum passenger throughput should be estimated, and necessary restrictions placed on operations. Paragraph 3.1.22 (pg. 19) refers to aviation experts providing an estimate of passenger travel mode share, however no further information to cross reference these forecasts has been provided.

As set out in the TA, further details to the background assumptions have been made and are specifically related to a mode share. These mode share targets are based on those typical for smaller airports (less than 2 million passengers per year) and in locations similar to Manston. Airports such as Newquay, Cardiff, Exeter, Inverness and Norwich as well as others. At this stage the upper limit of flights is as is predicted in Year 20, however no restrictions on maximum daily throughout has been applied or form part of the DCO application.

The methodology of using TRICS to inform Northern Grass area trip rates is largely accepted, however as outlined within the recent Transport Assessment (TA) scoping exercise, this is based on the understanding that land uses in this area of the site are restricted to the proportions as outlined within the assessment document.

The land use mix and site area GFA have been fixed in the masterplan and this matches what has been assessed in the TA. If the DCO is granted this is the mix of land uses and GFA that could be constructed.

Fuel tanker trips are noted, however it is necessary to provide further justification in relation to the number of deliveries required to service the site in a worst-case scenario. For example, the capacity of each tanker and how much fuel is required for each plane (as identified earlier within the report based on tank capacity). This should then correlate with the number of planes estimated, with an allowance made for operational fuel requirements for on-site vehicles and equipment.

Further details of the development of fuel farm tanker trips are set out in the TA. Based on the capacity of the tankers that are to be used, the fuel required per year has been broken down to understand the fuel requirements per day.

It should also be noted that tankers are not required on a one tanker vs one aircraft ratio; tankers are required as and when to keep the reserves topped up to a certain level at the fuel farm.

As outlined in the TA scoping exercise, it is unrealistic to assume that all staff movements will occur outside of the network peak hours and that staff will all follow the same shift patterns. It would be very difficult to monitor or ensure future compliance with such a regime and in turn, this could potentially underestimate the actual peak hour impact of staff movements.

Staff members will likely have differing shift patterns, arrival times and departure times depending on the job that is being undertaken. The traffic generation methodology is set out in this TA. It is a key issue to note that airports do not have traditional 9-5 business working hours and as such the majority of staff trips do not have an impact on the peak hours. 24-hour shift patterns and the differing requirements of an airport and cargo handling facility across the day mean that staff have a wide range of travel times.

There are, however, trips that affect the network peak associated with the airport for the operational and administration jobs proposed at the site.

The document states that a gravity model approach has been used to identify the origins and destinations and subsequent routes, and this has been informed by information provided by the wider project team. Further information to substantiate the assumptions made on origins and destinations would be helpful to support

The gravity models that have been prepared are based on the journey to work census data from 2011 for Thanet and where required further afield. Details of this methodology are set out in this TA.

KCC Comments and Considerations

How This Has Been Addressed

the final TA document. It is noted that a gravity model approach has also been used to derive origin and destination information for the Northern Grass uses. It would be more appropriate to use census data to provide an improved local perspective on likely trip distribution, and this could be derived by interrogating the data for local output areas that encompass other key employment areas within the Thanet District to provide a more robust basis for assessment.

The provision for a new highway link between A256 Haine Road and the B2050 Manston Road, as outlined in the emerging Thanet Transport Strategy, is absent from the proposed masterplan. The indicative layout also appears to compromise the delivery of an appropriate form of link road in the future. Failure to comply with this emerging infrastructure requirement could prejudice the delivery of identified highway solutions to manage the impact of future housing growth requirements over the emerging Local Plan period (subject to further highway modelling outputs).

In addition, there are initial concerns in relation to the absence of provision for a new highway route to and from Westwood (including appropriate walking and cycling links). The proposed development has the potential to encourage inappropriate use of rural roads within the proximity of the site by both vehicles and non-motorised users. It is evident that limited pedestrian facilities or improvements are proposed outside of the immediate site confines, which further limits the accessibility of the site by non-motorised transport. The impact of the development within Manston Village remains a concern due to the restricted road geometry throughout the village, as well as the ability of the local road network to serve the site efficiently and reliably by public transport.

The previously indicated roundabout solution at the Spitfire Way has been replaced by a signalised junction arrangement. An initial appraisal would suggest that this is not an optimal form of junction and is potentially out of keeping with the nature of the approach roads to the site. There are initial concerns over the approach geometry to the junction and future capacity for increased traffic flow in line with planned growth. In the absence of strategic highway modelling and detailed junction appraisal, it would not be possible to confirm if this junction would be supported as an appropriate solution.

There is a proposed priority junction on B2050 Manston Road between the two new signalised junctions, which would appear to be intended to serve the cargo facilities. It is strongly recommended that access at this junction is restricted to emergency access to manage traffic flow at the Spitfire Junction and traffic flow on the B2050. The proposed junction onto Manston Road (to the west of the Northern Grass) could potentially encourage HGV rat running along this section of highway.

An assessment of the proposals on Manston Road/Haine Road proposals have been included in the TA. However, with the issues related to the emerging local plan it is considered, that by assessing the existing layout and the proposed new roundabout with arm onto a link road, a robust assessment of the issues at this junction has been undertaken. It should be noted however, that this assessment was only included as of February 2018 when the scheme was granted over £2.5 million of government funding and as such it is considered more likely to come forward than other proposals in the emerging local plan.

The TA sets out the proposed impacts of development traffic on the rural roads to the north of the proposed development site and the environmental impacts of this are set out in this Chapter. At this stage no improvements are proposed to these routes. The TA also includes for details on the impacts on Manston Village and there are details within this Chapter as to why proposals are not proposed on this link.

The detailed traffic and transport modelling of this junction sets out the need for a junction improvement and determines that a signalisation scheme is a suitable solution. It should be noted as a result of the development proposals the *"nature of the roads around the northern airport boundary will change as a new roundabout, and three sets of signalised junctions are proposed along the access from the A299 as well as the widening of Spitfire Way and Manston Road"*.

The detailed geometric designs (to relevant DRMB standards) and associated transport models are included within this TA. If further discussion on the final layout is required, then this could be included in post submission discussions with KCC as part of agreeing a statement of common ground.

It is hoped further discussion will allow KCC and the project team to come to a junction layout that is supported.

There is no proposal for a priority junction onto Manston Road from the south between Spitfire Way and the Airport Access. This was something shown on a previous masterplan which has led to confusion that has now been amended.

It's not clear what vehicles on what routes could potentially rat run though the 'Northern Grass' area, since there are very few HGVs using Manston Road to the North.

KCC Comments and Considerations

How This Has Been Addressed

<p>A full Stage 1 Road Safety Audit and associated designer's response will be required for all proposed highway changes. In view of the above, at this moment in time it would not be possible to provide a definitive steer on the acceptability of the proposed highway alterations.</p>	<p>This has not been included at this stage of the DCO submission, but as with all highways improvements will be provided at the appropriate time.</p>
<p>It is important to reiterate that due to its existing constrained geometry, the B2190 Spitfire Way (between Columbus Avenue and the proposed site access) is not suited to accommodate a significant increase in HGV movements. This section of highway should be improved to reflect the likely change in HGV demand from expanded aviation activity and associated development on the Northern Grass (both in terms of geometry and construction specification where appropriate). No improvements to the B2190 are indicated on the Masterplan document although Section 14.2.12 of the PEIR (pg. 14-2) refers to potential improvements on Spitfire Way/Manston Road, but with limited clarity on the extent of such proposals. Failure to appropriately improve these important highway links could have an impact on the ability of the local road network to serve the proposed development and could prejudice a future aviation operation.</p>	<p>The final masterplan proposals are to widen Spitfire Way from Columbus Avenue to Spitfire Way and also Manston Road from Spitfire Way to the Airport Access. This route is identified as the key HGV route to the site and as such it is agreed that the route needs to be widened to a 7.3m wide carriageway for the entirety of the length. The details of these improvements schemes are set out in detail in the TA.</p>
<p>The increase in on-site parking provision is noted. The ability of the main site access junction onto the B2050 Manston Road to accommodate the potential increase in demand will need to be examined within the detailed TA.</p>	<p>Detailed traffic assessments of the site access junction are included within the TA.</p>
<p>The ability for traffic (particularly HGVs and abnormal loads) to enter and leave the site in a forward gear should be demonstrated in the final submission. Any existing informal access points onto the public highway that are planned to remain in use will also need to be clarified along with their anticipated uses.</p>	<p>Details on the proposed accesses (formal) and any informal accesses are set out within the DCO submission documentation. For clarity, however, the TA sets out the issues with the operational accesses into and out of the proposed site. All of the accesses have been designed as formal DRMB compliant access junctions which would not present any issues for vehicles to leave in a forward gear. Informal accesses primarily refer to crash gates which are simply not used unless there is an airport emergency. This is the only time any informal access will be allowed onto the site.</p>

14.4.29 Discussions were held with KCC during preparation of the ES and these responses are detailed in **Table 14.8**.

Table 14.8 Discussion with KCC during preparation of the ES

Date	Discussion Points
June 2016	<p>The first time KCC was directly consulted on the transport assessment of the application was in June 2016 when the EIA scoping report for the project was prepared. A formal response was received from KCC setting out the need for traffic and transport assessment (comments shown in Table 14.3) in a letter to PINS sent on the 28th of July 2016 and included in the Scoping Opinion report published on the 10th of August 2016.</p>
Late 2016/ Early 2017	<p>Initial telephone discussions with KCC took place in late 2016/early 2017, during which KCC informed Amec Foster Wheeler that in partnership with TDC, it was developing the Thanet STM using SATURN software for the purpose of supporting the emerging Local Plan. The existing Manston Airport site was not included in the baseline, and the Manston Airport proposals were not being tested, as these were not part of the emerging</p>

Date	Discussion Points
	<p>Local Plan. KCC advised that the DCO proposals would need to be assessed using the Thanet STM, as this was the expectation of all development sites in Thanet. KCC advised that the Thanet STM was not expected to be completed until late 2017.</p> <p>Following this, Amec Foster Wheeler began the process of undertaking detailed Transport Assessment (TA) scoping discussions with KCC and paid the pre-application fee in August 2017.</p>
31st August 2017	<p>A TA scoping note was sent prior to a scoping meeting with James Wraight and Sally Benge of KCC which was held on 31st August 2017, during which JW advised that the base strategic model (i.e. current year) had been completed and validated and that future test scenarios were being progressed, with completion expected in October/November 2017. Future scenarios were based on the preferred site allocations in the emerging draft Local Plan. It was noted that testing for the Local Plan evidence base would take priority and there may be issues with capacity for modellers to undertake work on behalf of developers (with agreement from KCC and TDC). The initial estimate for availability of the model was close to the end of the year (2017), particularly if TDC had further revisions to the Local Plan. At the meeting and in a subsequent email and telephone conversation, Amec Foster Wheeler requested the Local Model Validation Report (LMVR) when available (email 25th September 2017 to James Wraight). Notes of the meeting are provided in Appendix A to the TA.</p> <p>Amec Foster Wheeler advised during the meeting that in the absence of the availability of the KCC traffic model, a detailed traffic spreadsheet model based on extensive traffic count surveys of junctions and links would be used to assess the Proposed Development as part of the DCO submission which was proposed for early 2018. The spreadsheet model includes a growth factor which takes account of the household and employment growth assumptions in the now rejected draft Local Plan, and also a sensitivity test of the Thanet Transport Strategy proposals to the north of the Proposed Development comprising a number of new link roads. Amec Foster Wheeler considers this to be a robust methodology and appropriate for the purpose of the DCO submission, as spreadsheet modelling is an acceptable approach in the absence of a strategic transport model. It was agreed, however, that the Proposed Development would also be tested in the Thanet STM when it becomes available in the post DCO submission period.</p>
21st September 2017	<p>Formal comments on the TA scoping note were received on the 21st September (included in the TA as Table 3.1) and details of how these comments were addressed in the document are included.</p>
September / October 2017	<p>Telephone conversations were then undertaken in September and October 2017 and KCC advised that the strategic traffic model should still be used to test the traffic impact of the Proposed Development, subject to the agreement of TDC, but that it would not be available for developers to use until Spring 2018 following its completion to support the (at the time) still emerging Local Plan.</p>
28th November 2017	<p>On 28th November, Bev Coupe and Glyn Price had a Skype call with James Wraight, KCC, to discuss the latest position on the KCC/TDC strategic model and other transport/highways matters in relation to the forthcoming DCO submission. During the call, JW advised that the model was now complete but would not be available for use by third parties until the new year at the earliest. He suggested that other developers were putting in requests for use of the model, but that timeframes for availability would be dependent on requirements for further modelling following public consultation of the emerging local plan.</p>
15th December 2017	<p>A formal request to use the model was made to James Wright via email on the 15th of December 2017. This was not followed up with a specification for use of the model, as requested by KCC, as following the rejection at Committee of the draft Local Plan, it was considered by Amec Foster Wheeler that the model was not valid as it would need revising to reflect a new Local Plan. In addition, the LMVR had not been completed by KCC's traffic model consultants and therefore there was no opportunity to understand and review the model set up in terms of development, calibration and validation of the highway assignment.</p> <p>On the basis of the model still not being available to meet DCO submission deadlines, it was agreed with the Manston Airport DCO Project team that Amec Foster Wheeler would continue with the approach of developing a spreadsheet model. As KCC required all developers to use the Thanet STM, it was acknowledged that testing of the DCO proposal would be undertaken once the model became available for general use, still assumed to be in the post DCO submission phase.</p>
14th May 2018	<p>A call with James Wraight of KCC was held on 14th May 2018 during which there was discussion of the Thanet Transport Strategy and the Thanet STM. KCC advised that modelling work hadn't yet been undertaken for other developers and that new scenarios would need to be built. He advised that their traffic modelling consultant (Amey) would still be undertaking the model tests, but there is limited resource and the priority is for the work to be undertaken to support the emerging new Local Plan.</p>
31st May 2018	<p>A meeting with TDC and KCC was held on 31st May 2018, during which TDC advised that the new draft Local Plan is anticipated to be published on 25th June 2018, with the expectation of going to Committee on 25th July. The Thanet STM is being revised and updated and would be expected to be complete in six weeks' time. At</p>

Date	Discussion Points
	<p>the time of this meeting KCC was not prepared or able to provide details regarding any perceived limitations of the model created by Amec Foster Wheeler however they continued to suggest that their preference would be that all developments should be modelled using the STM. It was discussed during the meeting that the timescales between DCO submission and the Examination were sufficient to undertake the required modelling, recognising that based on the current Local Plan programme and Thanet STM completion, the model would be available for testing during this period.</p> <p>Amec Foster Wheeler noted that on the basis that the Thanet STM is not available for use and there is no guarantee on timescales, the spreadsheet model approach adopted for the DCO submission is considered acceptable and robust. It includes allowance for the household and employment growth anticipated in the Local Plan, and incorporates sensitivity testing of the Thanet Transport Strategy. As such, notwithstanding the continued uncertainty surrounding the local plan, the bespoke model developed for the Manston Airport submission is considered to be the best available tool for determining the application.</p> <p>As discussed with KCC, should the STM become available for use by third parties before or during the examination, the applicant (Riveroak) is willing to test the 'with Manston Airport' development scenario using the STM. If KCC and Thanet meet their own timetable and objectives, there remains sufficient time to undertake the modelling exercise without delaying the examination of the DCO application.</p>

14.5 Overall Traffic and Transport Baseline

Current Baseline

Site Description

- 14.5.1 **Figure 14.1** illustrates the site location in relation to the local highway network, the main junctions and railway stations in the vicinity of the site. The following section provides descriptions of the junctions and highway network.

Existing Highways Network

- 14.5.2 The highway network surrounding the site is shown in **Figure 14.4**, which indicates the anticipated routes to and from the site based on the traffic flow distribution methodology set out in the TA.
- 14.5.3 The following section describes the key local roads that form part of the study area.

Roads Forming Part of the Key Access to the Site

- 14.5.4 It is anticipated that the main signed access route to the site will be from the A299 and then onto Minster Road and along Spitfire Way. From Spitfire Way traffic routes north onto Manston Road for the 'Northern Grass' area western access and east on Manston Road to the Passenger Terminal and the 'Northern Grass' area.
- 14.5.5 It should also be noted that Canterbury Road West provides access to the fuel farm directly from the A299.

B2050 Manston Road

- 14.5.6 Manston Road is a single carriageway road that runs between Birchington-on-Sea (to the north-west of the site) and Ramsgate (to the east of the site). This road forms the northern boundary to the site for a short distance and is a key link providing access to various elements of the Proposed Development. The access to the Passenger Terminal and to the 'Northern Grass' area will be from Manston Road. The road intersects with Spitfire Way to the west and the A256 (Haine Road) to the east.

B2190 Spitfire Way

- 14.5.7 Spitfire Way is a single carriageway road that runs between Minster Road and Manston Road. This road forms the northern boundary to the site for a short distance and is a key link providing access to the various elements of the Proposed Development. Access to the Cargo Facility will be from Spitfire Way.

A299

- 14.5.8 The A299 is a key strategic road which runs between the M2 / A2 / A299 junction near Faversham to the access to the Port of Ramsgate. The road is a high standard dual carriageway. The A299 forms the southern boundary to the site for a short distance. The A299 is a key link for the development as a large percentage of arrival and departure trips will use this road to local and strategic destinations.

B2190 Minster Road

- 14.5.9 Minster Road is a short section of road which runs between the A299 and Spitfire Way and forms the western boundary of the site. The road is initially a dual carriageway and transitions into a single carriageway as it becomes Spitfire Way. This forms part of the main link into the Proposed Development site from the A299.

Canterbury Road West

- 14.5.10 Canterbury Road West runs between the A299 and the A256 Lord of the Manor roundabout. The short road link has two characteristics. The first section runs from the A299 to the fuel farm access and forms the southern boundary to the site. East of fuel farm access, the road runs through a village setting. It is not proposed that traffic would use the eastern element of the road and only tankers and some small private vehicles would access the fuel farm from the west (A299).

Other A Roads Affected by Proposed Development Traffic

A256

- 14.5.11 The A256 runs between a junction with the A2 near Dover to a junction with the A255 in Margate. The road forms part of a key route for traffic routing between the site and Ramsgate, Dover, Sandwich, Margate and Broadstairs, as well as a key route for HGVs to Dover. The road varies in standard from elements of a dual carriageway (south towards Dover) to running through constrained residential areas in Margate.

A254

- 14.5.12 The A254 runs between Margate and Ramsgate town centres and has a small section of dual carriageway, but is predominantly a single carriageway. This road is affected by trips to and from the residential areas between Margate and Ramsgate, such as Haine and Newington.

A255

- 14.5.13 The A255 runs between Margate town centre and Broadstairs and is a single carriageway. This road is affected by development traffic routing to and from Broadstairs and south Margate.

A28 Canterbury Road

- 14.5.14 The A28 runs between Canterbury and Margate and is a key link in the area for east/west traffic. The road has some elements of dual carriageway but is predominantly a single carriageway. Separate elements of this road are proposed to be affected by development traffic. South of the junction with the A299, traffic to and from Canterbury and other areas of Mid Kent will use the road.

Further, in the area surrounding Birchington-on-Sea, it is likely that development traffic will also use the road.

M2

14.5.15 The M2 is part of the HE Strategic Road Network (SRN) and runs between the junction of the A299 / A2 in the east, to where it merges into the A2 near Strood. The road is a motorway classification road with various lane configurations between two and four running lanes in both directions. The motorway has 7 junctions and is 41.4km long. It is proposed this is the major route between the airport and London, and between the airport and the surrounding region, as well as any other national destinations.

A2

14.5.16 The A2 is part of the HE SRN and runs from London to Dover. It is the primary route for this journey other than in Mid Kent where the M2 is the most direct route (the A2 runs through a number of the Medway towns). The road has various lane configurations between two and three running lanes in both directions. It is proposed this is the major traffic route between the airport and London, the airport and the surrounding region, as well as any other national destinations.

A20

14.5.17 The A20 is part of the HE SRN and runs from London to Dover. The road has various lane configurations between two and three running lanes in both directions. Relative to the Proposed Development, the element of the A20 that is being analysed is that between Dover and Folkestone. This is to understand the impacts on any traffic travelling to and from Folkestone.

Other Local Roads Affected by the Development Traffic

Manston Court Road

14.5.18 Manston Court Road runs between Manston Road and Star Lane. This is a single carriageway road which is width restricted in some locations. This road provides access from the Manston Road corridor running through the site area to Margate.

B2050 Park Lane

14.5.19 Park Lane is a single carriageway road which runs between Acol Hill / Manston Road /the A28 junction in Birchington-on-Sea. This road provides access from the site towards Birchington-on-Sea and areas in the A28 corridor.

Shottendane Road

14.5.20 Shottendane Road is a single carriageway road, which routes south-east/north-west between Manston Road in the south-east, to a priority junction with Manston Road in the north-west. This road will accommodate some trips from the Proposed Development routing to and from the Westgate-on-Sea.

B2014 Newington Road

14.5.21 Newington Road is a single carriageway road which runs between the A255 in Ramsgate to a junction with the A254 in Northwood. The road routes through urban areas and is subject to a 30mph speed limit.

Existing Baseline Traffic Flows

- 14.5.22 Traffic counts were undertaken in March 2017 and October 2017, following which the data collected was analysed and entered onto a traffic flow network diagram of the local highways network. **Figures 14.5 to 14.7** set out the traffic flow network diagram and the baseline traffic flows for the AM, PM and 24-hour period in Year 20. **Table 14.9** sets out the two-way average AM Peak (07:45 – 08:45), PM Peak (16:45 – 17:45) and 24-hour traffic flows for all vehicles and HGVs recorded at each receptor location.
- 14.5.23 As outlined in paragraph 14.4.20, issues were recorded with the traffic counts undertaken in March 2017 due to congestion in the peak periods. This resulted in double counting of HGVs in some locations. To address the issues at these locations, a comparison has been made to the adjacent junction turning counts to establish a valid flow based on the figures recorded in the junction turning count videos that Amec Foster Wheeler have been provided. This issue did not affect the October 2017 ATC.
- 14.5.24 A second limitation regarding the data is that not all receptor locations selected matched the locations where ATC were undertaken. For these locations, the nearest junction turning counts have been used to inform the traffic flows at the receptor. Data for turning counts was only for 12-hours, so a local factor has been applied based on the split between 12 and 24-hour flows at an adjacent ATC point. It is not considered that these slight limitations in the data collection process undermine the validity of the final baseline data set as the solutions offer a robust way of providing information where it is missing.
- 14.5.25 Data for the SRN is only available as 24-hour AADT flows as, standard with the online traffic data provided by the DfT.
- 14.5.26 Despite the limitations, a robust data set for the local road network has been established and is set out in **Table 14.9**.

Table 14.9 Two Way Average AM Peak, PM Peak and 24-hour Traffic Flows (All Vehicles and HGVs) - 2017

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak % HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak % HGV	24 Hour All Vehicles	24 Hour HGV	24 Hour % HGV
1	A256 north of Sandwich	2782	173	6%	2660	82	3%	28006	3546	13%
2	A299 Hengist Way between Richborough Way and Sandwich Road	2925	144	5%	2944	79	3%	33648	1529	5%
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	2066	89	4%	2039	46	2%	22917	2578	11%
4	Manston Road between Haine Road and the railway line	941	12	1%	864	6	1%	11126	813	7%
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	1296	37	3%	1287	17	1%	17113	123	1%
6	A255 High Street between B2014 Newington Road and Ellington Place	1293	39	3%	1399	22	2%	16175	102	1%

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak % HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak % HGV	24 Hour All Vehicles	24 Hour HGV	24 Hour % HGV
7	A254 Margate Road	1119	63	6%	1250	34	3%	16459	1294	8%
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	1379	25	2%	1770	6	0%	22945	1388	6%
9	A254 Ramsgate Road between Nash Lane and Farley Road	1649	64	4%	1678	38	2%	22651.4	1781	8%
10	A254 Ramsgate Road north of the junction with B2052 College Road	788	39	5%	803	22	3%	10916	1173	11%
11	A28 Canterbury Road, east of junction with Domneva Road	1814	53	3%	1762	28	2%	22498	1636	7%
12	Manston Road between Bramble Lane and Flete Road	326	47	14%	308	35.4	11%	4130	619	15%
13	Shottendane Road, north east of the junction with Park Lane	830	83	10%	909	118	13%	8367	1090	13%
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	496	12	2%	519	12	2%	6565	50	1%
15	A299 Thanet Way west of junction with A28	2994	211	7%	3146	105	3%	32981	5837	18%
16	A299 between A253 and A28	1941	148	8%	2043	75	4%	22028	1716	8%
17	A299 between B2190 and A253	2552	185	7%	2519	97	4%	28512	1922	7%
18	Minster Road southeast of the junction with Plumstone Road	602	48	8%	513	53	10%	5750	633	11%
19	B2050 Manston Road between Spitfire Way and Shottendane Road	497	47.2	9%	444	36.2	8%	5685	540	9%
20	B2190 Spitfire Way between B2050 Manston Road and B2190 Columbus Avenue	811	50	6%	789	24	3%	9146	1484	16%
21	A299 between B2190 and Canterbury Road West	2306	175	8%	2396	89	4%	25226	4348	17%

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak % HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak % HGV	24 Hour All Vehicles	24 Hour HGV	24 Hour % HGV
22	Manston Road, south of junction with Vincent Road	432	56	13%	429	32	7%	5246	634	12%
23	B2050 Manston Road between Manston Road and Manston Court Road	1004	26	3%	988	15	2%	10985	236	2%
24	Manston Court Road, south of the junction with Preston Road	212	28	13%	264	19	7%	2500	300	12%
25	Manston Court Road, east of Valley Road	334	46	14%	426	30	7%	4274	421	10%
26	Manston Road, west of the junction with Greensole Lane	788	79	10%	707	61	9%	9701	1053	11%
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	1951	95	5%	2530	58	2%	25624	962	4%
28	Canterbury Road West between A299 and Cliff View Road	320	10	3%	475	9	2%	4795	389	8%
29	M2 – Between Junctions 5 and 6	-	-	-	-	-	-	60028	5014	8%
30	A2 – Between the A227 and B262 (Near Gravesend)	-	-	-	-	-	-	144826	11279	8%
31	A20 – Between Dover and Folkestone	-	-	-	-	-	-	40593	5401	13%

Existing Accident Record

- 14.5.27 This section reviews the PIA data that has been obtained from KCC for the most recent six-year period, up to and including June 2017. A six-year period was selected to ensure that a thorough understanding of the existing accident record was gained. The area covered in the PIA analysis is illustrated in **Figure 14.2**, along with the accident locations and severity, whilst the full accident report is presented in **Appendix 14.1**.
- 14.5.28 The PIA data indicates that there were 708 accidents recorded within the wider study area over the six-year period, of which 246 were on junctions/roads analysed below. Of those analysed, 209 were classified as slight in severity, 28 were classified as serious and five were classed as fatal. The accidents have been split into junctions and key links in order to present the data geographically. **Table 14.10** and **Table 14.11** summarise the number of accidents and the severity over the assessment period. These tables have been split between accidents occurring within 100m of the centre point of a junction and on links between junctions.
- 14.5.29 Consideration has been given to the PIA data when identifying sensitive locations, roads and with regards to mitigation identification.

Table 14.10 Summary of Accident Record 2011-2016 (Junctions)

Junctions	Total	Fatal	Serious	Slight
A299 / A28	12	1	0	11
A253 / A299 / Willetts Hill	15	0	2	13
A299 / B2190	10	1	0	9
B2050 / Manston Road / Spitfire Way	8	0	1	7
A299 / Canterbury Road W	12	0	2	10
A256 / A299	9	0	1	8
Cottington Link Road / Cottington Road	5	0	0	5
A256 / Sandwich Road	6	0	1	5
Canterbury Road E / Sandwich Road / Hengist Way	7	0	0	7
Haine Road / Canterbury Road W	1	0	0	1
A256 / Manston Road	7	0	0	7
A256 / Spratling Lane	3	0	1	2
New Haine Road / Marlowe Way	1	0	0	1
Haine Road / New Haine Road	4	0	0	4
Haine Road / Star Lane Link	2	0	0	2
A254 / B2052	5	0	0	5
B2050 / Acol Hill / Park Lane	4	0	0	4
B2190 / Minster Road	1	0	1	0
A256 / Margate Road	7	0	0	7
B2050 / Shottendane Road / Margate Hill	7	0	0	7
B2050 / Manston Court Road	5	0	1	4

Table 14.11 Summary of Accident Record 2011-2016 (Links)

Links	Total	Fatal	Serious	Slight
A299 between A253 and A28	1			1
A299 between B2190 and A253	3	0	0	3
A299 Hengist Way between Canterbury Road W and Minster Road	6	0	3	3
Canterbury Road W between Haine Road and the Cliffsend Roundabout	7	0	1	6
Hengist Way between Richborough Way and Sandwich Road	7	1	1	5
A256 between Sandwich Road and Cottington Road	7	1	2	4

Links	Total	Fatal	Serious	Slight
Haine Road between Canterbury Road W and Manston Road	5	0	1	4
Haine Road between Spratling Road and Spratling Street	3	0	0	3
A256 between Star Lane Link Margate Road	6	0	1	5
Manston Court Road between Manston Road and Star Lane	5	0	0	5
B2050 Manston Road between Spitfire Way and Shottendane Road	24	0	4	20
Manston Road between Manston Court Road and A256	9	0	0	9
Manston Road between Spitfire Way and Manston Court Road	2	0	0	2
Manston Road between Spitfire Way and Shottendane Road	6	0	1	5
Spitfire Way between Minster Road and Manston Road	15	1	2	12
Minster Road and The St between B2190 and Acol Hill	8	0	1	7
B2190 between A299 and Minister Road	1	0	1	0

14.5.30 In addition to the wider overview set out above, it was considered that a detailed analysis of the key junctions on the local road network likely to experience the largest change in traffic flows would also be appropriate. For further information and detail on this element, refer to the TA. The roads (and junctions) considered for further assessment were:

- ▶ Spitfire Way / Columbus Avenue;
- ▶ Spitfire Way / Alland Grange Lane;
- ▶ Spitfire Way / Manston Road;
- ▶ Manston Road / Manston Court Road;
- ▶ Manston Road / Haine Road Roundabout;
- ▶ Manston Road / Vincent Road;
- ▶ Manston Road / Fleet Road;
- ▶ Spitfire Way / Minster Road Roundabout;
- ▶ Minster Road / A299 / Tothill Street Roundabout; and
- ▶ A299 / Canterbury Road West Roundabout.

14.5.31 The analysis undertaken in the TA outlines that there are inherent accident issues at the locations listed below. It also includes a description of the proposed mitigation:

- ▶ Spitfire Way / Alland Grange Lane – visibility issues from minor arm;
 - ▶ Mitigation proposed - improving visibility (vegetation clearance) from the Alland Grange Lane arm of the junction as well as formalisation of the kerb line on Alland Grange Road;

- ▶ Spitfire Way / Manston Road – issues with accidents related to staggered priority junction;
 - ▶ Mitigation proposed – in relation to increase in traffic and capacity constraints as well as accident issues at the junction a new formal signalised junction with appropriate pedestrian crossings is proposed; and
- ▶ Manston Road / Manston Court Road – issues with visibility from minor arm;
 - ▶ Mitigation proposed – in relation to increase in traffic and capacity constraints as well as accident issues at the junction a new formal signalised junction with appropriate pedestrian crossings is proposed.

Cumulative Assessment and Future Baseline

- 14.5.32 Consideration should be given to whether any other developments would contribute to creating, with the Proposed Development, a cumulative effect that would be greater than it would occur if the Proposed Development was being developed in isolation.
- 14.5.33 Relative to this Chapter, the approach to assessing local background network development proposed to come forward is to apply a growth factor to the baseline traffic counts.
- 14.5.34 For future years of assessment, all proposed local developments have been extrapolated from future local growth forecasts from the emerging local plan which was used at the time of these calculations as a basis for growth. However specific sites were not used, but a process, as set out below, was used amending Trip End Model Presentation Program (TEMPRO) growth rates to housing and job numbers from the emerging plan.
- 14.5.35 The proposed future year of development that is assessed within this Chapter is Peak Year of Operational Traffic in Year 20 (2039).
- 14.5.36 Growth rates have been developed based on the National Trip End Model (NTEM) growth rates, extracted from the DfT’s TEMPRO 7.2 software for the Kent area. Consideration has been given to the proposed increase in the number of households and jobs. The TEMPRO growth rates have been adjusted upwards to take this into account. This growth has been applied across the whole network, which will provide for a more robust assessment. As the development regarding the preferred sites is not known, this blanket growth is considered to be a more appropriate and acceptable approach to take. **Table 14.12** summarises the future background traffic growth rates.

Table 14.12 Future Growth Rates in Year 20 (2039) – TEMPRO 7.2

Year	Growth Factor					
	Light Vehicles			HGVs		
	AM	PM	24H	AM	PM	24H
2039	1.2484	1.2591	1.2726	1.3115	1.3227	1.3370

- 14.5.37 This Chapter presents the future baseline traffic flows at each receptor location for each assessment year.

14.6 Environmental Measures Incorporated into The Proposed Development

- 14.6.1 Environmental measures that have been incorporated into the Proposed Development are set out in **Table 14.13**. The measures are based on assessments and documents that will form part of the DCO application.

Table 14.13 Rationale for Incorporation of Environmental Measure

Potential Receptors	Predicted Changes and Potential Effects	Incorporated Measures
Construction		
<p>The users of local roads and the occupiers of land uses fronting roads likely to be affected</p>	<p>Changes in the character of traffic (such as increases in HGVs), as a result of proposed construction traffic. Potential effects on:</p> <ul style="list-style-type: none"> • Severance; • Driver delay; • Pedestrian delay; • Pedestrian amenity; and • Accidents and safety. 	<p>A CTMP will be agreed with KCC prior to construction works commencing. The CTMP will seek to keep construction traffic on the strategic highway network and avoid sensitive routes and local communities in order to minimise impacts on receptors and manage environmental effects.</p> <p>The CTMP will manage the daily delivery profiles and control movements and routing of HGVs through the following measures:</p> <ul style="list-style-type: none"> • Traffic routing strategy – ensuring vehicles access the site via the most appropriate route and avoid unnecessary conflict with sensitive areas; • Traffic timing strategy – programme vehicle arrival/departures and working hours to lessen the impact on the highway network; • Temporary signage – in accordance with the DfT <i>Traffic Signs Manual, Chapter 8</i>¹¹ to inform local road users of construction access points and the presence of HGVs; • Temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage of vehicles; • Site accesses designed in accordance with DMRB TD 42/95 Geometric Design of Major/Minor Priority Junctions¹²; and • Staff travel plan – will provide details of how staff should travel to the site by alternative modes in an effort to reduce single occupancy vehicles travelling to the site. <p>A Construction Environmental Management Plan (CEMP) will be implemented for each phase of the Proposed Development to control construction activities. The CEMP details working practices and any other measures that form part of the Proposed Development.</p> <p>Both the CEMP and CTMP are provided to support the DCO application.</p>
Operation		
<p>The users of local roads and the occupiers of land uses fronting roads likely to be affected</p>	<p>Changes in the character of traffic (such as increases in traffic volume), as a result of operation of the Proposed Development. Potential effects on:</p> <ul style="list-style-type: none"> • Severance; • Driver delay; • Pedestrian delay; • Pedestrian amenity; and • Accidents and safety. 	<p>An ASAS has been submitted as part of the DCO application. The ASAS identifies the physical measures to maximise the multi modal accessibility to the site, including identification of bus / rail interchange opportunities, bus provision proposals and pedestrian improvements and linkages, including crossing points, as well as setting out the vehicular access. The proposals for shuttle buses, employee buses, and improvements to local bus interchanges will aim to reduce overall traffic and improve all effects.</p> <p>A TA has been submitted to support the DCO application and identifies the off-site highway works to improve junctions and ensure 'nil-detriment' as a result of the Proposed Development, thereby addressing environmental effects on receptors such as driver delay. Off-site mitigation also considers the effects on pedestrian and incorporates improvements such as footway provision and crossing facilities to address this. Specific proposals include:</p> <ul style="list-style-type: none"> • Improvement to the access junctions and off-site junctions where operational capacity is adversely affected to minimise driver delay; • Widening along Manston Road and Spitfire Way to accommodate the Proposed Development traffic and minimise driver delay; • Speed reduction along Spitfire Way and road safety improvements in the form of road signs and road markings; • Provision of new pedestrian crossings at all key access junctions to minimise pedestrian delay and optimise pedestrian amenity;

Potential Receptors	Predicted Changes and Potential Effects	Incorporated Measures
		<ul style="list-style-type: none"> • Provision of a new pedestrian link between the Cargo Facility and Passenger Terminal access to optimise pedestrian amenity; and • Accident analysis to inform mitigation schemes and address accident hot spots where improvements are proposed. <p>A Travel Plan for the Proposed Development has been provided to support the DCO application. The Travel Plan sets out initiatives to enable and encourage sustainable travel by public transport, cycling and walking and to reduce and discourage car travel in order to minimise impacts on receptors and manage environmental effects. The Travel Plan sets out:</p> <ul style="list-style-type: none"> • Physical measures to enable sustainable travel, such as bus provision, cycle parking, footway provision and connectivity to the external network, car share scheme and parking spaces, etc; and • Influencing travel behaviour measures, including sustainable travel information provision and incentives to travel sustainably. <p>A PRoW Management Plan (PRoWMP) has been submitted as part of the DCO application and sets out proposals to retain all pedestrian links and routes that exist currently via diversions if required. As such, impacts on the pedestrian effects will be no worse that they are currently or enhanced with new surfaces and routes.</p>

14.7 Scope of the Assessment

- 14.7.1 This section sets out information on the process whereby receptors are identified, the potential receptors that could be affected by the Proposed Development and the potential effects on receptors that could be caused by the Proposed Development.
- 14.7.2 The scope of assessment has been informed by the Scoping Report, consultation with KCC, the Proposed Development design as it stands, the results of work detailed in **Section 14.4** and GEART.

Approach to Identifying Receptors

- 14.7.3 The identification of receptors is based on the guidance set out in GEART. Receptors are:
- ▶ Local roads and the users of those roads, including public transport users, pedestrians, cyclists and equestrians; and
 - ▶ Land uses and environmental resources fronting those roads, including the relevant occupiers and users.

Spatial and Temporal Scope

- 14.7.4 The spatial scope of this assessment includes the local highways network taking in elements of the settlements of Ramsgate and Margate to the east through to the settlements of Birchington-on-Sea and Sarre in the west. A plan giving an overview of the study area is shown in **Figure 14.3**.
- 14.7.5 The temporal scope of this assessment has been established above as the peak year of the development in Year 20, 2039.
- 14.7.6 The TA has selected a future year of 2039 (Year 20) which is the peak for total traffic from the development. This is the peak of all traffic, at no point in the 19 years previous to Year 20 does a combination of the construction traffic and the operational traffic exceed that of just the operational traffic in Year 20. As such an assessment of the construction period has been scoped out of the environmental assessment. A consideration of the impacts of the construction traffic in Year 1 and

2 before operational traffic commences on the network has however been set out in the PCTMP which is Appendix K to the TA.

Potentially Significant Effects

14.7.7 The types of effects that could be expected during the construction and operational phases of the Proposed Development are taken from the GEART¹³ and are presented in **Table 14.14**. Those effects of relevance to this Chapter are highlighted in bold text. The remaining issues are considered within the other chapters of this assessment.

Table 14.14 Traffic Related Environmental Effects Identified in GEART

Types of Traffic Related Environmental Effects		
Noise	Fear and Intimidation	Heritage and Conservation
Vibration	Accidents and Safety	Pedestrian Delay
Visual Effects	Hazardous Loads	Ecological Effects
Severance	Air Pollution	Pedestrian Amenity
Driver Delay	Dust and Dirt	

14.7.8 The potentially significant effects from the Proposed Development, which are subject to further discussion in this Chapter, are summarised below. All other effects in **Table 14.14** are discussed within the corresponding technical chapters of this ES.

14.7.9 The potentially significant effects from the proposed development, which will be subject to further assessment, are summarised below:

- ▶ Effects on highway capacity (passenger delay including public transport) and safety at junctions due to an increase in traffic flows due to a presence of operational/construction vehicles (Assessed separately in the TA and PCTMP);
- ▶ Effects on road user journey times due to the construction of access points and other onsite highways improvements relative to proposed road works and potential temporary road closures, diversions and/or widening (assessed in the PCTMP);
- ▶ Effects on pedestrians and equestrians due to the closure and diversion of PRoWs (additional assessment in the PRoWMS); and
- ▶ Effects on vulnerable road users such as cyclists and equestrians on narrow country lanes due to increase in vehicle movements.

Inter-related effects

14.7.10 Inter-related effects are those where a number of different changes considered under different environmental topics have the potential to harm a common receptor.

14.7.11 The following topics have assessed the impact of traffic and transport changes described within this Chapter;

- ▶ Air quality (**Chapter 6: Air Quality**) – Effects on sensitive human and ecological receptors due to vehicle emissions and dust generated by traffic;
- ▶ Noise (**Chapter 12: Noise and Vibration**) – Effects on road users due to increased traffic flows;

- ▶ Landscape and Visual (**Chapter 11: Landscape and Visual Impact Assessment**) - Effects on views, visual amenity and scenic quality as a result of increased traffic.
- ▶ Socio-economics (**Chapter 13: Socio-economics**) – Effects on employee and customer access to local businesses, and on amenity, tourism and recreational activities due to disruption to the local road network;
- ▶ Human health (**Chapter 15: Health and Wellbeing**) – Effects on health and wellbeing due to changes in traffic and transportation;
- ▶ Climate change (**Chapter 16: Climate Change**) - Effects on greenhouse gas emissions as a result of road transport and traffic changes, and effects on human health as a result of air quality changes (linked to traffic and transport changes), compounded by climate change; and
- ▶ Major accidents (**Chapter 17: Major Accident and Natural Disasters**) - Effects on humans, buildings, groundwater and surface water as a result of major accidents or disasters related to road use;

14.7.12 The inter-related effect of multiple topics (noise, visual, air quality, socio-economics, health and well-being in addition to traffic and transport) acting in combination on the same human receptors (motor users, public transport users, pedestrians, cyclists, equestrians, occupiers of properties and tourist sites) is considered in **Chapter 18: Cumulative Effects**.

Traffic Related Environmental Effects

14.7.13 The following elements are the traffic related environmental effects considered in this Chapter.

Severance

14.7.14 Severance is the perceived division that can occur within a community when it becomes separated by an increase in traffic on a route that separates people from other people and places. For example, severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to locations where even low increase in traffic flows impede pedestrian access to essential facilities.

14.7.15 The effects of severance can be applied to motorists, pedestrians or residents, but it is recognised that there are no predictive formulae which give simple relationships between traffic factors and levels of severance.

14.7.16 The GEART state that marginal changes in traffic flow are unlikely to create or remove severance, but that consideration in determining whether severance is likely to be an important issue should be given to factors such as road width, traffic flow and composition, traffic speeds, the availability of crossing facilities and the number of movements that are likely to cross the affected route. Consideration should also be given to different groups such as the elderly and young children.

Driver Delay

14.7.17 Delays to non-development traffic can occur at several points on the local highway network as a result of the additional traffic that would be generated by a development. The GEART state that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

Pedestrian Delay

14.7.18 Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads and therefore, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend upon the general level of pedestrian activity, visibility and general physical conditions of the crossing location.

- 14.7.19 Given the range of local factors and conditions which can influence pedestrian delay, the GEART do not recommend that thresholds be used as a means to establish the significance of pedestrian delay, but recommend that reasoned judgements is made instead.

Pedestrian Amenity

- 14.7.20 Pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.

Fear and Intimidation

- 14.7.21 The scale of fear and intimidation experienced by pedestrians is dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement widths, as well as factors such as the speed and size of vehicles.
- 14.7.22 The GEART also note that special consideration should be given to areas where there are likely to be particular problems, such as high-speed sections of road, locations of turning points and accesses. Consideration should also be given to areas frequented by school children, elderly and other vulnerable groups.

Accident and Safety

- 14.7.23 Where a development is expected to produce a change in the character of the traffic on the local road network, as a result of increased HGV movements for example, the GEART state the implications of local circumstances or factors which may elevate or lessen risks of accidents, such as junction conflicts, would require assessment in order to determine the potential significance of accident risk.

Hazardous Loads

- 14.7.24 Some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognized within the assessment. The GEART note that the number of movements should be calculated and if it is considered to be significant then a risk analysis should be undertaken.
- 14.7.25 As details of hazardous loads (e.g. types and quantity of load, number of movements and access route etc.) are yet to be finalised, this has not been included within this assessment.

14.8 Assessment Methodology

Methodology for Screening

- 14.8.1 The guidance that is followed when assessing the potential significance of road traffic effects is summarised in GEART¹⁴, which states that:
- “The detailed assessment of impacts is...likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur.” (Paragraph 3.10).*
- 14.8.2 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Proposed Development with future predicted baseline traffic flows on the road links in the study area.
- 14.8.3 To define the scale and extent of this assessment, GEART guidelines¹⁵ identify the following rules for assessing potentially significant traffic and transport related environmental effects:
- ▶ Rule 1: Include roads where traffic flows are predicted to increase by more than 30% (or where the number of HGVs are predicted to increase by more than 30%); and

- ▶ Rule 2: Include any specifically 'sensitive' areas where traffic flows are predicted to increase by 10% or more.

14.8.4 The 10% threshold in Rule 2 considers daily variations in traffic levels, typically around 10%, meaning that an increase in traffic levels of less than 10% is not likely to have an undesirable effect and would not require an assessment.

Receptor Sensitivity

14.8.5 The sensitivity of each highway link included in the assessment has been assigned a sensitivity in accordance with GEART¹⁶. This is based on the proximity of the sensitive receptors to the highway link and the highway environment. **Table 14.15** summarises the rationale used to determine the sensitivity against the corresponding receptors. Professional judgement is also used to determine the sensitivity of the receptor.

Table 14.15 Receptor sensitivity

Sensitivity	Description / Reason	Receptor
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident blackspots, retirement homes and urban/residential homes without footways that are used by pedestrians and cyclists.	Residents/workers travelling to and from work or home on foot and by bicycle, school children, leisure walkers and equestrians.
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycle ways, community centres, parks, recreation facilities.	Residents/workers travelling to and from work or home on foot and by bicycle, people visiting these land uses.
Low	Receptors with some sensitivity to traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist/visitor attractions and residential areas with adequate footway provision.	Residents/workers travelling to and from work or home on foot or bicycle and people visiting these land uses.
Negligible	Receptors with low sensitivity to traffic flows: Motorway and Dual Carriageways and/or land uses sufficiently distant from affected routes and junctions.	Residents/workers travelling by foot or by bicycle.

14.8.6 Sensitivity judged as High or Medium results in Rule 2 being considered for that highway link. Sensitivity judged as Low or Negligible results in Rule 1 being considered for that highway link.

14.8.7 Given the potential receptors described, **Table 14.16** identifies the sensitivity of highway link and the GEART Rule that applies.

14.8.8 In terms of defining 'sensitive' areas, according to the GEART, some highway links assessed are considered to be 'sensitive' due to the fact that they have residential properties fronting the link or pedestrian activity. Therefore, a change of 10% or more in the total traffic flows or a change of 30% in the number of HGVs would trigger a detailed evaluation of the effects.

14.8.9 To determine the sensitivity of each receptor, considerations taken from GEART have been used. Identified sensitive receptors are as follows:

- ▶ People at home;
- ▶ People at work;
- ▶ Sensitive groups including children, elderly and disabled;
- ▶ Sensitive locations such as hospitals, churches, schools and historical buildings;
- ▶ People walking;

- ▶ People cycling;
- ▶ Open spaces, recreational areas, shopping areas;
- ▶ Sites of ecological / nature conservation value; and
- ▶ Sites of tourist / visitor attractions.

14.8.10 All other receptors which are not considered sensitive are predominantly non-residential in nature, have low pedestrian footfall, or have a road environment suited to the proposed activity and its associated traffic. These links are still assessed as part of this Chapter as it is these links that are proposed to experience the largest increase in total vehicles and HGVs and may trigger the 30% threshold.

14.8.11 **Table 14.16** summarises the links for which the receptors have been identified for this assessment and the resultant receptor sensitivity as identified in accordance with GEART and with use of professional judgement. These receptors and the corresponding highway links are also presented in **Figure 14.8**.

Table 14.16 Summary of Highway Links Where Receptors Have Been Identified

ID	Highway Link	Comments	Receptor Sensitivity	GEART Assessment (Rule 1/Rule 2)
1	A256 north of Sandwich	Routes predominantly through an agricultural area on a dual carriageway. No pedestrian facilities along majority of this highways link.	Negligible	1
2	A299 Hengist Way between Richborough Way and Sandwich Road	The link is an un-developed dual carriageway with no direct fronting properties and no pedestrian footways.	Negligible	1
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	The route is through an agricultural area then into a residential area, but with properties well set back on a service lane.	Low	1
4	Manston Road between Tesco's access roundabout and rail underbridge	This link is close to Newington Community Primary School, although the area adjacent to the highway is commercial and residential in nature. The link has pedestrian footways and is a main link into Ramsgate.	High	2
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the St Lawrence area of Ramsgate.	High	2
6	A255 High Street between B2014 Newington Road and Ellington Place	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the St Lawrence area of Ramsgate. The link provides access to local parks and schools.	High	2
7	A254 Margate Road between Broadstairs Retail park and the B2014	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the Northwood area of Ramsgate.	High	2
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in Broadstairs.	High	2

ID	Highway Link	Comments	Receptor Sensitivity	GEART Assessment (Rule 1/Rule 2)
9	A254 Ramsgate Road between Star Lane and Nash Court Road	Commercial and residential area with some industrial uses fronting the carriageway. High pedestrian flows to local shops schools and businesses anticipated. The link has pedestrian footways and is located between Westwood Cross and Margate and is a key link in the local area.	High	2
10	A254 Ramsgate Road north of the junction with B2052 College Road	A link through a busy residential area with numerous properties adjacent to the carriageway and pedestrian footways. South end of link is a village centre.	Medium	2
11	A28 Canterbury Road, east of the junction with Domneva Road	Predominantly a residential area adjacent to a commercial area with direct fronting shops and residential properties to the carriageway). The link has pedestrian footways.	Medium	2
12	Manston Road between Shottendane Road and Vincent Road	The link is a single track rural road through agricultural areas where some properties front the carriageway. There is no pedestrian footway provision except on the approach to Shottendane Road.	Medium	2
13	Shottendane Road between Manston Road and High Street	The link is a single track rural road through agricultural areas where some properties front the carriageway. There is no pedestrian footway provision except on the approach to Manston Road.	Low	1
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	Predominantly a residential and commercial area and the link does have pedestrian footways. Birchington C of E school also fronts onto the carriageway.	High	2
15	A299 Thanet Way west of junction with A28	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs.	Negligible	1
16	A299 between A253 and A28	The link is a dual carriageway with no direct fronting properties or pedestrian footways. The link carries a high percentage of HGVs.	Negligible	1
17	A299 between B2190 and A253	The link is a dual carriageway with no direct fronting properties or pedestrian footways. The link carries conveys a high percentage of HGVs.	Negligible	1
18	Minster Road between B2190 and Manston Road (Acol)	Predominantly agricultural area with directly fronting properties through the small village of Acol. Although it is a small village setting, the village of Acol does not have pedestrian footways.	High	2
19	B2050 Manston Road between Spitfire Way and Shottendane Road	Predominantly an agricultural area with limited footway provision (near the junction with Spitfire Way) with some properties well set back from the carriageway.	Low	1
20	B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	Predominantly an agricultural area to the north and the Manston Airport site to the south. There are only a few properties along this link which front the carriageway.	Low	1
21	A299 between B2190 and Canterbury Road West	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. The link carries a high percentage of HGVs.	Negligible	1
22	Manston Road, south of the junction with Vincent Road	Predominantly an agricultural area with direct property frontage through the small village setting near Drome Garage Despite with no pedestrian footway provision.	Low	1

ID	Highway Link	Comments	Receptor Sensitivity	GEART Assessment (Rule 1/Rule 2)
23	B2050 Manston Road between Manston Road and Manston Court Road	The link runs through the Manston Airport site with no property frontages or pedestrian footway provision.	Negligible	1
24	Manston Court Road, south of the junction with Preston Road	Predominantly an agricultural area with direct property frontages through the small village setting near Manston Court Holiday Park. Despite the village setting there are no footways. The route is also near the tourist site Manston Court Holiday Park.	Medium	2
25	Manston Court Road, east of Valley Road	Predominantly agricultural area with direct property frontages through the small village setting near Bradgate Caravan Park. Despite the village setting there are no footways.	Medium	2
26	Manston Road, between the centre of Manston Village and the A256	The link passes through the centre of Manston Village and although the remaining section of this link is agricultural in nature the village setting of Manston is considered to be the defining factor on this link.	Medium	2
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	The link is a single carriageway with no properties fronting the carriageway and no pedestrian footways. The link carries a high percentage of HGVs.	Negligible	1
28	Canterbury Road West between A299 and Cliff View Road	The link is a single carriageway with no properties fronting the carriageway or pedestrian footways.	Negligible	1
29	M2 – Between Junctions 5 and 6	This link is a motorway set back from properties designed to carry high volumes of traffic and HGVs.	Negligible	1
30	A2 – Between the A227 and B262 (Near Gravesend)	This link is a key A Road which is part of the strategic highways network set back from properties and is designed to carry high volumes of traffic and HGVs.	Negligible	1
31	A20 – Between Dover and Folkestone	This link is key A Road which is part of the strategic highways network set back from properties and designed to carry high volumes of traffic and HGVs.	Negligible	1

14.8.12 **Table 14.17** provides details of thresholds used to determine the magnitude of each transport effect based on guidance within GEART.

Table 14.17 Magnitude of Each Transport Effect- Thresholds Used

Transport Effect	Magnitude of Effect			
	Major	Moderate	Minor	Negligible
Severance	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
	And/or	And/or	And/or	And/or
	Where there will be a temporary maximum increase in pedestrian journey length of 500m or more along a road or other Public	Where there will be a temporary maximum increase in pedestrian journey length of 250m – 500m along a road or other Public	Where there will be a temporary increase in pedestrian journey length of up to 250m along a road or other Public Right of Way	Where there will be no temporary increase in pedestrian journey length.

	Right of Way for more than 6 months over a 12-month period	Right of Way for a 3-6-month period over 12 months	for between 4 weeks and 3 months over a 12 month period	
Driver delay	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
Pedestrian amenity and delay, fear and intimidation	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
Accidents and road safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.			

Significance Evaluation Methodology

Effect Evaluation

14.8.13 The significance of a likely traffic and transport effect is derived by considering the sensitivity of the receptor (derived from **Table 14.16**) against the magnitude of effect (derived from **Table 14.17**) as defined in **Table 14.18**.

Table 14.18 Significance Matrix

	Magnitude of Effect			
	Major	Moderate	Minor	Negligible
High	Major adverse – Significant	Major adverse – Significant	Moderate adverse – Significant	Negligible
Medium	Major adverse – Significant	Moderate adverse – Significant	Minor to moderate adverse – Not significant	Negligible
Low	Moderate adverse – Significant	Minor to moderate adverse – Not significant	Minor adverse – Not significant	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

14.8.14 The following terms have been used to classify the level of effects, where they are predicted to occur:

- ▶ Major adverse or Major beneficial – where the Proposed Development would cause a significant deterioration (or improvement) to the existing environmental effect;
- ▶ Moderate adverse or Moderate beneficial – where the Proposed Development would cause a noticeable deterioration (or improvement) to the existing environmental effect;
- ▶ Minor adverse or Minor beneficial – where the Proposed Development would cause a small deterioration (or improvement) to the existing environmental effect; and
- ▶ Neutral – no discernible deterioration or improvement to the existing environment.

14.8.15 Note that for the purposes of the ES, Major and Moderate adverse effects are considered to be significant, whilst Minor and Negligible adverse effects are considered 'neutral / not significant'.

14.8.16 Effects can also be described, for example, as:

- ▶ Beneficial, negligible or adverse;

- ▶ Temporary (short-term, medium-term, long-term) or permanent; and
- ▶ Local, district, regional or national.

Methodology for Assessing Environmental Effects

14.8.17 In relation to traffic and transport, the significance of each effect identified in **Section 6.7** has been considered against the criteria within GEART¹⁷, where possible. However, GEART states that:

'For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources.' (Paragraph 4.5).

Severance

14.8.18 There are no predictive formulae which give simple relationships between traffic factors and levels of severance. GEART states that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance. In general, marginal (slight) changes in traffic flow are, by themselves, unlikely to create or remove severance. The magnitude of effect can also be assessed against increases in pedestrian journey length along roads and/or PRowS for between four weeks and 12 months, as identified in **Table 14.17**.

Driver Delay

- 14.8.19 GEART states that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. The capacity of a road or a particular junction can be determined by establishing the ratio of flow to capacity (RFC).
- 14.8.20 For this assessment, criteria from GEART has been used to assess the effects on traffic levels and driver delay, which states the need for assessment where changes in traffic flows exceed 30%.

Pedestrian Delay

14.8.21 Given the range of local factors and conditions which can influence pedestrian delay, GEART does not recommend that thresholds be used as a means to establish the significance of pedestrian delay, but recommend that reasoned judgements be made instead. However, GEART suggests a lower threshold of 10 seconds delay and upper threshold of 40 seconds delay which, for a link with no crossing facilities, equates to the lower threshold of a two-way flow of 1,400 vehicles per hour.

Pedestrian Amenity

14.8.22 GEART notes that changes in pedestrian amenity may be considered significant where the traffic flow is halved or doubled, with the former leading to a positive effect and the latter a negative effect.

Accidents and Safety

14.8.23 Informed by a review of existing collision patterns and trends based upon the existing personal injury collision records and the forecast increase in traffic.

Fear and Intimidation

14.8.24 The scale of fear and intimidation experienced by receptors along the identified access routes is subjective and influenced by the volume and the type of vehicle but also the level of protection available, such as having a property set back from the highway, wide footways and screening by vegetation.

14.9 Assessment of Effects

- 14.9.1 To undertake the assessment of effects of the traffic generated by the Proposed Development, the Proposed Development traffic flows need to be estimated and trips distributed onto the road network. The methodology that has been developed is outlined in the TA.
- 14.9.2 In this Chapter, assessment will only be provided for the worst-case traffic flows scenario, which is for the operational traffic. Construction traffic has been screened out on the basis that the flows are less than fully operational. Details of this comparison are outlined in the TA.
- 14.9.3 The Proposed Development trips for operational traffic been added to future baseline years to provide a clear impact on the difference between the growth of future baseline and the growth of future baseline with Development.
- 14.9.4 It is at this stage that the significance will be predicted using the rules in **Table 14.18**. For those receptors where the change is considered significant, further assessment will be made using the criteria in **Section 14.7**.
- 14.9.5 This Chapter sets out the assessment for the peak operational traffic year (Year 20). The findings will be summarised in **Tables 14.19 to 14.25**.

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- 14.9.6 **Table 14.19** compares the Two Way 24-hour Traffic Flows (All Vehicles and HGVs) for the peak operational traffic period (Year 20) with and without the construction traffic and identifies the percentage increase. Where the threshold of change is 30%, or 10% for sensitive locations, this is identified in red.

Table 14.19 2039 Compared with 2039 Peak Operational Traffic Year 20(2039)

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline Plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
1	A256 north of Sandwich	1	35641	4742	37587	4750	5%	0%
2	A299 Hengist Way between Richborough Way and Sandwich Road	1	42820	2044	42846	2044	0%	0%
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	1	29164	3447	29815	3451	2%	0%
4	Manston Road between Tesco's access roundabout and rail underbridge	2	14159	1087	14681	1087	4%	0%
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	2	21779	165	22301	165	2%	0%
6	A255 High Street between B2014 Newington Road and Ellington Place	2	20585	136	21107	136	3%	0%
7	A254 Margate Road between Broadstairs Retail park and the B2014	2	20945	1730	21093	1730	1%	0%

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline Plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	2	29200	1856	29957	1856	3%	0%
9	A254 Ramsgate Road between Star Lane and Nash Court Road	2	28826	2381	28826	2381	0%	0%
10	A254 Ramsgate Road north of the junction with B2052 College Road	2	13892	1568	13892	1568	0%	0%
11	A28 Canterbury Road, east of the junction with Domneva Road	2	28630	2187	28664	2187	0%	0%
12	Manston Road between Shottendane Road and Vincent Road	2	5256	828	6312	828	20%	0%
13	Shottendane Road between Manston Road and High Street	1	10648	1457	10648	1457	0%	0%
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	2	8355	67	8692	67	4%	0%
15	A299 Thanet Way west of junction with A28	1	41972	7804	44474	8464	6%	8%
16	A299 between A253 and A28	1	28033	2295	30573	2955	9%	29%
17	A299 between B2190 and A253	1	36285	2570	38881	3230	7%	26%
18	Minster Road between B2190 and Manston Road (Acol)	2	7317	846	7341	846	0%	0%
19	B2050 Manston Road between Spitfire Way and Shottendane Road	1	7234	722	8298	722	15%	0%
20	B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	1	11639	1984	14381	2596	24%	31%
21	A299 between B2190 and Canterbury Road West	1	32103	5813	32151	5861	0%	1%
22	Manston Road, south of the junction with Vincent Road	1	6676	848	7732	848	16%	0%
23	B2050 Manston Road between Manston Road and Manston Court Road	1	13980	315	19360	459	38%	46%
24	Manston Court Road, south of the junction with Preston Road	2	3182	401	4239	401	33%	0%

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline Plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
25	Manston Court Road, east of Valley Road	2	5440	563	6497	563	19%	0%
26	Manston Road, between the centre of Manston Village and the A256	2	12345	1408	16050	1415	30%	0%
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	1	32609	1286	35307	1293	8%	1%
28	Canterbury Road West between A299 and Cliff View Road	1	6102	521	6144	563	1%	8%
29	M2 – Between Junctions 5 and 6	1	78937	6704	80618	7407	2.1%	10.5%
30	A2 – Between the A227 and B262 (Near Gravesend)	1	184306	15080	185530	15784	0.7%	4.7%
31	A20 – Between Dover and Folkestone	1	51659	7221	51835	7221	0.3%	0.0%

14.9.7 In accordance with the relevant assessment rules set in GEART, the percentage change analysis presented in **Table 14.19** demonstrates that the environmental effects on receptors at the following six locations require further assessment:

- ▶ 12 - Manston Road between Shottendane Road and Vincent Road;
- ▶ 20 - Spitfire Way between Spitfire Way and Columbus Avenue;
- ▶ 23 - Manston Road between Manston Road and Manston Court Road;
- ▶ 24 - Manston Court Road, south of the junction with Preston Road;
- ▶ 25 - Manston Court Road, east of Valley Road; and
- ▶ 26 - Manston Road, between the centre of Manston Village and the A256.

14.9.8 These locations requiring further assessment are shown in **Figure 14.9**.

14.9.9 Further assessment is undertaken below for the receptors, where the predicted change in traffic flows is considered to be significant.

14.10 Assessment of Effects on Receptors

14.10.1 The six receptors which have been identified as requiring assessment are assessed in detail below.

Receptor 12 – Manston Road, between Shottendane Road and Vincent Road

14.10.2 **Table 14.20** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period, the predicted total traffic flows are predicted to increase by 20% across the 24-hour period. Based on **Table 14.16**, the sensitivity of the receptor has been identified as medium. Based on **Table 14.17**, as the change in traffic flows is less than 30%, the magnitude of effect is generally negligible.

Table 14.20 Predicted effects and their significance near Receptor 12 (Manston Road between Shottendane Road and Vincent Road)

Effect	Comments	Magnitude of Effect	Significance of Effect
Severance	<p>At this receptor location, there are residential properties on the western side of Manston Road south of the junction with Shottendane Road and a crematorium on the eastern side to the south of the housing. There are pedestrian footways on both sides of the carriageway, but along the housing frontage, there are no land uses on the opposite side of the road that would attract pedestrians to cross the road.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>	Negligible	Negligible
Driver Delay	<p>In this location Manston Road has been constructed as a two-lane single carriageway and has on street parking. It has been designed to accommodate traffic flows suitable for residential areas.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p> <p>It should be noted that in the Airport Peak hour the maximum additional vehicles on the link in one hour is 102 two-way vehicles movements which equates to around two additional vehicles per minutes which is not considered to affect driver delay on the link. The peak hour flows are still lower at 64 in the AM Peak and 82 in the PM peak which is one additional vehicle per minute. Delays as a result of the impact at the junctions on the link are considered further in the TA.</p>	Negligible	Negligible
Pedestrian Delay	<p>As identified above, there are no pedestrian desire lines across Manston Road and pedestrians would not be impeded by additional traffic.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p> <p>It should be noted that in the Airport Peak hour the maximum additional vehicles on the link in one hour is 102 two-way vehicles which equates to around two additional vehicles movements per minutes which is not considered to effect pedestrian delay. The peak hour flows are lower still at 64 in the AM Peak and 82 in the PM peak which is one additional vehicle per minute.</p>	Negligible	Negligible
Pedestrian Amenity	<p>The pedestrian footways are of adequate width. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>	Negligible	Negligible
Fear and Intimidation	<p>The degree of hazard to pedestrian's changes is relative to the increase in HGVs which is not considered to be an impact at the receptor. Even with an increase in light vehicles on the link, it's not considered that this would result in a significant change to the fear and intimidation at the receptor.</p>	Negligible	Negligible
Accidents and Safety	<p>Along the link that forms this receptor there have been 24 accidents, four of which have been serious and 20 which are of slight severity. However, these accidents were recorded over the total length of the link and no clusters were found in the vicinity of the area where pedestrian footways and residential receptors are located.</p>	Minor	Minor to moderate adverse – Not significant

Receptor 20 – B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue

14.10.3 **Table 14.21** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 24% across the 24-hour period while HGVs are predicted to rise by 31%. Based on **Table 14.16** the sensitivity of the receptor has been identified

as low, and based on **Table 14.17**, as the change in HGV flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.21 Predicted effects and their significance near Receptor 20 (B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue)

Effect	Comments	Magnitude of Effect	Significance of Effects
Severance	In this location, there are residential properties to the north of the Spitfire Way which front onto the highway and no pedestrian links are provided. A small pedestrian link exists on Spitfire Way arm on the junction of the Spitfire Way with Columbus Avenue. Due to the limited need for pedestrian facilities along this link, and that the highway link has a low receptor sensitivity with increases in traffic below 60% minor magnitude of effect, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Driver Delay	In this location, Spitfire Way is a single carriageway road, which, for much of its length is rural in nature with grassed verges adjacent to the carriageway. As part of the Proposed Development proposals it is proposed to include a comprehensive widening scheme along Spitfire Way between Columbus Avenue and Manston Road widening the road to a standard width of 7.3m. It is anticipated that this will provide an improvement to traffic conditions on the link and assist with reducing driver delay. With this improvement the magnitude of effect is minor and, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Pedestrian Delay	There is limited need for pedestrian facilities along this link and limited pedestrian activity. The highway link has a low receptor sensitivity and increases in traffic are below 60% minor magnitude of effect, the significance is minor adverse - not significant. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the cargo access to link with Manston Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway.	Minor	Minor adverse – not significant
Pedestrian Amenity	As above, given the limited pedestrian activity and that the highway link has a low receptor sensitivity with increases in traffic below 60% minor magnitude of effect, the significance is minor adverse - not significant. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the cargo access to link with Manston Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway.	Minor	Minor adverse – not significant
Fear and Intimidation	As above, given the limited pedestrian activity and that the highway link has a low receptor sensitivity with increases in traffic below 60% minor magnitude of effect, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Accidents and Safety	There has been only one fatal accident and two serious accidents recorded in the last five years and it is unlikely that this area of the network currently operates at or is close to capacity. Therefore, the magnitude of effect could be major. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the cargo access to link with Manston Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway. However, as the environmental measures will include road widening along this section of road, there are proposals to formalise the carriageway and re-establish road markings and warning signs to highlight to the road section with the bend, the magnitude of effect is minor. There is also a proposal to provide a new safety scheme at the junction of Alland Grange Road which has a high accident rate identified in this Chapter and the TA.	Minor	Minor adverse – not significant

Receptor 23 – B2050 Manston Road between Manston Road and Manston Court Road

14.10.4 **Table 14.22** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 38% and HGVs by 46% across the 24-hour period. Based on **Table 14.16** the sensitivity of the receptor has been identified as negligible, and based on **Table 14.17**, as the change in HGV flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.22 Predicted effects and their significance near Receptor 23 (B2050 Manston Road between Manston Road and Manston Court Road)

Effect	Comments	Magnitude of Effect	Significance of Effect
Severance	In this location there are no properties, frontages or pedestrian links. It is therefore considered that effects due to severance are negligible.	Negligible	Negligible
Driver Delay	In this location, the Manston Road is a single carriageway which routes along the northern boundary of the Proposed Development, there are no frontages to properties but the airport access exists on this link. As part of the development proposals it is proposed to include a comprehensive widening scheme along Spitfire Way between Columbus Avenue and Manston Road widening the road to a standard 7.3m road. It is anticipated that this will provide an improvement to traffic on the link and assist with reducing driver delay. With this improvement the magnitude of effect is minor and, the significance is minor adverse - not significant.	Minor	Negligible
Pedestrian Delay	In this location there are no properties, frontages or pedestrian links. It is therefore considered that effects due to severance are negligible. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the airport terminal access to link with Spitfire Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway.	Negligible	Negligible
Pedestrian Amenity	In this location there are no properties, frontages or pedestrian links. It is therefore considered that effects are negligible. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the airport terminal access to link with Spitfire Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway.	Negligible	Negligible
Fear and Intimidation	The degree of hazard to pedestrians is unclassified with the addition of the max operation traffic. However, in this location there are no properties, frontages or pedestrian links. It is therefore considered that effects are negligible.	Negligible	Negligible
Accidents and Safety	There have been only two slight accidents recorded in the last five years. It is therefore considered that effects are negligible. It should also be noted that the pedestrian infrastructure on this link will be improved with a new pedestrian footway to the south side of the carriageway from the airport terminal access to link with Spitfire Road. This should reduce pedestrian delay and avoid the need for pedestrians to walk on the carriageway. However, as the environmental measures will include road widening along this section of road, there are proposals to formalise the carriageway and re-establish road markings and warning signs. As such, the magnitude of effect is considered to be minor.	Negligible	Negligible

Receptor 24 – Manston Court Road, south of the junction with Preston Road

14.10.5 **Table 14.23** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted

total traffic flows are predicted to increase by 33% across the 24-hour period. Based on **Table 14.16** the sensitivity of the receptor has been identified as medium, and based on **Table 14.17**, as the change in traffic flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.23 Predicted effects and their significance near Receptor 24 (Manston Court Road, south of the junction with Preston Road)

Effect	Comments	Magnitude of Effect	Significance of Effect
Severance	<p>In this location, there are residential properties which front onto to the west and east side of Manston Court Road but no pedestrian footways are provided along this link. There aren't any land uses which result in pedestrian desire lines to cross the road.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.</p>	Minor	Minor to moderate adverse – Not significant
Driver Delay	<p>In this location, Manston Court Road is a single carriageway which narrows in sections along its route and is fronted by residential properties.</p> <p>It should be noted that in the Airport Peak hour the max additional vehicles on the link in one hour is 101 two-way vehicles which equates to around two additional vehicles per minute which is not considered to effect driver delay on the link. The peak hour flows are lower still at 85 in the AM Peak and 86 in the PM peak which is one/two additional vehicles per minute. Delays as a result of impact at the junctions on the link are considered further in the TA.</p>	Minor	Minor to moderate adverse – Not significant
Pedestrian Delay	<p>There is limited pedestrian activity in this location. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.</p> <p>It should be noted that in the Airport Peak hour the max additional vehicles on the link in one hour is 101 two-way vehicles which equates to around two additional vehicles per minute which is not considered to effect pedestrian delay on the link. The peak hour flows are lower still at 85 in the AM Peak and 86 in the PM peak which is one/two additional vehicles per minute.</p>	Minor	Minor to moderate adverse – Not significant
Pedestrian Amenity	<p>As already identified, there is limited pedestrian activity in the area. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.</p>	Minor	Minor to moderate adverse – Not significant
Fear and Intimidation	<p>As already identified, there is limited pedestrian activity in the area. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.</p>	Minor	Minor to moderate adverse – Not significant
Accidents and Safety	<p>There have been only five slight accidents recorded in the last five years. It is therefore considered that effects are minor.</p>	Minor	Minor to moderate adverse – Not significant

Receptor 25 – Manston Court Road, east of Valley Road

14.10.6 **Table 14.24** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 19% across the 24-hour period. Based on **Table 14.16** the sensitivity of the receptor has been identified as medium, and based on **Table 14.17**, as the change in traffic flows is less than 30%, the magnitude of effect is generally negligible.

Table 14.24 Predicted effects and their significance near Receptor 25 (Manston Court Road, east of Valley Road)

Effect	Comments	Magnitude of Effect	Significance of Effect
Severance	<p>In this location, there are residential properties to the north of Manston Court Road. No pedestrian crossing is required as there aren't any land uses which result in pedestrian desire lines to cross the road.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are below 30% resulting in negligible magnitude, the level of the effect is considered negligible.</p>	Negligible	Negligible
Driver Delay	<p>In this location Manston Court Road is a single carriageway which is traffic calmed and it's not proposed to change this current arrangement.</p> <p>It should be noted that in the Airport Peak hour the max additional vehicles on the link in one hour is 98 two-way vehicles which equates to around two additional vehicles per minutes which is not considered to effect driver delay on the link. The peak hour flows are lower still at 83 in the AM Peak and 84 in the PM peak which is one/two additional vehicles per minute. Delay because of impact at the junctions on the link are considered further in the TA.</p>	Negligible	Negligible
Pedestrian Delay	<p>There are verges which are used by pedestrians and footways. As identified above, there are no pedestrian desire lines across Manston Court Road which would result in an environmental effect of pedestrian delay. The effect is therefore considered negligible.</p> <p>It should be noted that in the Airport Peak hour the max additional vehicles on the link in one hour is 98 two-way vehicles which equates to around two additional vehicles per minutes which is not considered to effect pedestrian delay on the link. The peak hour flows are lower still at 83 in the AM Peak and 84 in the PM peak which is one/two additional vehicles per minute.</p>	Negligible	Negligible
Pedestrian Amenity	<p>As identified above, Manston Court Road is traffic calmed to discourage speeds above the 30mph speed limit. There is no increase in HGVs because of the Proposed Development and therefore pedestrian amenity won't be adversely affected by greater HGV traffic flows. The environmental measures to be identified by the TA process will consider capacity constraints along the route and mitigation requirements. The effect is therefore considered negligible.</p>	Negligible	Negligible
Fear and Intimidation	<p>As identified above, there are no pedestrian desire lines across Manston Court Road and there is no increase in HGV traffic. The environmental measures to be identified by the TA process will consider capacity constraints along the route and mitigation requirements. The effect is therefore considered negligible.</p>	Negligible	Negligible
Accidents and Safety	<p>There have been only five serious accidents recorded in the last five years. It is therefore considered that effects are minor.</p>	Minor	Minor to moderate adverse – Not significant

Receptor 26 – Manston Road, between the centre of Manston Village and the A256

14.10.7 **Table 14.25** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 30% across the 24-hour period. Based on **Table 14.16** the sensitivity of the receptor has been identified as medium, and based on **Table 14.13**, as the change in traffic flows is less than 60%, the magnitude of effect is generally minor.

Table 14.25 Predicted effects and their significance near Receptor 26 (Manston Road, between the centre of Manston Village and the A256)

Effect	Comments	Magnitude of Effect	Significance of Effects
Severance	<p>In this location, there are properties on both the north and south side of the Manston Road as the road enters Manston Village. Therefore, pedestrians who wish to cross the road may be impeded by the additional traffic.</p> <p>It should be noted that in the Airport Peak hour the max additional vehicles on the link in one hour is 341 two-way vehicles which equates to around 6 additional vehicles per minute which is not considered to effect severance on the link. The peak hour flows are lower still at 262 in the AM Peak and 279 in the PM peak which is five additional vehicles per minute.</p>	Minor	Minor to moderate adverse – Not significant
Driver Delay	<p>The route experiences an increase in traffic volumes through a sensitive location.</p> <p>However, it should be noted that in the Airport Peak hour the max additional number of vehicles on the link in one hour is 341 two-way vehicles which equates to around 6 additional vehicles per minute which is not considered to cause driver delay on the link. The peak hour flows are lower still at 262 in the AM Peak and 279 in the PM peak which is five additional vehicles per minute. The issues with driver delay at junctions along this link have been considered in the TA and an improvement scheme is proposed at the Manston Road/Hanie Road junctions.</p>	Minor	Minor to moderate adverse – Not significant
Pedestrian Delay	<p>As identified above the route through the village is sensitive to change.</p> <p>However, it should be noted that in the Airport Peak hour the max additional number of vehicles on the link in one hour is 341 two-way vehicles which equates to around 6 additional vehicles per minute which is not considered to cause driver delay on the link. The peak hour flows are lower still at 262 in the AM Peak and 279 in the PM peak which is five additional vehicles per minute.</p> <p>It should also be noted that only pedestrian trips through the village are considered important. There are no footways extending from Manston Village to the junction with the A256 or to the Airport Terminal Access. As such there are no desire line along the link.</p>	Minor	Minor to moderate adverse – Not significant
Pedestrian Amenity	<p>As the main pedestrian interactions with the proposed development traffic will be in the village of Manston which is already a traffic calmed location with a speed limit of 30mph and chicane buildouts, it's not considered that any further mitigation is required based on the predicted traffic flows from the development resulting in only a maximum of 6 additional vehicle per minute as set out above. As such the effect is considered minor to moderate and not sibilant.</p>	Minor	Minor to moderate adverse – Not significant
Fear and Intimidation	<p>As the pedestrian infrastructure is not proposed in the village and there are no wider desire lines for walking in the carriageway to the east and west it's not considered that fear and intimidation will be perceptively worse by the addition of six vehicles per minute on the carriageway.</p>	Minor	Minor to moderate adverse – Not significant
Accidents and Safety	<p>There have been only nine slight accidents recorded in the last five years. It is therefore considered that effects are minor.</p>	Minor	Minor to moderate adverse – Not significant

14.11 Conclusions of Significance Evaluation

14.11.1 **Table 14.26** summarises the significance of road traffic effects on receptors as a result of changes in traffic flows on the local road network that would arise from the Proposed Development.

Table 14.26 Summary of Significance of Effects during Maximum Year of Operation (Year 20)

Receptor	Effect	Significance ¹
Receptor 12 - Manston Road between Shottendane Road and Vincent Road	Severance	Negligible
	Driver delay	Negligible
	Pedestrian delay and amenity	Negligible
	Fear and Intimidation	Negligible
	Accidents and safety	Not significant
Receptor 20 – B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Fear and Intimidation	Not Significant
	Accidents and safety	Not significant
Receptor 23 – B2050 Manston Road between Manston Road and Manston Court Road	Severance	Negligible
	Driver delay	Negligible
	Pedestrian delay and amenity	Negligible
	Fear and Intimidation	Negligible
	Accidents and safety	Negligible
Receptor 24 – Manston Court Road, south of the junction with Preston Road	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Fear and Intimidation	Not Significant
	Accidents and safety	Not significant
Receptor 25 – Manston Court Road, east of Valley Road	Severance	Negligible
	Driver delay	Negligible
	Pedestrian delay and amenity	Negligible
	Fear and Intimidation	Negligible
	Accidents and safety	Not significant
Receptor 26 – Manston Road, between the centre of Manston Village and the A256	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Fear and Intimidation	Not Significant
	Accidents and safety	Not significant

Inter-related Effects

- 14.11.2 The inter-related effect of multiple topics (noise, visual, air quality, socio-economics, health and well-being in addition to traffic and transport) acting in combination on the same human receptors (motor users, public transport users, pedestrians, cyclists, equestrians, occupiers of properties and tourist sites) is considered in **Chapter 18: Cumulative Effects**. No other inter-related effects are anticipated to arise as the receptors within this Chapter do not comprise potential receptors within the definitions used for other assessments within this ES.
- 14.11.3 Nonetheless, as noted above the predicted changes in traffic within this Chapter have been considered by the following topics to inform these environmental aspects:
- ▶ The effects on receptors for noise and air quality directly relates to the predicted increase in traffic flows as a result of proposed traffic on the highway network as a result of the Proposed Development. This is assessed in **Chapter 6: Air Quality** and **Chapter 12: Noise and Vibration**;
 - ▶ The effects of increased traffic on views, visual amenity and scenic quality are assessed in **Chapter 11: Landscape and Visual Impact Assessment**;
 - ▶ The potential effects of disruption to the local road network during construction and operation, and the impact on employee and customer access to local businesses, and on amenity, tourism and recreational activities, is assessed in **Chapter 13: Socio-economics**;
 - ▶ The human health effects of traffic and transport changes as a result of the Proposed Development have been assessed within **Chapter 15: Health and Wellbeing**;
 - ▶ The effects of road transport and traffic changes on greenhouse gas emissions, and the effect on human health as a result of air quality changes (linked to traffic and transport changes), compounded by climate change, have been assessed within **Chapter 16: Climate Change**; and
 - ▶ The effects of traffic and transportation changes as a result of the Proposed Development and the impact this has on the potential likelihood and effects of major accidents or disasters has been assessed in **Chapter 17: Major Accidents and Natural Disasters**.

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15. Health and Wellbeing

15.1 Introduction

- 15.1.1 This chapter presents the findings of a Health Impact Assessment (HIA) that assesses whether the construction and operational activities associated with the Proposed Development are predicted to beneficially or adversely affect public health and wellbeing through environmental and socio-economic pathways. The assessment also considers, where possible, the spatial and social distribution of impacts, to investigate and address any disproportionate outcome for any sensitive community group. It also outlines measures to mitigate adverse effects and improvements to enhance beneficial effects.
- 15.1.2 This chapter should be read in conjunction with the following appendices:
- ▶ **Appendix 15.1:** Health Impact Assessment;
 - ▶ **Appendix 15.2:** Community Profile; and
 - ▶ **Appendix 15.3:** Health Evidence Base.
- 15.1.3 Potential for risks to life or health resulting from major accidents and disasters is assessed in **Chapter 17: Major Accidents and Disasters**. Potential health risks associated with climate change are assessed in **Chapter 16: Climate Change**.

15.2 Policy and Legislative Context

Legislative Requirements

Legislation

- 15.2.1 Regulation 5(2)(a) and paragraph 4 of Schedule 4 to the 2017 EIA Regulations¹ require the consideration of public health through planning, and require that an EIA assesses the effects (where likely to be significant) on population and human health, amongst other factors.

National Policy

- 15.2.2 Promoting healthy communities is a theme of the National Planning Policy framework (NPPF)², which states that “*the planning system can play an important role in facilitating social interaction and creating healthy, inclusive communities*” (paragraph 69). Section 8 of the current NPPF and the draft revised NPPF published in March 2018 set out planning measures for promoting healthy communities, and those relevant to the Proposed Development have been referenced in **Table 15.2**, which identifies health needs and objectives.
- 15.2.3 Although not explicitly referenced in NPPF or required by the Aviation Policy Framework³, HIA is often regarded as good practice for major developments. HIA has been used to provide evidence concerning several other airports in the UK, and the approach fulfils the reinforced legislative requirement.
- 15.2.4 The Airports National Policy Statement (NPS)⁴, although not forming the basis for determination, is a relevant consideration for applications for airports infrastructure in the south-east (see **Chapter 4: Planning Policy Context**). The NPS states at paragraph 1.37 that an HIA, including proposals for health mitigation that seeks to maximize the health benefits and mitigate any negative health impacts, should be provided.
- 15.2.5 In the ‘Health’ section on page 45, it lists various possible pathways for effects on health, wellbeing and quality of life, indicating that an ES should identify and assess any likely significant health

impacts, identify mitigation measures as appropriate, and consider the cumulative impact on health via multiple pathways.

Regional and Local Policy

15.2.6 The following 2006 Thanet Local Plan saved policies are relevant to the protection or promotion of health and wellbeing.

Chapter 13 – Environmental Protection

15.2.7 Chapter 13 sets the following policy objectives:

- ▶ *“To maintain the overall environmental quality of the district;*
- ▶ *To ensure that development is only permitted where the district council is satisfied that adverse physical and other conditions likely to affect human health and safety, or the environment are not present or can be satisfactorily overcome;*
- ▶ *To safeguard noise-sensitive development from the effect of aircraft noise; and*
- ▶ *To prevent development that would be at risk of flooding or that would represent an unacceptable risk to groundwater sources.”*

Chapter 13 – Environmental Protection

15.2.8 Chapter 13 references former regional policy and indicates that *“health, education and other social considerations and infrastructure requirements need to be taken fully into account in development planning in the Region. Development plans should facilitate the modernisation of health services; enable the provision of facilities for education and training; and support the provision of other facilities required by local communities, wherever possible maximising the potential of existing community buildings”*.

Policy TR12 – Cycling

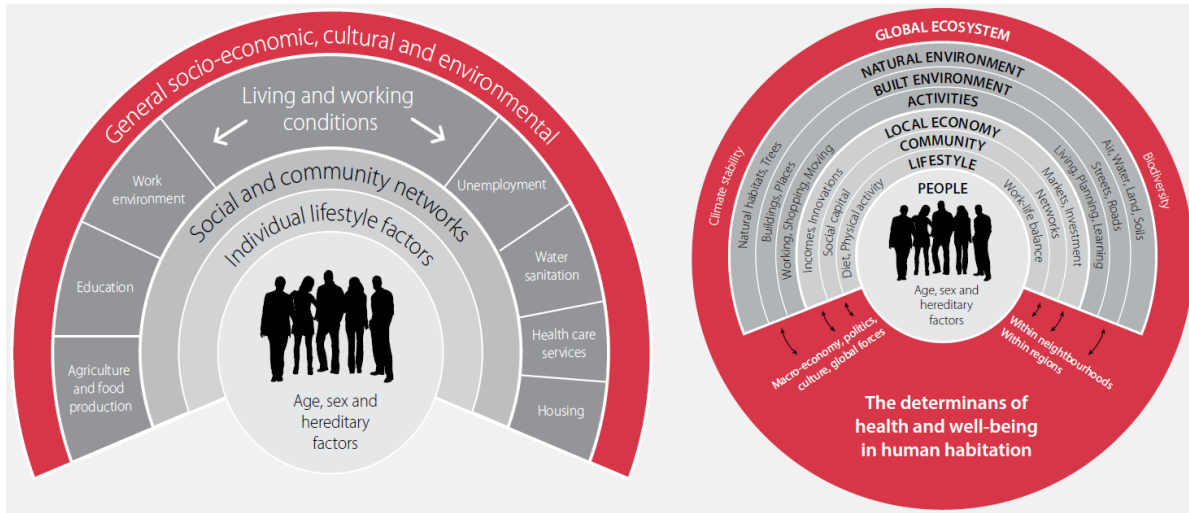
“It is the Council’s policy to encourage greater use of cycling as a healthy, enjoyable, efficient, pollution-free and cheap means of transport. Thanet has the highest recorded cycle usage (as a percentage of movements) in the County, and exceeds the national level. Greater use of cycling in Thanet will require safe, continuous, direct and attractive cycle ways, together with facilities for secure cycle storage at interchange points and destinations.”

Guidance

15.2.9 There is a large body of guidance on HIA generally and in the context of development planning^{5,6,7,8} drawing from expert evidence and national government policy regarding the importance of integrating public health into the planning system^{9,10,11}.

15.2.10 The basis of this assessment of health and wellbeing impacts is to apply a broad socio-economic model of health that encompasses conventional health impacts such as disease, accidents and risk, along with wider health determinants vital to achieving good health and wellbeing such as employment and local amenity. It considers both physical and mental health, and also addresses equality and social impacts where possible. The assessment is therefore based on both ‘social’ and ‘ecological’ (environmental) determinants of health, illustrated in **Figure 15.1**, which are affected through relevant health pathways defined.

Figure 15.1: Social (left) and ecological (right) determinants of health



Reproduced from¹² citing^{13, 14}

15.2.11 The assessment follows a source-pathway-receptor concept to identify and assess health impacts that are plausible and attributable to the Proposed Development. As shown in **Table 15.1**, a hazard in and of itself does not constitute a health risk: it is only when there is a hazard source, a sensitive receptor and a pathway of exposure where there is a potential for risk to health. Where a source-pathway-receptor linkage exists, it is then the nature of the specific hazard source, the magnitude of impact via the pathway and the sensitivity of the receptor that will determine what level of health risk is predicted.

Table 15.1: Example of Source-Pathway-Receptor Model for Health Effects

Source	Pathway	Receptor	Plausible Health Impact	Explanation
x	✓	✓	No	There is not a clear source from where a potential health impact could originate.
✓	x	✓	No	The source of a potential health impact lacks a means of transmission to a population.
✓	✓	x	No	Receptors that would be sensitive or vulnerable to the health impact are not present.
✓	✓	✓	Yes	Identifying a source, pathway and receptor does not mean a health impact is a likely significant effect; health impacts should be assessed (describing what effect will occur and its likelihood) and likely health effects are then evaluated for significance.

Reproduced from IEMA¹⁵

15.3 Data Gathering Methodology

Desk Study

15.3.1 Evidence suggests that different communities have varying susceptibilities to health impacts and benefits as a result of social and demographic structure, behaviour and relative economic circumstance. A health baseline section therefore not only forms the basis to exposure response

modellingⁱ, but also provides a means to consider how potential health pathways identified might act disproportionately upon certain communities and sensitive groups.

15.3.2 Health baseline data has been collected and reviewed for Thanet, Dover and Canterbury districts and their respective Clinical Commissioning Groups (CCGs) from the following sources:

- ▶ Public Health England (PHE) Local Health Profiles;
- ▶ Health and Social Care Information Centre (HSCIC);
- ▶ NHS Hospital Episode Statistics (HES);
- ▶ British Heart Foundation (BHF);
- ▶ NHS Quality and Outcomes Framework (QOF);
- ▶ Cancer Statistics;
- ▶ NOMIS Official Labour Market Statistics; and
- ▶ Index of Multiple Deprivation 2015.

Consultation

15.3.3 Section 42 and community consultee health and wellbeing related concerns were centred around changes in noise exposure, changes in air quality, and the potential for disproportionate impacts on particularly sensitive communities in the surrounding area. In addition, a proportion of consultees were supportive of expected socio-economic benefits in the local area, such as income and employment generation, which are two of the most significant wider determinants of health.

15.3.4 In addition to the consultation responses, health-focussed consultation was carried out with the Kent Director of Public Health (DPH) and the Clinical Chair of Thanet Clinical Commissioning Group. The Kent DPH was consulted on a draft of the Manston Airport HIA Scoping Statement, which was then discussed by teleconference. The general approach and scope was agreed, and the following key points were emphasised:

- ▶ the immediate surrounding area of Manston Airport (Thanet) has low life expectancy and high rates of all-age all-cause mortality in comparison to the rest of Kent; and
- ▶ areas likely to be directly affected by the proposal include Newington, Central Harbour and Eastcliffe areas of Ramsgate.

15.3.5 In addition, it was highlighted that the local health economy is currently struggling to deliver sustainable health care services.

15.3.6 The Thanet CCG Clinical Chair re-iterated agreement with the scope of work and noted the need for jobs in Thanet with the importance of socio-economic benefits to health.

15.3.7 On the above basis, the health issues raised by statutory consultees and local communities are consistent with the relevant health pathways associated with new airports and their expansion, and centre on changes in noise and air quality, changes in surface transport movements and socio-economic opportunities during both construction and operation.

15.4 Health and Wellbeing Baseline

Current Baseline

15.4.1 The HIA Community Profile at **Appendix 15.2** and analysis in **Appendix 15.1** detail the demographic and health baseline data used in the assessment. The community profile concentrates primarily on the districts of Thanet, Dover and Canterbury. Communities within

ⁱ i.e. Where sufficient evidence enables the quantification of health outcome from a given change in hazard exposure.

Thanet district are mainly those with potential to be affected by local environmental impacts of the airport (which lies centrally within this district). The inclusion of Dover and Canterbury to form a wider study area is due to the likelihood of regional socio-economic impacts of employment and investment associated with the reopening of Manston Airport.

15.4.2 In summary, following a review of the available demographic, health and hospital admission statistics, local communities typically have higher burdens of poor health than the national and regional trends (closely associated with socio-economic deprivation and lifestyle factors affecting health), particularly within Thanet. On this basis, the study area is considered particularly sensitive to environmental and socio-economic health pathways (beneficial or adverse). The assessment section therefore applies a conservative approach to each of the assessment protocols.

Community Health Needs and Objectives

15.4.3 Health needs and objectives are outlined within health and wellbeing strategies or needs assessments undertaken at district and/or county level. **Table 15.2** summarises the health issues and priority actions for improvement in Kent County as identified by the Health and Wellbeing Board. This forms part of the local health needs and objectives policy against which any changes due to the Proposed Development can be appraised. National priorities, as identified in the ‘Promoting Healthy Communities’ section of the NPPF, are also summarised.

15.4.4 The summary of locally identified health needs and objectives also helps inform the recommendations within the ‘Health Action Plan’ (see Section 7 of **Appendix 15.1**), to ensure suggested initiatives contribute to rather than repeat or contradict what is already outlined.

Table 15.2: Identified Health Needs and Objectives

Health or wellbeing issue	Action to improve	Source
Kent County		
Lifestyle risk factors	Behaviour change techniques should be promoted	Kent Public Health Observatory ¹⁶
Health inequalities	Recognise and act upon the social determinants of health such as education, housing and green spaces	Kent Public Health Observatory ¹⁶
Healthy weight	Provide advice on the benefits of behaviour change and ensure the needs of those most at risk are met	Kent Public Health Observatory ¹⁶
Mental health	Enable people to feel connected and in control; improve social and community support; and encourage workforce wellbeing initiatives	Kent Public Health Observatory ¹⁶
Physical activity	Lifestyle-focussed health improvement services; integrate physical activity into transport and environmental planning; and increase use of the natural environment for physical activity	Kent Public Health Observatory ¹⁶
Healthcare capacity	Significant financial and capacity pressure on local health services, affecting delivery of sustainable healthcare services	Kent DPH
National (NPPF)		

Health or wellbeing issue	Action to improve	Source
Community cohesion	Promote safe and accessible environments, high quality public space and opportunities for meetings between members of the community	NPPF ²
Social, recreational and cultural facilities	Plan positively for and deliver the services the community needs, including guarding against unnecessary loss	NPPF ²
Open space provision and rights of way	Access to high quality open spaces and opportunities for sport and recreation; protect and enhance public rights of way and access	NPPF ²

Future Baseline

- 15.4.5 As it is challenging to predict the health and wellbeing baseline a decade or more in the future with high confidence, trends are analysed as part of the current baseline to provide insight into likely future local community circumstance.
- 15.4.6 For the purpose of quantitative impact assessment, the present-day baseline health and demographic data (plus consented developments containing sensitive receptors) is used, in effect comparing two parallel situations in which the predicted with- and without-development scenarios were happening in the present day. By framing the analysis as two scenarios using present-day data, all the other variables can be held constant, allowing the change in health outcomes due specifically to the Proposed Development to be assessed on a like-for-like basis.

15.5 Environmental Measures Incorporated into the Proposed Development

- 15.5.1 Embedded mitigation and enhancement measures that have the potential to affect health and wellbeing are detailed in the following ES chapters:
- ▶ **Chapter 6: Air Quality;**
 - ▶ **Chapter 8: Freshwater Environment;**
 - ▶ **Chapter 10: Land Quality;**
 - ▶ **Chapter 12: Noise and Vibration;**
 - ▶ **Chapter 13: Socio-Economics;** and
 - ▶ **Chapter 14: Traffic and Transport.**
- 15.5.2 Section 7, 'Health Action Plan' of the HIA at **Appendix 15.1** draws together the relevant measures and discusses how these would mitigate potential pathways for adverse health impacts and enhance pathways for beneficial impacts. A summary of the embedded mitigation measures relating to health is presented in
- 15.5.3
- 15.5.4
- 15.5.5 Table 15.3, below.

Table 15.3: Embedded mitigation

Mitigation or enhancement area	Details or actions	Health and wellbeing influence and local health need/objective reference (if applicable) †
Air pollutant emissions	<p>Construction Environmental Management Plan (CEMP) with management measures for dust, on-site plant and construction traffic.</p> <p>Operational Heavy Goods Vehicle (HGV) routing to minimise congestion; avoid idling for all vehicles; use of fixed electrical ground power (FEGP) and electric vehicles or highest emission standard diesel vehicles; airport layout and arrival/departure scheduling to minimise idling, taxiing and holding.</p>	<p>Mitigates adverse respiratory and cardiovascular health impacts from air pollutant exposure.</p> <p>Objective 'health inequalities'.</p>
Noise	<p>CEMP with best practicable means to control construction noise.</p> <p>Noise quota count (QC): no night flights with QC 8 or 16; maximum annual night flight QC of 3,028. Noise insulation grant scheme for freehold owners of residential properties in 63 dB $L_{Aeq\ 16hr}$ day time contour or 55 dB $L_{Aeq\ 8hr}$ night-time contour and for other noise-sensitive buildings in the 60 dB $L_{Aeq\ 16hr}$ day time contour. Relocation assistance grant for freehold owners of residential properties in 69 dB $L_{Aeq\ 16hr}$ day time contour if choosing to move to a quieter location.</p> <p>Limitations on engine testing and reverse thrust; preferential take-offs from Runway 28 and landings on Runway 10; aircraft noise monitoring, track monitoring and departure noise limits with fines for exceedances/deviations.</p> <p>Consultative Committee and Community Trust Fund to spend any penalties collected.</p>	<p>Mitigates adverse wellbeing and quality of life impacts due to annoyance or sleep disturbance; mitigates or avoids associated adverse physical and mental health impacts.</p> <p>Objective 'health inequalities'.</p>
Surface access and transport	<p>Highways and junction improvements for 'nil detriment' outcome for road users; speed reduction and road safety improvements on Spitfire Way; provision of pedestrian crossings.</p> <p>Travel Plan with measures including additional bus service provision, on-site cycle parking and changing facilities, employee car sharing scheme.</p> <p>Assess demand and capacity on public transport routes affected; if capacity constraints forecast, seek to mitigate effects on residents in consultation with public transport operators.</p>	<p>Mitigates traffic-related air pollutant and noise emissions, with effects as above; mitigates road safety, community severance and pedestrian or cyclist impacts.</p> <p>Mitigates health and wellbeing effects of reduced travel accessibility for local residents if demand:capacity ratio in public transport links rises.</p> <p>Objectives 'health inequalities', 'physical activity'.</p>
Active travel	<p>Setting more ambitious targets for active travel among direct workforce, considering favourable location within cycling and potentially walking distance of surrounding communities. Provision or funding of new traffic-free cycle and pedestrian links to the redeveloped airport accesses, which would have potential also to link up existing rights of way and off-road cycle routes, improving the network for local residents as well as commuting employees.</p> <p>Further details in the HIA at Appendix 15.1.</p>	<p>Benefits physical activity, cardiovascular and mental health, aids in reducing obesity.</p> <p>Reduces reliance on access by car further mitigating air pollution, noise and highways impacts.</p> <p>Objectives 'healthy weight' and 'physical activity'.</p>
Recruitment and employment	<p>Recruitment measures tailored to those in local communities who are long-term unemployed, young people looking for</p>	<p>Targeting recruitment, support to applicants and skills gain initiatives will maximise the health and wellbeing</p>

Mitigation or enhancement area	Details or actions	Health and wellbeing influence and local health need/objective reference (if applicable) †
	<p>work, or those with limited skills/qualifications, if possible in partnership with an educational provider.</p> <p>Commitment to being a good quality employer and providing workplace wellbeing initiatives (physical working environment and workplace health promotion).</p> <p>Further details in the HIA at Appendix 15.1.</p>	<p>benefits associated with reducing long-term unemployment.</p> <p>Good quality employment and workplace health/wellbeing promotion for Manston Airport employees will also aid in a preventative approach to healthcare, reducing existing burdens on local health services.</p> <p>Objectives 'health inequalities', 'mental health', 'healthcare capacity', 'lifestyle risk factors'.</p>
Community Trust Fund	<p>Financial contribution to the formal Community Trust Fund (in addition to any noise penalties collected), supporting facilities and activities that actively improve local health and wellbeing, which could for example include:</p> <ul style="list-style-type: none"> ▶ community social facilities (e.g. halls, societies or events) to benefit community cohesion and reduce loneliness and social isolation; ▶ amateur sports clubs and facilities, encouraging physical activity. This should seek to support sports for all demographics including small children and older people; ▶ third-sector organisations working to reduce loneliness, e.g. via visits and events for the older population; ▶ third-sector organisations working to provide mental health care in the community; ▶ third-sector organisations assisting older people to live independently in the community; ▶ third-sector organisations providing educational and outreach events for young people; ▶ community wildlife and nature groups, e.g. those working on recreational projects such as nature trails; or ▶ other initiatives responding to local health and wellbeing needs, in consultation with health stakeholders (see below). 	<p>Health and wellbeing promotion among local communities supporting a preventative approach to healthcare, improving health and wellbeing and reducing existing burdens on local health services.</p> <p>Objectives 'physical activity', 'social, recreational and cultural facilities', 'healthy weight', 'mental health' and 'healthcare capacity'.</p>
Construction workforce	<p>Continue engagement with local health stakeholders to consider any impacts on healthcare service capacity due to construction workforce demand.</p> <p>Provide health and wellbeing promotion programme and advice to construction workforce.</p>	<p>Avoid adverse impacts on healthcare services due to potential temporary demand and apply a preventative approach to construction workforce healthcare.</p> <p>Objective 'healthcare capacity'</p>
Consultative Committee	<p>The establishment of a formal Consultative Committee provides an opportunity for Manston Airport to develop a working relationship with local health stakeholders through invitation to participate and discuss health and wellbeing concerns and initiatives.</p>	<p>Health promotion and preventative approach to healthcare.</p> <p>Objective 'healthcare capacity'</p>
Ground and water contamination	<p>Ground investigation and risk assessment with remediation during construction if required; storage and secondary containment of chemicals to regulatory standards; drainage design and treatment to avoid contaminated runoff to surface or ground water.</p>	<p>Avoids adverse health impacts due to mobilisation or fugitive release of contaminants</p>
Flood risk	<p>Drainage strategy with runoff management and attenuation to avoid any increase in discharge rate and off-site flood risk.</p>	<p>Avoids adverse health or wellbeing issues due to property flooding</p>

† See **Table 15.2**.

15.6 Scope of the Assessment

Approach to Identifying Receptors

- 15.6.1 Potential receptors are those locations used by people at which there is a relevant environmental or social change, as predicted in the other technical disciplines in the ES, that could affect a health outcome via the health pathways identified below. Potential receptors are therefore broad-ranging, comprising residences, facilities such as schools, hospitals and care homes, and other community facilities relevant to wellbeing such as recreational areas and places of worship.
- 15.6.2 To ensure consistency between assessments, the list of health and wellbeing receptors for each health pathway has been compiled based on those identified by the relevant technical disciplines, i.e. as reported in the other chapters of this ES, and the applicable health evidence base. For example, taking the environmental noise pathway, receptors are defined based on the study area for locations predicted in the noise assessment to be affected by a change in noise exposure, and within this, receptors predicted to experience a noise level above which the exposure-response factor in the health evidence base indicates a potential for health impact.

Approach to Identifying Potential Direct Effects

- 15.6.3 Potential direct health and wellbeing effects comprise those where there is a specified dose-response relationship, i.e. a relationship between the quantity or concentration of an environmental or social change, and the effect it has directly on a typical individual's health and wellbeing. Potential direct effects include those from changes in exposure to noise and air pollution, ground or water contamination, or injury from accidents such as road traffic collisions.

Approach to Identifying Potential Indirect Effects

- 15.6.4 Potential indirect health and wellbeing effects are those which arise from the effects of the Proposed Development on social or living conditions and people's behaviour, which in turn affect determinants of health for those people. For example, socio-economic status, deprivation, and employment/income affect range of factors including the quality of housing, education, diet, lifestyle, coping skills, access to services and social networks which are relevant to people's health and wellbeing. Effects on demand for and capacity of local services, leisure travel opportunities and social connectivity are further examples; as are effects on the amenity of green space with potential for consequent effects on recreation and physical activity that are important to health.

Spatial and Temporal Scope

- 15.6.5 The spatial scope of the assessment is defined for each of the environmental and social health pathways assessed, as detailed in the other topic chapters of the ES. For example, the direct environmental health pathways of air quality and noise change affect mainly Thanet district, whereas for the socio-economic pathways, the spatial scope is wider reaching.
- 15.6.6 The temporal scope is a comparison of impacts expressed as annual rates with- and without-development in Year 2 and Year 20, consistent with the assessments throughout the ES. In some cases, only the maximum effects (i.e. worst-case, typically in Year 20) are reported in this chapter; further details are in **Appendix 15.1**.

Inter-related Effects

- 15.6.7 Due to the complex interdisciplinary nature of health and wellbeing as an ES topic, the assessment approach is to draw from the overlapping EIA technical disciplines to consider impacts via multiple health pathways (see **Table 15.4**).
- 15.6.8 These are dealt with in turn within the assessment itself and both direct and indirect effects relating to multiple environmental topics have been considered. For example, the direct impact of air quality changes on respiratory health has been assessed along with the indirect effect of air quality

changes on ecological habitats which can affect health and wellbeing through changes to green space and recreation.

- 15.6.9 The health evidence does not allow summing of health effects via different pathways (ie. the additive effect of noise and air quality impacts on a single receptor), as the supporting evidence base can, in certain circumstance overlap, and there is the potential for double-counting. Equally, this tends to mask the causal mechanism behind the potential health outcome, which in turn can limit the ability to establish effective mitigation to minimise the route cause, or enhance the uptake of potential benefits.
- 15.6.10 On this basis, each of the potential health pathways are considered individually.

Cumulative Effects

- 15.6.11 **Chapter 18: Cumulative Effects** provides a shortlist of other developments that have the potential to result in cumulative environmental and social effects with the Proposed Development. Additionally, the shortlisted developments introduce new sensitive receptors that could be affected by environmental and social effects as a result of the Proposed Development. Such effects are assessed within **Chapter 18: Cumulative Effects** for each environmental topic and the assessments have been considered within each of the relevant topic headings within this Chapter (namely, air quality, noise, visual, socio-economics etc).

15.7 Assessment Methodology

Methodology for Predicted Effects

- 15.7.1 A health and wellbeing pathway can be described as the way in which an activity influences a known determinant of health. When defining potential health pathways for a development project, it is also useful to consider the following three broad domains of public health practice¹⁵:
- ▶ health protection (i.e. environmental pollution and standards set to protect health);
 - ▶ health promotion (i.e. healthy lifestyles, socio-economic status and inequalities); and
 - ▶ health care (i.e. provision, effectiveness and equity of access to healthcare services).
- 15.7.2 Airport construction and operation activities including flights and surface access can be associated with a number of environmental and social effects that have the potential to influence health (adversely and beneficially). Based on the Proposed Development's construction and operational phase activities and health evidence base, and further informed by engagement with statutory consultees, key health stakeholders and local communities, the potentially relevant health and wellbeing pathways to be assessed are identified in **Table 15.4**.
- 15.7.3 Identification of a potentially relevant health pathway at this stage does not necessarily indicate that there would be a significant impact through that pathway. A significant impact would depend on the magnitude of change, the sensitivity of receptors and the degree to which they are affected.
- 15.7.4 The assessment approach considers each of the health and wellbeing pathways identified, considers local health circumstance, and applies quantitative or qualitative methods to predicting health impacts.

Table 15.4: Potential Health Pathways Summary

	Health Pathway	Potential for Impact	Impact Characteristics
Construction Phase	Construction noise and vibration	Change in noise environment at residential and other sensitive locations Change in amenity value of green / recreational space	Direct, adverse, local, temporary
	Construction dust and air pollutant emissions	Change in air quality and nuisance at residential and other sensitive locations	Direct, adverse, local, temporary
	Construction traffic generation	Contribution to air pollutant and noise exposure Change in amenity value of green / recreational space Change in road safety Community severance Change in capacity or demand for public transport Impacts on non-motorised users (NMUs) Change in congestion, access to services	Direct, adverse, local and regional, temporary
	Construction workforce and procurement	Direct employment generation Supply chain spending – indirect employment / wealth generation Temporary employees' impact on services, housing capacity, community cohesion, crime.	Direct and indirect, beneficial or adverse, local and regional, temporary
Operational Phase	Airport / aircraft noise	Change in noise environment at residential and other sensitive locations Change in amenity value of green / recreational space	Direct, adverse, local, long-term
	Airport / aircraft air pollutant emissions	Change in air quality at residential and other sensitive locations Impact on habitats and resulting change in amenity value of green / recreational space	Direct, adverse, local, long-term
	Surface access road traffic generation	Contribution to air pollutant and noise exposure Change in amenity value of green / recreational space Change in road safety Community severance Change in capacity or demand for public transport Impacts on non-motorised users (NMUs) Change in congestion, access to services	Direct, adverse, local and regional, long-term
	Economic activity and employment	Direct employment generation Education / training opportunities Supply chain spending – indirect employment / wealth generation Additional employees' impact on services, housing capacity, community cohesion	Direct and indirect, beneficial or adverse, local and regional, long-term

15.7.5 A final health pathway that is intended to be addressed through providing the HIA is that of risk perception. This is necessary to respond to wider community concerns, which if left unaddressed can fester and lead to stress and anxiety during the planning process itself.

Significance Evaluation Methodology

Sensitivity of receptor

15.7.6 Following the analysis of local community circumstance, existing health burdens and underlying causes, the HIA applies a conservative approach where the sensitivity of all community receptors is considered to be 'high' for methodology purposes. The assessment also comments where possible on impacts to groups with potentially greater vulnerability to particular impacts, such as children, older people or those already in poor health.

Magnitude of change

15.7.7 The magnitude of change in health outcomes can be predicted quantitatively for certain health pathways, such as change in air pollution and noise exposure, using exposure-response factors reviewed in the health evidence base in **Appendix 15.1** and **Appendix 15.3**. Other predicted health impacts are assessed qualitatively using professional judgement. Impact magnitude is characterised as negligible, minor, moderate or major depending on the magnitude of change in the environmental or social health pathway, number of receptors affected, baseline health status and potential for any disproportionate impact on vulnerable groups.

Determination of significance

15.7.8 Given the multidisciplinary nature of health and the strength of evidence for each health pathway, the individual assessment protocols (i.e. for changes in air or noise exposure), have been applied to inform a judgement on the magnitude and distribution of change, based upon:

- ▶ the magnitude of potential impacts;
- ▶ the sensitivity of the communities affected; and
- ▶ identified local health needs and objectives.

15.7.9 As discussed above, the magnitude of impact is predicted quantitatively where possible, in which case the number of cases of health outcomes and change in the baseline rate for the population (where available) inform the judgement of significance. Where an impact is assessed qualitatively, the number of people who may be affected or spatial extent of the impact is a guide to this aspect of judging an effect's significance.

15.7.10 The sensitivity of communities affected by impacts is initially established through the community health profile, which as discussed above suggests that the sensitivity of receptors should be considered as 'high' in this assessment, which then informs the judgment of the significance of effects. For many health pathways, the potential for impacts on vulnerable groups within the population can also be considered, to further refine the significance judgement.

15.7.11 Finally, local health needs and objectives identified by the Health and Wellbeing Board (summarised in **Table 15.2**) provide a useful additional guide to types of health outcome (be it beneficial or adverse) which are likely to be considered particularly significant in the local context. That said, the fact that an impact is not on an area of health specifically identified as a local priority or concern would not necessarily mean it is not significant, as the other elements contributing to the judgement continue to apply.

15.8 Assessment of Effects on Health and Wellbeing

Health and Wellbeing Effects from Changes to Noise Exposure

15.8.1 As per the Air Navigation Guidance 2017¹⁷, changes in community annoyance are addressed within the **Chapter 12: Noise and Vibration** and assessed within **Appendix 12.3**.

15.8.2 **Chapter 12: Noise and Vibration** has predicted operational noise levels in Year 2 and Year 20 using a number of metrics for average day- and night-time noise and number of events above certain noise level thresholds.

15.8.3 **Table 15.5** shows the potential change in health outcomes associated with the predicted change in noise exposure. **Appendix 15.1** provides the details of how these have been assessed. The assessment is based on noise levels compared to the current baseline of the disused airport, not against noise from the previously operating airport. **Figures 12.4 to 12.13** show the predicted day- and night-time noise contours, indicating the spatial distribution of noise effects and hence potential effects on health and wellbeing where sensitive receptors are present.

- 15.8.4 These results indicate that the Proposed Development would lead to a potential 2% to 3.6% increase in cases of hypertension within the population exposed to Year 2 noise levels, rising to approximately 3.2% to 5.6% additional cases at Year 20 levels.
- 15.8.5 The evidence suggests that the relative change in noise also has the potential to contribute towards approximately one annual incident case of disease or mortalityⁱⁱ from ischaemic heart disease or stroke at Year 2 levels, rising to around two to four cases at Year 20 levels. This corresponds to a 2.8% to 4.3% change in background incidence.
- 15.8.6 There is also the potential that changes in noise exposure from the Proposed Development may contribute towards a 0.5% increase in dementia at Year 2 levels, rising to 0.7% at Year 20 levels.

Table 15.5: Noise exposure health outcomes – attributable fraction

Health Outcome*	Year 2	Proportion of baseline rate**	Year 20	Proportion of baseline rate**
Hypertension prevalence (a)	61	2.0%	186	3.2%
Hypertension prevalence (b)	110	3.6%	329	5.6%
Stroke incidence or mortality	0.6	1.4%	1.7	2.2%
IHD incidence	1.3	2.8%	3.9	4.3%
IHD incidence or mortality	1.3	1.8%	3.8	2.8%
Depression or anxiety prevalence	89	2.3%	219	3.3%
Dementia prevalence	1	0.5%	2	0.7%
Highly sleep disturbed	544	n/a	1,392	n/a

Table notes:

*Only results using the central estimate relative risk are shown. Use of the 95% confidence interval would give a misleading impression of precision, given the other uncertainties in the assessment that cannot be quantified.

** The total baseline rate of mortality or disease incidence or prevalence within the population exposed.

Totals may not equal sums of parts due to rounding.

- 15.8.7 With regard to night-time noise, the assessment in **Chapter 12: Noise and Vibration** has predicted L_{Amax} levels from individual overflights and number of events per night greater than 60 dB L_{Amax} , referred to as N60. This allows more specific assessment of potential for sleep disturbance based on number of noise events and using data from a study of objectively measured physiological sleep disturbance, rather than average noise level over the whole night and self-recalled sleep disturbance, as reported above.
- 15.8.8 Overall, a probability of one additional awakening (short changes in sleep state, discussed in **Appendix 15.1**) at most each three nights on average for people affected by any N60 events is predicted. In the context of typical spontaneous awakenings at a rate of around 24 per night, this indicates that there would be a negligible impact on measured sleep disturbance.
- 15.8.9 Changes in daytime air noise exposure measured by the number of N65 events have also been assessed in **Chapter 12: Noise and Vibration**. This data is considered to support the predicted noise annoyance, stress, and associated adverse health impacts predicted based on average noise level exposure changes as reported above.
- 15.8.10 Minor to moderate adverse impacts are predicted in **Chapter 12: Noise and Vibration** for 16 schools and nurseries, prior to mitigation, although this does not take into account existing noise levels at these facilities, which may reduce the perceived change in noise and resulting impact due to the Proposed Development. Depending on the existing ambient noise environment and existing

ⁱⁱ As discussed in the methodology in **Appendix 15.1** and health evidence base in **Appendix 15.3**, the risk factors used are based include studies of both mortality and disease incidence together, and therefore a combined result is given here. This does not imply that all cases would be mortality.

building fabric, disruption to learning with measurable effects on reading age for children is possible at affected schools, prior to further mitigation. This could adversely affect quality of life and prospects for children concerned.

- 15.8.11 Minor to moderate adverse noise impacts are predicted in **Chapter 12: Noise and Vibration** at Dashwood Medical Centre, Minster Surgery and Newington Road surgery prior to mitigation. Depending on the existing noise environment and building fabric, there could as a worst case be minor potential for an adverse effect on healthcare at these facilities, i.e. if there were disruption to patient-GP consultations due to noise. However, as these are GP surgeries rather than hospitals, care homes or other longer-stay care facilities, any impacts on patients would be temporary and of short duration; no significant long-term impacts on health and wellbeing are predicted.
- 15.8.12 A moderate noise impact is predicted in **Chapter 12: Noise and Vibration** at Christ Church, which again depending on the existing noise environment, may adversely affect the quality of life and wellbeing of worshippers.
- 15.8.13 Construction noise would be temporary (with phased works) and subject to control by the CEMP. No significant adverse impacts on health due to any temporary noise disturbance during construction are predicted.
- 15.8.14 Overallⁱⁱⁱ, the magnitude of noise impact upon health is considered to result in a **moderate adverse** effect prior to mitigation. Measurable adverse changes in health outcomes are predicted, representing increases of between around 1% and 6% of baseline rates (varying by health outcome) at conservatively predicted Year 20 noise levels.
- 15.8.15 Depending on the existing noise environment, there is potential for adverse impacts on quality of life and wellbeing for users of noise-sensitive facilities, including schools. The impacts are relevant to local priority health needs and objectives 'mental health', 'health inequalities', 'healthcare capacity' and 'social, recreational and cultural facilities' (as identified in **Table 15.2**).
- 15.8.16 The noise health impact assessment is based on predicted *external* noise levels, because the exposure-response factors used (see **Appendix 15.3**) are derived from large epidemiological studies of people who individually live in buildings of various types and have different lifestyle factors affecting their noise exposure. For example, the fabric of buildings attenuates exterior noise levels to differing degrees, and preference for sleeping with windows open is an important factor affecting night-time noise exposure in the home. The assessment of predicted health outcomes therefore cannot account directly for specific noise levels *inside* individual dwellings that would be achieved by the noise insulation grant scheme.
- 15.8.17 However, the noise insulation measures are expected to reduce noise exposure within the home, and therefore to help reduce annoyance and sleep disturbance. Noise insulation measures are also expected to reduce noise within other eligible sensitive buildings, and therefore to help reduce disruption to their use. As discussed in the health evidence base (**Appendix 15.3**), the causal pathways for adverse health outcomes from noise exposure ultimately relate back to these effects. A reduction in interior noise levels after mitigation would therefore be expected to lead to a proportional reduction in adverse health and wellbeing outcomes.

Significance of effect

- 15.8.18 The noise insulation programme will aid in addressing residents in closest proximity to the airport subject to the more significant noise impacts, and will result in reducing potential health impacts. However, the magnitude of potential health outcome quantified is more a function of the larger communities subject to lower magnitude changes in noise exposure that do not fall within the noise insulation programme. On this basis, the significance of potential noise impacts upon health remains **moderate adverse**.

ⁱⁱⁱ Excluding annoyance, addressed within **Chapter 12: Noise and Vibration** and assessed within **Appendix 12.3**.

Health and Wellbeing Effects from Changes to Air Quality

- 15.8.19 **Chapter 6: Air Quality** has predicted changes in concentrations of nitrogen dioxide (NO₂) and particulate matter at sensitive receptor locations in the study area due to construction and operational activities in Year 2 and Year 20. **Figures 6.1 and 6.11 to 6.19** show the predicted nitrogen dioxide and particulate matter concentration contours, indicating the spatial distribution of air pollutant effects and hence potential effects on health and wellbeing where sensitive receptors are present.
- 15.8.20 **Table 15.6** shows the potential change in health outcomes associated with the predicted change in air pollutant exposure. **Appendix 15.1** provides the details of how these have been assessed.
- 15.8.21 The results indicate that changes in air quality at Year 2 levels would have no measurable adverse health outcomes, with an increase of less than one annual emergency hospital admission or an effect on mortality equivalent to less than one additional death at typical ages predicted.
- 15.8.22 The change in air quality predicted at Year 20 levels would lead to a small but measurable adverse change in health outcomes, with an increase of around one additional emergency hospital admission and effect on mortality equivalent to a little less than two additional deaths at typical ages predicted per annum. However, in the context of the baseline rates of health outcomes in the residential population of the air quality study area, these changes would represent a very small proportion: 0.1% or less.
- 15.8.23 The air quality assessment predicts no exceedances of air quality standards in Year 2 and Year 20 with or without the Proposed Development at any sensitive receptor locations.

Table 15.6: Air pollutant exposure health outcomes – attributable fraction

Health Outcome*	Year 2	Proportion of baseline rate	Year 20	Proportion of baseline rate
Annual mortality	0.98	<0.1%	1.91	0.1%
Annual respiratory disease hospital admissions	0.57	<0.1%	1.08	<0.1%
Annual cardiovascular disease hospital admissions	<0.01	<0.1%	0.02	<0.1%
Total additional hospital admissions	0.57	<0.1%	1.11	<0.1%

*Only results using the central estimate RR are shown. Use of the 95% confidence interval RR would give a misleading impression of precision, given the other uncertainties in the assessment that cannot be quantified.
 Note: totals may not equal sums of parts due to rounding.

- 15.8.24 Vulnerable individuals, such as those in healthcare facilities or with existing respiratory diseases, will in some cases have greater susceptibility to health impacts from air pollutant changes, which cannot be quantified from statistical risks applicable to the general population. However, as discussed in detail in **Chapter 6: Air Quality**, changes in air pollutant concentrations classified as having more than a 'slight' impact would affect a relatively small number of locations in close proximity to the airport, and are based on conservative assumptions in the modelling process.
- 15.8.25 The air quality assessment in **Chapter 6: Air Quality** has also shown that there would be no significant adverse impacts on sensitive ecological habitats, and thus no impact on health and wellbeing through affecting green space and recreation.
- 15.8.26 **Chapter 6: Air Quality** notes that the prediction of air pollutant concentrations impacts uses strongly conservative assumptions and that the embedded mitigation measures would help to limit air pollutant releases from sources under the control or direct influence of the Proposed Development. Overall, the magnitude of impact is considered to result in at most a **minor adverse** effect, taking into account the very small change in baseline rates of health outcomes but potential for a measurable impact, which may affect more vulnerable individuals, at the conservatively

predicted Year 20 pollutant concentrations. This does not directly affect the local priority health needs and objectives identified in **Table 15.2**, but could indirectly affect the 'physical activity' and 'health inequalities' priorities.

Significance of effect

- 15.8.27 On the above basis, the proposed project will remain within air quality objectives set to be protective of the environment and health and the relative change in air quality will not materially influence baseline levels of respiratory or cardiovascular health. However, when interperating the predicted health effects, a precautionary approach considering the higher burden of poor health within the area has been applied, equating to a **minor adverse significance**.

Health and Wellbeing Effects from Socio-Economic and Connectivity Changes

Employment

- 15.8.28 **Chapter 13: Socio-Economics** has assessed the employment opportunities that would be generated by the Proposed Development. In addition to direct income and employment generation (i.e. jobs created by the airport operator, airlines, general aviation, handing, immigration and customs, retail and food concessions and aircraft maintenance), it predicts that the Proposed Development would generate regional effects on indirect jobs (including a wide range of jobs in the airport's supply chain), induced jobs (which includes jobs created by the spending of people employed directly and indirectly), and catalytic jobs (which includes jobs in the wider economy supported by the operations of an airport such as in tourism and trade). The Proposed Development is anticipated to provide 3,420 direct, 6,150 indirect/induced, and 13,700 catalytic employment opportunities, totalling 23,270 jobs by Year 20.
- 15.8.29 Around 230 direct construction employees are expected on average, with a maximum of 630 predicted during the peak construction period during early phases of the Proposed Development.
- 15.8.30 Being in stable, good-quality employment is strongly associated with good health and wellbeing compared to being in long-term unemployment (though noting the influence of the 'healthy worker effect', i.e. the relationship runs both ways). Thanet has been identified as an area with high levels of long-term unemployment, and together with Dover and Canterbury districts, has a labour market surplus well above the direct employment generation predicted for the Proposed Development. The employment opportunities generated by the Proposed Development therefore have the potential to provide significant health and wellbeing benefits to the surrounding communities.
- 15.8.31 Available health evidence (discussed in **Appendix 15.1** and **Appendix 15.3**) mainly concerns the impact of unemployment on health, although some studies have also quantified the effects of re-employment after a period out of work. As the health outcomes studied in the latter are quite limited, the more extensive evidence concerning the effects of unemployment on health has also been used here. This gives a guide to the magnitude of adverse health impacts that are experienced by people currently unemployed, which would be mitigated to a degree by the new employment opportunities offered by the Proposed Development. While one cannot assume that adverse health effects of unemployment are simply reversed (and hence entirely avoided or mitigated) by becoming employed, the evidence as discussed in **Appendix 15.3** does suggest that the health benefits of re-employment are of a similar magnitude to the health disbenefits of having been unemployed.
- 15.8.32 It is not possible to estimate with certainty the proportion of employment opportunities from the Proposed Development which are taken up by those who are unemployed, but given that the Proposed Development is providing an entirely new and major employment site, it is reasonable to assume that a substantial proportion of job opportunities created will benefit those currently

unemployed. **Chapter 13: Socio-Economics** predicts that of the 3,420 direct jobs generated in Year 20, around 1,800 may be taken up by people otherwise ununemployment^{iv}.

- 15.8.33 **Table 15.7** and **Table 15.8** show the potential improvements in general and mental health from re-employment, and the adverse health outcomes associated with continuing unemployment that would be mitigated, due to the predicted uptake of 1,800 job opportunities by people in unemployment^v. **Appendix 15.1** provides the details of how these have been assessed.
- 15.8.34 These estimates indicate that the direct employment due to the Proposed Development would lead to measurable beneficial effects on health, particularly through reducing risk of cardiovascular/cerebrovascular disease and mortality. The results are upper estimates for the direct employment of the Proposed Development, but taking into account the further indirect, induced and catalytic job creation, further health benefits affecting up to around 20,000 people would be expected and so overall the outcomes predicted are considered to be quite conservative for total direct and indirect effects of the Proposed Development.

Table 15.7: Re-employment health outcomes

Health Outcome	Attributable fraction	Proportion of baseline
Psychological distress	-53	-20%
Self-reported good mental health	145	9%
Self-reported good general health	185	14%

Table 15.8: Avoided unemployment health outcomes – attributable fraction

Health Outcome	Baseline*	Year 20 employment	Change
All-cause mortality	21.3	19.0	-2.3
All cardiovascular disease mortality	1.1	1.0	-0.1
All circulatory disease mortality	3.2	2.9	-0.3
Stroke mortality	0.5	0.4	-0.1
IHD incidence	16.7	14.9	-1.8
Hypertension	45.6	40.7	-4.9
Stroke incidence	11.6	10.3	-1.2
Suicide (a)	0.5	0.4	<-0.1
Suicide (b)	2.1	1.9	-0.2
Alcohol-related mortality	0.5	0.5	-0.1

*Attributable to unemployment in Thanet, Dover and Canterbury districts
Note: totals may not equal sums of parts due to rounding.

^{iv} The prediction in Chapter 13 is based on the Employment and Housing Land Technical Report (**Appendix 13.1**), which indicates that in simple quantitative terms, all the employment created by the Proposed Development could be met from the projected labour supply within the study area, although in practice there would be factors such as attractiveness of local jobs to existing commuters that would cause a proportion of employment to be met by people changing jobs.

^v A range of potential health outcomes is shown, many of which overlap; they should not be summed.

- 15.8.35 No significant effect on local housing or services demand or community cohesion is predicted, as the labour market surplus is predicted to be more than sufficient to provide the predicted employment without causing any significant inward migration.
- 15.8.36 The temporary construction workforce is predicted in **Chapter 13: Socio-Economics** to comprise mainly workers from the local area, and therefore indicates that no additional demand on local services including healthcare is expected.

Connectivity

- 15.8.37 The quality of life and wellbeing factors of leisure opportunities, family and social relationships are relevant to the Proposed Development due to the connectivity it offers via passenger flights, some of which it is reasonable to expect would facilitate maintaining social and family connections within or outside the UK, or be for cultural, recreational or educational experiences. In particular, long-distance passenger air travel may benefit family and social connections in an increasingly globalised world with substantial international migration.
- 15.8.38 While the Proposed Development will primarily be used as an air freight hub, there may be limited passenger services, with passenger numbers of around 660 thousand predicted in Year 3, growing to approximately 1.4 million by Year 20. With regard to wellbeing and quality of life, the benefits for leisure travellers among these passengers, although not readily quantifiable, should not be underestimated given the potentially large number of people affected.

Significance of effect

- 15.8.39 Overall, the magnitude of impact is considered to result in a **moderate beneficial** direct effect on health and wellbeing, conservatively, taking into account the negative effects of unemployment that would be avoided or mitigated by the generation of direct employment opportunities by the Proposed Development at Year 20 levels, the sensitivity of local communities, and the embedded enhancement measures designed to maximise the health benefits of employment generation. Further indirect beneficial effects on health and wellbeing affecting up to around 20,000 people through induced and catalytic employment generation and potentially a large number of passengers through travel for social connectivity and leisure are predicted. These effects are relevant to local priority health needs and objectives (identified in **Table 15.2**) 'health inequalities', 'mental health' and 'lifestyle risk factors'.

Health and Wellbeing Effects from Changes to Road Traffic and Active Transport

- 15.8.40 The health benefits of transport by active modes, i.e. walking and cycling, are well recognised. The capacity of and access to public transport is also a factor in wellbeing and quality of life for both airport employees and local residents; and access to various essential services including healthcare, whether by road or public transport, is relevant to health and wellbeing for residents – in particular those with existing ill-health or mobility impairment.
- 15.8.41 **Chapter 14: Traffic and Transport** has predicted the increases in total traffic and HGV traffic on the affected road links, to consider potential for congestion or delay, severance (where a busy road link could cut off residences from routes to access local destinations and services) or for intimidation to pedestrians or cyclists using these roads, which would be a disincentive to these healthier transport modes.
- 15.8.42 Due to the limited pedestrian activity on the most-affected road links around the airport, and lack of land-uses that create a demand for pedestrian routes across the road links, for most road links no significant effect on severance or intimidation is predicted and therefore no significant effects on health and wellbeing due to reduction in active transport would be expected.
- 15.8.43 For those road links where moderate adverse effects are predicted in **Chapter 14: Traffic and Transport**, i.e. those affected by significant increases in traffic flows and where there is a greater presence of residential receptors and pedestrian routes, there could be potential for adverse effects on health and wellbeing due to barriers to active transport and the risk of accidents and collisions.

However, **Chapter 14: Traffic and Transport** and the documents (including access strategy, Travel Plan and Public Rights of Way (PRoW) report) comprising the **Transport Assessment (TA)**, in **Volume 14** set out proposed highway improvements comprising road widening, new signalised junctions with pedestrian crossings, improved pedestrian footways and traffic calming measures, to mitigate adverse impacts.

- 15.8.44 Temporary construction traffic generation would be lesser than the worst-case operational traffic predicted, and subject to timely implementation of highways improvements to achieve nil detriment to road users, is not predicted to lead to any greater impact on health and wellbeing than has been assessed above for operational traffic.
- 15.8.45 The TA has not analysed the baseline demand:capacity ratio in public transport (rail or bus) services or whether this is predicted to be adversely affected by the proposed development. It is therefore not possible to assess potential for adverse impacts on wellbeing and quality of life arising from capacity changes due to increased demand from airport-related employees and passengers. However, the TA sets out proposed increases in bus service capacity, frequency and/or operating times, and provision of a shuttle bus between the airport and Ramsgate rail station, which would mitigate impacts on bus service capacity.
- 15.8.46 Minor changes to two PRoW links, detailed in **Volume 14**, would not have any significant effect on health and wellbeing due to changes in physical activity and recreation.
- 15.8.47 There are a number of existing PRoWs and traffic-free cycle routes in the areas north, east and south-east of the airport site, between it and the built-up areas of Margate and Ramsgate. The TA notes that a number of villages and towns are within a reasonable cycling distance of the airport site, and there are some residential areas within walking distance. Enhancement measures are proposed to maximise the modal share of employee commuting by active transport, i.e. walking and cycling. Improvements in the connectivity of safe cycling routes and the PRoW network would also have potential to increase physical and activity by residents in the local area, with health and wellbeing benefits for employees and residents.

Significance of effect

- 15.8.48 Overall, the magnitude of impact is considered to result in a **negligible effect** on health and wellbeing due to community severance, safety risk or disincentive to non-motorised road users, or reduction in access to services. With implementation of measures to support active transport for employee commuting (which may also benefit local residents using the PRoW network), a **minor beneficial** effect on health and wellbeing due to greater physical activity is predicted.

Health and Wellbeing Effects from Changes to Amenity and Green Space

- 15.8.49 **Chapter 12: Noise and Vibration** indicates that there are no areas within the noise study area that would be referred to in the NPPF as being prized for their recreational and amenity value. In addition, the relevant Campaign to Protect Rural England (CPRE) tranquillity map¹⁸ suggests that Thanet does not have existing areas offering high tranquillity that would be affected by the Proposed Development.
- 15.8.50 In this context, effects on the amenity of green spaces and recreational areas due to noise, sufficient to adversely impact health and wellbeing due to reducing physical activity and recreation, are considered unlikely.

Significance of effect

- 15.8.51 A negligible impact resulting in **no significant effect** on health and wellbeing is predicted.

Health and Wellbeing Effects from Ground or Water Contamination

- 15.8.52 Potential risks to human health arising from mobilisation of existing ground contamination or from releases of stored chemicals (e.g. aviation fuel) have been assessed in **Chapter 10: Land Quality**

and **Chapter 8: Freshwater Environment**. As detailed in those chapters, risk assessments have been undertaken and suitable control measures will be in place (i.e. design of drainage, storage and secondary containment to regulatory standards).

Significance of effect

15.8.53 There would therefore be no pathway to off-site receptors and **no adverse effect** on public health and wellbeing.

Health and Wellbeing Effects from Flood Risk

15.8.54 As detailed in **Chapter 8: Freshwater Environment** and **Appendix 8.2: Flood Risk Assessment**, the Proposed Development drainage infrastructure has been designed to ensure no increase in flood risk to off-site receptors.

Significance of effect

15.8.55 On the above basis there is **no adverse effect** on health and wellbeing due to flooding (such as through property damage, displacement from homes or being cut off from services during floods).

15.9 Summary of Significant Effects

Table 15.9: Summary of Significant Effects

Receptor and effects	Significance Level	Rationale
Operational noise effect on cardiovascular and mental health and wellbeing for residential receptors	Moderate Adverse	Measurable adverse effects on hypertension, and associated heart disease, stroke, depression or anxiety, and dementia predicted. No significant effect on sleep disturbance considered likely. Noise Mitigation Plan measures would reduce effects through reduction of noise at source and receptor.
Operational noise effect on children in schools	Minor Adverse	Possible effects on children's learning due to noise at schools predicted, though this is dependent on the existing noise environment and building fabric at those receptors. Noise Mitigation Plan commits to provision of reasonable measures to reduce noise effects at schools.
Operational air pollution effect on cardiovascular and respiratory health for residential receptors	Minor Adverse	Slight change in local air quality that will remain within air quality objectives set to be protective of the environment and health. However, given the burden of poor health locally, a precautionary approach has been taken concluding a minor adverse impact to those already experiencing poor respiratory and cardiovascular health.
Operational effect on mortality, cardiovascular health and mental health and wellbeing due to employment generation	Moderate Beneficial	Measurable beneficial effects on mortality, hypertension, heart disease, stroke, and subjective physical and mental wellbeing predicted. Enhancement measures to enhance uptake of job opportunities among long-term unemployed, provide education and training opportunities, and for Manston Airport to be a good quality employer, will support the beneficial health and wellbeing effects predicted.
Operational effect on quality of life due to leisure travel connectivity	Minor Beneficial	Beneficial effects on wellbeing and quality of life predicted due to leisure opportunities, family and social relationships facilitated by passenger connectivity.
Operational effect on active transport for employees and potentially residents	Minor Beneficial	Minor beneficial effect on physical activity and healthier lifestyle predicted for employees and potentially local residents predicted with implementation of more ambitious Travel Plan targets for active transport modal share and associated measures to support active transport using local PRoW network.

Receptor and effects	Significance Level	Rationale
Health and Wellbeing Effects from Changes to Amenity and Green Space	No Significant Effect	
Health and Wellbeing Effects from Ground or Water Contamination	No Significant Effect	
Health and Wellbeing Effects from Flood Risk	No Significant Effect	

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- ² DCLG (2012) National Planning Policy Framework.
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16. Climate change

16.1 Introduction

- 16.1.1 This Chapter outlines the approach to climate change assessment and sets out the likely significant effects resulting from the Proposed Development. It should be read in conjunction with the Proposed Development description (**Chapter 3: Description of the Proposed Development**).
- 16.1.2 The relevant policy, legislation and guidance that has informed this Chapter of the Environmental Statement (ES) is described, followed by the baseline data gathering methodology and the overall baseline conditions. The methodology for the full assessment is then presented and an assessment of the likely significant effects of the development is given.

Background

- 16.1.3 Climate change is regarded as one of the most significant threats facing the planet. Although it is a global issue, its impacts will also be felt at a local level. In the UK, climate change is projected to lead to temperature rises, changing rainfall patterns, flood risk and more extreme weather events, with associated disruption and damage to infrastructure¹.
- 16.1.4 Climate change occurs as a result of greenhouse gas (GHG) emissions, including carbon dioxide (CO₂) and methane (CH₄). GHG emissions have many sources, including energy generation, transport, industrial processes, agriculture and changes in land use. Action must be taken to mitigate climate change, both through reducing GHG emissions, as well as adapting and increasing resilience to the expected changes.
- 16.1.5 Climate change is already affecting all countries of the world and the extent of future climate change will be partly due to how effective we are in limiting GHG emissions. In November 2016, the Paris Accord came into force in which all but a few countries agreed to work together to limit global temperature rise to below 2°C². Consequently, there is now a necessity to explore how resilient the services, assets and infrastructure upon which society relies are to the impacts of climate change, as well as continuing to reduce the amount of emissions produced.
- 16.1.6 Newly built infrastructure has the advantage of being able to embed climate change resilience and carbon reduction measures into its design, thus saving whole-life costs as retrofitting and adapting assets are less likely to be necessary. Existing infrastructure comprises assets of varying age that require maintenance and replacement. As part of the maintenance programme there will be a consideration of climate change in the context of the lifespan of the asset. Guidance on the 2017 Environment Impact Assessment (EIA) Regulations³ describes three sub-topics to be considered in the assessment of climate change⁴⁵:
- ▶ Climate change vulnerability (i.e. the impact of climate change on the Proposed Development). The aim of this aspect is to determine the impact that climate change is likely to have on the ability of the Proposed Development to maintain its function throughout its operational life;
 - ▶ In-combination climate change impacts (i.e. the impact of the Proposed Development and climate change on environmental receptors). The aim is to determine where climate change increases the exposure of environmental receptors to an extent that a new significant effect is found or an existing significant effect is exacerbated. This assessment is inherently a cumulative effects assessment, as it uses information gathered from other environmental topics. The rationale for the in-combination climate change impacts assessment is outlined in the relevant IEMA guidance⁵; and
 - ▶ GHG assessment (i.e. the impact of the Proposed Development on climate change). The aim of the GHG assessment is to calculate the emissions that are produced as a result of the Proposed Development. Guidance on producing a GHG assessment within an ES is provided in the relevant IEMA guidance⁴.

16.1.7 The following sections in this Chapter are split into these sub-topics. Although thematically closely tied, the methodologies and scopes of the assessments vary.

Limitations of this chapter of the ES

- 16.1.8 The climate change assessments are based on the design of the Proposed Development as submitted as part of the DCO application. This is considered sufficient and appropriate for a DCO application where it would not be expected that detailed design would have been completed. Thus, where development specific data is not yet available, assumptions based on best practice or typical values have been adopted. Where appropriate, conservative values have been used which represent a worst-case scenario. The Proposed Development sits outside of the 2009 UK Climate Projections (UKCP09) 25x25km grid (as described in **Section 16.3: Data gathering methodology**) which marginally reduces confidence in the underlying climate change projections. Given the design to which the climate change information is applied, the impact of this limitation is minimal.
- 16.1.9 There are significant challenges regarding the application of typical significance criteria to a GHG assessment being carried out within the context of an EIA due to there only being one direct receptor (global atmosphere). This is affected to some extent by any development which is not carbon neutral.
- 16.1.10 There is no definitive approach for determining what level or scale of GHG emissions makes the effect of emissions derived from an individual development significant or otherwise. This is explored in the Institute of Environmental Management and Assessment (IEMA) guidance on ‘Assessing Greenhouse Gas Emissions and Evaluating their Significance’⁴. The approach taken in this assessment is outlined in **Section 16.7: Assessment methodology**. Furthermore, for airports, whilst significance for this topic is required to be defined against the impacts of the individual Proposed Development, in planning terms the UK-wide Government policy on aviation emissions, as set out in the Airports National Policy Statement⁶, is used as the basis for decision-making.

16.2 Policy and legislative context

- 16.2.1 A study of climate change-related planning policy, legislation and guidance at the international, EU, national, regional and local level has been undertaken in order to highlight any requirements which the Proposed Development should consider.
- 16.2.2 Legislation and policy relevant to the climate change sub-topics are summarised in **Table 16.1** below. The requirement for the incorporation of climate change into the EIA for the Proposed Development sits in the *EU EIA Directive 2014*⁷ and the subsequent transposition into UK law as *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017*.
- 16.2.3 Full details of all national and local planning policies relevant to the Proposed Development can be found in **Chapter 4: Planning Policy Context**.

Table 16.1 Policies relevant to the climate change assessments

Sub-topics affected	Legislation or policy reference	Legislation Summary or policy information relevant to Climate Change
International Policy		
Resilience; In-combination impacts; GHG	UNFCCC Paris Agreement ²	The United Nations Framework Convention on Climate Change (UNFCCC) is the major international body responsible for managing climate change and carbon emissions. In 2015, it adopted the Paris Agreement, the aims of which are stated as: “This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

Sub-topics affected	Legislation or policy reference	Legislation Summary or policy information relevant to Climate Change
		<p>(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; and</p> <p>(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production”</p> <p>The agreement sets targets for countries’ greenhouse gas emissions, but these are not legally binding or enforceable. The agreement excludes international aviation (but domestic aviation is included).</p>
Resilience; In-combination impacts; GHG	EIA Directive 2014 ⁷	<p>The EIA Directive 2014 sets out the rationale for incorporating climate change into the EIA process. It reads:</p> <p><i>“Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change.”</i></p>
National Policy		
Resilience; In-combination impacts; GHG	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ³	<p>The Infrastructure Planning EIA Regulations 2017 are the transposition of the 2014 EIA Directive into UK law, as it relates to infrastructure (town and country planning is considered separately).</p> <p>The Regulations refer to ‘climate’ in the following way: ‘<i>climate (for example greenhouse gas emissions, impacts relevant to adaptation)</i>’, and: ‘<i>the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change</i>’. This signals that both the impact of climate change on the development (including environmental receptors), and the impact of the development on climate change, are to be considered.</p> <p>The Regulations set out the emissions sources to be considered in a GHG assessment.</p>
GHG	Climate Change Act (2008) ⁸	<p>The Climate Change Act 2008 set the commitment of the UK to reduce its net GHG emissions by 80% below the 1990 levels by 2050 and requires the Government to establish 5-year carbon budgets.</p> <p>Emissions by international aviation and international shipping were left out of carbon budgets (and the 2050 target) when the Climate Change Act became law. They have been informally included in the 2050 target, by reducing the actual budget so that emissions are on the trajectory required to meet the 2050 target if that were altered to include international aviation and shipping.</p> <p>In 2011, the UK Government issued its Carbon Plan⁹, which sets out how the UK will achieve decarbonisation within the framework of UK energy policy and make the transition to a low carbon economy. However, the UK has yet to present a plan to limit aviation emissions or include it formally within its carbon budgets and the 2050 target¹⁰.</p>
GHG	National Planning Policy Framework 2012 (NPPF) ¹¹	<p>The National Planning Policy Framework is a key part of the Government’s reforms to make the planning system less complex and more accessible. The framework acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.</p> <p>The 2012 NPPF states: <i>“Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.</i></p> <p><i>To support the move to a low carbon future, local planning authorities should:</i></p>

Sub-topics affected	Legislation or policy reference	Legislation Summary or policy information relevant to Climate Change
		<p><i>plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards. In determining planning applications, local planning authorities should expect new development to: comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."</i></p> <p>A revised draft NPPF released in March 2018 states that new development should be planned for in ways that "can help to reduce greenhouse gas emissions through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards". Furthermore, local planning authorities should expect new development to "a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."¹²</p>
Resilience; GHG	Aviation Policy Framework (2013)	<p>The 2013 Aviation Policy Framework¹³ presents the Government's policy for aviation. It devotes substantial space to a review of policy relating to climate change and generally endorses the various national, EU and international measures being undertaken.</p> <p>This document postpones making a decision on whether the UK should retain a national emissions target for aviation.</p> <p>It also sets out the need to better understand and manage the risks associated with climate change. Doing so is deemed essential for the successful long-term resilience of the UK's aviation industry and its contribution to supporting economic growth and competitiveness.</p>
Resilience; GHG	Airports National Policy Statement 2018 (NPS)	<p>The Airports NPS⁶ puts Government policy on climate change adaptation and GHG emissions into practice for the aviation sector. It is the basis for decision-making on development consent applications for the Heathrow Expansion Programme (HEP), which has knock-on effects to other aviation developments. It states:</p> <p><i>"The Airports NPS provides the primary basis for decision making on development consent applications for a Northwest Runway at Heathrow Airport, and will be an important and relevant consideration in respect of applications for new runway capacity and other airport infrastructure in London and the South East of England",</i> and...</p> <p><i>"It sets out planning policy in relation to applications for any airport nationally significant infrastructure project in the South East of England".</i></p> <p>The NPS states that the Secretary of State's view of the adequacy of carbon footprint mitigation measures in the design, construction and operation of any relevant development will be a material factor in the decision-making process. As such, the significance of GHG emissions from the Proposed Development is largely based on the adequacy of the design measures incorporated, rather than a quantifiable metric.</p>
Resilience; In-combination impacts	Climate Change Act (2008) ⁸ Adaptation Reporting Power (ARP) and the associated UK Climate Change Risk Assessments (2012 and 2017) ¹	<p>The Climate Change Act 2008 requires the Government, on a regular basis, to assess the risks to the UK from the impact of climate change and report the findings back to Parliament. The Act contains the Adaptation Reporting Power, which allows Government to ask certain organisations to produce reports on both their climate change risks and their adaptation plans.</p> <p>In 2012 the Civil Aviation Authority (CAA), National Air Traffic Services (NATS) and ten airports published climate change adaptation reports under the Climate Change Act Adaptation Reporting Power (ARP). These were followed up by progress reports submitted to Defra through 2016 and 2017. Six airports responded to the second round of reporting against the power in 2016/17. It is unclear whether Manston Airport would be required to respond as part of the third reporting power. It is possible that the Committee on Climate Change could request additional evidence from the site development design team that climate change resilience is being considered, and that it will be embedded within a 'Progress in preparing for climate change' report or an update to the National Adaptation Plan.</p>

Guidance

16.2.4 Technical and policy guidance related to the climate change assessments are listed in **Table 16.2**.

Table 16.2 Guidance relevant to climate change

Sub-topics affected	Source	Summary description
Resilience; In-combination climate change impacts;	Institute of Environmental Management and Assessment (IEMA)	An IEMA EIA Guide to Climate Change Resilience and Adaptation has been produced, which sets the case for the component aspects of a climate change chapter as laid out in the scope of the assessment. ⁵
Resilience; In-combination climate change impacts; GHG	European Commission	The European Commission published guidance on the Preparation of the Environmental Impact Assessment Report in 2017. This incorporates high-level guidance on climate change aspects of the updated EIA regulations. ¹⁴
Resilience; In-combination climate change impacts	UK Department for Communities and Local Government	The 2012 National Planning Policy Framework (NPPF) and relevant Planning Practice Guidance includes a chapter on climate change adaptation and mitigation ¹⁵ and a 2014 update specifically for climate change ¹⁶ . In 2016, new climate change allowances for flood risk assessments were introduced to the NPPF by the Environment Agency ¹⁷ . The draft NPPF released in 2018 states that new development should be planned for in ways that <i>“avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure”</i> .
Resilience; In-combination impacts	Planning Practice Guidance – Guidance on Climate Change	Planning Practice Guidance – Guidance on Climate Change sets out the approach for addressing climate change impacts in the planning and decision-making process for major infrastructure projects ¹⁸ . This is covered in detail in Chapter 8: Freshwater Environment . A new draft revised NPPF released was released in 2018, within which climate change mitigation and adaptation is a strategic priority.
In-combination climate change impacts	European Commission	The EC Guidance on Integrating Climate Change and Biodiversity into EIAs ¹⁹ sets out guidance for screening and scoping, analysing baseline trends, alternative and baseline measures, monitoring and adaptive management.
In-combination climate change impacts	World Health Organization (WHO)	Strengthening Health Resilience to Climate Change: Technical Briefing for the World Health Organization - Conference on Health and Climate ²⁰ .
GHG	PAS2080	Publicly Available Specification (PAS) on carbon management in infrastructure.
GHG	BSI Group	BS EN 15978 ²¹ , which outlines the calculation method to assess performance at the buildings level, based on life cycle assessment (LCA).
GHG	IEMA	Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance ⁴ .
GHG	CIBSE	CIBSE (2012). TM46: Energy Benchmarks.
GHG	CIBSE	CIBSE (2012). GVF2012 Guide F: Energy Efficiency in Buildings.

16.3 Data gathering methodology

16.3.1 This section describes the methodology to inform the baselines for each sub-topic.

Climate change resilience and in-combination climate change impacts

Desk study

- 16.3.2 The same baseline data for the climate change resilience and in-combination impact assessments is used.
- 16.3.3 Gridded observational weather data, covering the period 1961-2011, is used to establish 'current' conditions for temperature and rainfall. This is then used as the 'climate baseline' against which future projections are compared.
- 16.3.4 Climate projections for the area in which the Proposed Development is located are sourced from UKCP09²². The representative grid cell is ID1709 and can be seen on the UKCP09 User Interface²³. The Proposed Development itself sits outside of the UKCP09 grid, however, this grid cell is used as it is the closest to the site. Whilst this is a limitation, the site is only approximately 5 miles from the edge of the grid cell and there are no significant landforms or topographic features between them. This means that any climatic differences between the site and the grid cell used will be negligible for the resolution of data needed in these assessments. The effect of this on the assessment will therefore be negligible.
- 16.3.5 The UKCP09 projections are plausible representations of future climates across the UK, based on GHG emissions scenarios. UKCP09 provides probabilistic information, enabling the analysis of many potential future climates rather than one. Using a range of projections is preferable to a single projection given the inherent uncertainties involved with estimating future GHG emissions and the complexities of modelling the climate system²⁴.
- 16.3.6 UKCP09 provides low, medium and high emissions scenarios for use in climate change assessments. The medium and high emissions scenarios are used for this assessment as data from the low emissions scenario is not considered realistic given observed GHG emissions data. This is in-line with best practice from other major infrastructure projects in the UK.
- 16.3.7 Projections for the '2050s'²⁵ are obtained from the UKCP09 interface. This period has been chosen to represent the operational period of the Proposed Development. This is deemed adequate at this stage as it represents a balance between the need for long-term thinking and a realistic coverage of design life for airport infrastructure, which is necessary when making decisions on design. The construction phase is predominantly in the early 2020s, which is too near-term for a climate change assessment to be of value. Data for the following variables are sourced from UKCP09:
- ▶ Daily average temperature (annual);
 - ▶ Daily maximum temperature (summer);
 - ▶ Daily average minimum temperature (winter);
 - ▶ Precipitation on the wettest day (winter);
 - ▶ Daily average rainfall (summer); and
 - ▶ Daily average rainfall (winter).
- 16.3.8 For each variable, the 10th, 50th and 90th probability levels from across the range of climate change projections for the 2050s are obtained from UKCP09, in-line with UKCP09 guidance²⁶. For flood risk, the climate change allowances stated in Environment Agency guidance within the *National Planning Policy Framework (NPPF)* is used, which is based on the flood zone, river basin and vulnerability of the assets²⁷. This is detailed in **Chapter 8: Freshwater Environment**.
- 16.3.9 The UKCP09 Weather Generator²⁸ is used to obtain information on extreme events, such as precipitation on the wettest day. The weather generator uses a higher resolution grid of 5x5km and, unlike for the main UKCP09 projections, the Proposed Development is within the grid. The relevant grid cell is 6350170, and can be seen on the UKCP09 User Interface.

- 16.3.10 The next generation of UK climate projections, UKCP18, is due to be released in November 2018. Until this launch, UKCP09 are still considered to be the most robust climate projections to use in UK projects²⁹.
- 16.3.11 Qualitative climate change information and trends for other parameters with less readily-available quantified data, such as fog, lightning, storms and wind direction, are sourced from:
 - ▶ *UKCP09 Technical Notes*³⁰;
 - ▶ *Coupled Model Intercomparison Project stage 5 (CMIP5)*³¹;
 - ▶ Committee on Climate Change Adaptation Sub-Committee’s (CCC ASC) report on ‘*Developing H++ climate change scenarios (hereafter referred to as ‘H++ scenarios’)*’³²;
 - ▶ Outputs from the UK Climate Change Risk Assessment (CCRA)³³; and
 - ▶ Responses to the Adaptation Reporting Power (ARP) by airport operators, such as at Heathrow³⁴ and Gatwick³⁵.

Consultation

- 16.3.12 A summary of the consultee comments and responses received during the statutory consultation held between 12 January and 16 February 2018, relating to climate change resilience and in-combination climate change impacts is provided in **Table 16.3**, along with a response to identify how the matter was dealt with in the ES.

Table 16.3 Consultee comments (climate change resilience and in-combination climate change impacts)

Consultee	Comments and considerations	How comments are addressed in the ES
Stone Hill Park Limited	PEIR: Climate change No assessment provided	A climate change assessment is provided within this Chapter of the ES.
Stone Hill Park Limited	Requirements of EIA Regulations 2017 not satisfied: No information on human health and climate No cumulative effects assessment with other projects or from impact on climate/climate change	Climate change considered in this Chapter in the Environmental Statement. Cumulative effects assessment for climate change and other topics considered in the Environmental Statement (i.e. the in-combination climate change impact assessment)
Stone Hill Park Limited	PEIR: Climate change Only freshwater measures incorporated within design and would expect consideration to be given to a wider range of measures	A wider range of measures has been considered in Chapter 16: Climate Change of the Environmental Statement
Stone Hill Park Limited	PEIR: Climate change Design life of individual assets should be extended in the individual assessments as many are assumed to function beyond the 2050s	The 2050s is adequate for the outline design. Design lives of individual assets will be considered when they enter detailed design. A Climate Change Adaptation Strategy has been committed to, which will ensure the incorporation of climate change impacts in the design, construction and operation of the Proposed Scheme.

GHGs

Desk study

- 16.3.13 Baseline GHG emissions data for 1990-2015 is sourced from the Department for Business, Energy and Industrial Strategy (BEIS) through the National Statistics service³⁶.
- 16.3.14 For the future baseline, there is uncertainty regarding UK GHG policy in the aviation sector which makes setting a definitive target to judge significance against challenging. Whilst the *Airports Commission: Final Report in 2015*³⁷ sets a gross total emissions cap of 37.5 MtCO₂ from the aviation sector by 2050, the Clean Growth Strategy (2017)³⁸ suggests that the obligations under the Climate Change Act can be met if aviation emissions are 44 MtCO₂e. The DfT UK Aviation Strategy sets out the emissions sources to be included in forecasts of emissions from UK airports³⁹

Consultation

- 16.3.15 In July 2016 a Scoping Report, which included a chapter relating to air quality, was produced and submitted to the Planning Inspectorate (PINS).
- 16.3.16 In August 2016, PINS, having consulted with various consultees, provided a Scoping Opinion. A statutory consultation took place from 23 June to 12 July 2017. A Preliminary Environmental Information Report (the 2017 PEIR) was included as one of the consultation documents and included results of a preliminary air quality assessment. A further consultation took place between 12 January and 16 February 2018, with an updated PEIR (the 2018 PEIR) included as one of the consultation documents. Through the development of, and consultation on, the Scoping Report and the 2017 and 2018 PEIRs, RiverOak engaged with consultees with an interest in potential air quality effects, which included comments regarding GHGs.
- 16.3.17 A summary of the consultee comments and responses relating to climate change is provided in **Table 16.4**, along with a comment identifying how the matter was dealt with in the ES.

Table 16.4 Consultee comments (GHG assessment)

Consultee	Comments and considerations	How comments are addressed in the ES
Received in response to the Scoping Report		
PINS	The Applicant's attention is drawn to TDC's comments, contained in Appendix 3, in relation to potential impacts of emissions on climate change. The applicant should give consideration to the carbon footprint of the Proposed Development during construction and operation, demonstrating how the Proposed Development will contribute to achieving the objective of reducing global greenhouse gas emissions set out in the Aviation Policy Framework (Department for Transport (2013).	The Scoping Opinion, upon which this comment was based, precedes the incorporation of the 2017 EIA Regulations. A quantitative assessment of changes in emissions of CO ₂ arising from the Proposed Development has been included in the ES.
Thanet District Council	There is no reference to CO ₂ emissions and climate change which is now generally considered within EIA as best practice. The scale of the development is such that an assessment of the projects impact on the regions and the UK's carbon budget should be provided.	The Scoping Opinion, upon which this comment is based, precedes the incorporation of the 2017 EIA Regulations. A quantitative assessment of changes in emissions of CO ₂ arising from the Proposed Development has been included in the ES.
Received in response to the 2018 PEIR		

Consultee	Comments and considerations	How comments are addressed in the ES
Keith Taylor, Green Party MEP for South East of England	Any airport expansion in the UK not compatible with meeting mandatory climate targets.	The Airports NPS addresses airport expansion in the UK and the extent to which that impacts mandatory climate targets. It states that any individual development should quantify its carbon impact, including mitigations. How the impact from the individual development is considered within wider aviation policy is a matter for the Secretary of State, as described in the Airports NPS.
Stone Hill Park Limited	Requirements of EIA Regulations 2017 not satisfied: No information on human health and climate No cumulative effects assessment with other projects or from impact on climate/climate change	Climate change considered in this Chapter in the Environmental Statement. Cumulative effects assessment for climate change and other topics considered in the Environmental Statement (i.e. the in-combination climate change impact assessment)
Stone Hill Park Limited	PEIR: Climate change Full carbon footprint of the airport should be taken into account.	A carbon footprint is included in Chapter 16: Climate Change of the Environmental Statement

16.3.18 In both the 2018 PEIR and this ES, the quantitative assessment of GHG emissions was incorporated into **Chapter 16: Climate Change**, rather than as an appendix to **Chapter 6: Air Quality**. This reflects the increased prominence of climate change under the 2017 EIA Regulations.

16.4 Overall climate change baseline

Climate change resilience and in-combination impacts

Assessment baselines

- 16.4.1 For these sub-topics, the standard 'baseline' and 'future baseline' EIA terminology does not apply. The approach taken here is in-line with the relevant IEMA guidance⁵.
- 16.4.2 For climate change resilience, the baseline for assessment is the Proposed Development described in **Chapter 3: Description of the Proposed Development**, and under current climate conditions (described below). Projections of climate change are applied to the baseline, which is then referred to as the 'emerging baseline'. The effects on receptors under the emerging baseline is assessed.
- 16.4.3 For in-combination climate change impacts, the baseline for assessment is the effects described in each topic chapter, that each assume current climate conditions (i.e. **Chapters 6-15 and 17**). This assessment adds climate change to the baseline conditions to produce an 'emerging baseline'. The assessment therefore considers the combined effect of climate change (i.e. the conditions in the 'emerging baseline') and the Proposed Development on environmental receptors.

Baseline conditions

- 16.4.4 The site of the Proposed Development sits on the Isle of Thanet peninsula at 51.3° North and 1.3° East, within a temperate marine climate⁴⁰. Sitting on the east coast, it is far from the paths of most Atlantic depressions and thus receives a relatively low amount of rain and extreme wind events, with warmer, drier summers relative to other UK locations.

- 16.4.5 There is a weather station situated within the Proposed Development site. It lies 54m above mean sea level.
- 16.4.6 The site has average annual temperature of 14°C, average summer temperatures of 16.8°C, with average highs of 20.8°C (August). Average winter temperatures are 4°C, within average minimums of 1.5°C (January).
- 16.4.7 Average annual rainfall over the course of a year at the site is 592.5mm, and rainfall in October (the month with the highest average rainfall), is 72.6mm. There are an average of 106.6 days of rainfall >1mm and 1,802.4 hours of sunshine⁴¹.
- 16.4.8 Summer temperatures are above average for the UK in all seasons, and rainfall is below average for the UK in all seasons.
- 16.4.9 All other topic assessments and the Proposed Scheme description assume these baseline conditions as the conditions for construction and operation.

Emerging baseline (i.e. project climate conditions)

- 16.4.10 Projected conditions at the site during the operational phase of the Proposed Development are presented here. They represent the 'emerging baseline' on which the climate resilience and in-combination climate change impacts assessments are based. They are described as changes from the climate baseline, which in UKCP09 is representative of 1960-1990. UKCP09 projections for the Proposed Development site in the '2050s' (representative of 2041-2069)²² suggest:
- 16.4.11 **Warmer, drier summers, and milder wetter winters**, thus extending the seasonal extremes that already exist for the site. This estimate is based on the best available scientific evidence for the UK (UKCP09) which indicates the country will experience more variable weather in the future as a result of climate change.
- 16.4.12 An **increase in very hot days and dry spells**, daily average maximum temperature during summer will increase from 16.8°C to 19.0-19.1°C during the 2030s and 19.8-20.3°C during the 2050s. This estimate is based on the 'most likely' climate change projection from UKCP09 (equivalent to the 50th percentile), however, due to uncertainty in the projections temperatures could be significantly higher.
- 16.4.13 **Fewer days with snow and frost**. As a result of climate change, the UK is expected to experience milder and wetter winters. Warmer winter temperatures will likely decrease the number of days with snow and frost. The daily average minimum temperature could be between -0.1-2.6°C during the 2030s and 0.1-3.9°C during the 2050s. Warmer temperatures during winter will increase the rate of melting and decrease the likelihood of snow due to higher ambient air temperatures.
- 16.4.14 There are likely to be **more intense downpours of rain (particularly in summer)**. Daily average rainfall during winter will increase to 5.4mm during the 2050s. This estimate is based on the 'most likely' climate change projection from UKCP09 (equivalent to the 50th percentile), however, due to uncertainty in the projections, temperatures could be significantly higher. Downscaled climate projections for this area indicate that precipitation could be up to 29.7% more intense during the 2050s.
- 16.4.15 Short periods of **intense cold weather** and **an increase in dry spells** (low certainty), these events are typically associated with meteorological blocking events which distort normal weather systems and patterns, resulting in extended warm or cold periods. The frequency of blocking events could increase in the future as a result of climate change.
- 16.4.16 An **increase in the frequency and intensity of storms and high winds**. Due to current modelling limitations, it is not possible to realistically simulate convection storms within the current set of national climate change projections. However, the best available scientific information and consensus is that the frequency and severity of extreme weather events is anticipated to increase in the future as a result of climate change⁴². Future climate models will permit simulation of convective rainfall events with more confidence.

GHGs

There are two sets of baseline and future baseline relevant to the GHG assessment. The GHG emissions associated with the Proposed Scheme are based on the baseline emissions at the site now and in the future under peak operation. The determination of significance for GHG emissions is dependent on how those emissions fit into the wider UK GHG policy context. Therefore, both aspects are described separately.

Current baseline (site)

16.4.17 Baseline emissions associated with the site of the Proposed Development itself are minimal due to the low usage of facilities at present. As such, the current aviation and non-aviation GHG emissions are stated to be zero for assessment purposes.

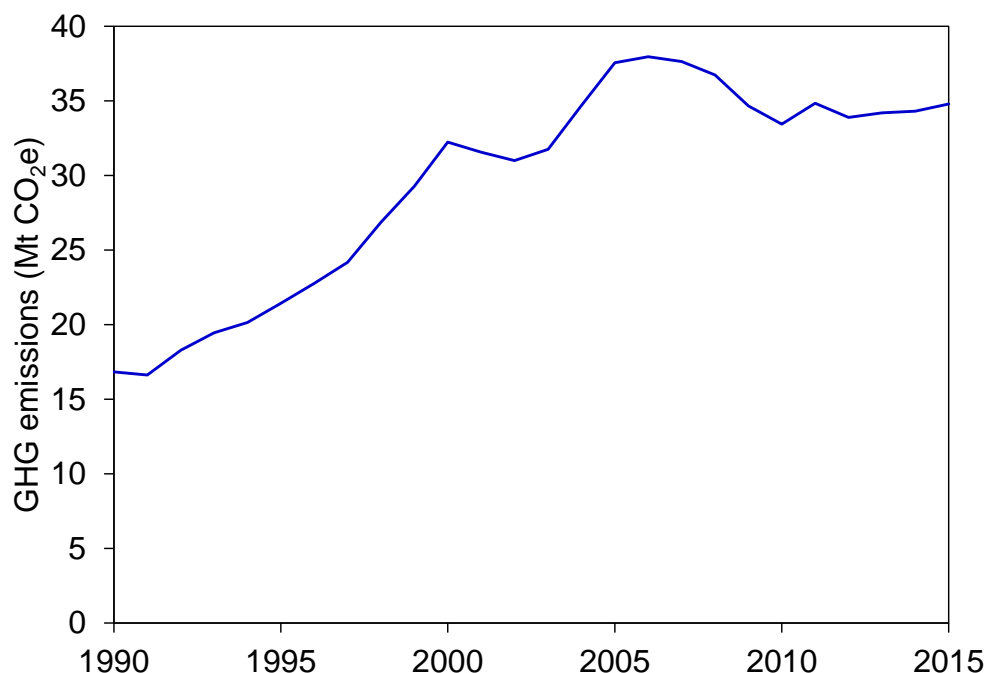
Future baseline (site)

16.4.18 It is anticipated that the current operation of the site will continue as existing up to the point of the Proposed Development, and it is therefore unlikely to be materially different to that which currently exists. Therefore, future baseline GHG emission on site are assumed to be zero.

Current baseline (UK policy context)

16.4.19 UK GHG emissions from domestic and international aviation rose to a peak of 38Mt in 2006, then fell slightly to 34.8Mt in 2015, the last year for which data are available⁴³. Emissions over the 26-year period are shown in **Figure 16.1**.

Figure 16.1 GHG emissions from domestic and international aviation



16.4.20 Total GHG emissions for the UK compared to legislated carbon budgets and the 2050 target of an 80% reduction in emissions are currently on course to be met⁴⁴. However, most of the reduction has come in the power, industry and waste sectors, with transport rebounding towards the GHG emissions level peak in 2007 largely as a result of rising demand for travel and a slowing of progress in improving the efficiency of vehicles (this data only considers domestic aviation)⁴⁵.

Future baseline (UK policy context)

- 16.4.21 Following the findings of the *Airports National Policy Statement*⁶, it is assumed that a runway expansion at a major airport in the south-east will take place, and that this can be achieved within the Government's carbon obligations of an 80% reduction in emissions by 2050.
- 16.4.22 There are a number of scenarios and targets for emissions from the UK aviation sector in 2050:
- ▶ The UK aviation target for emissions of 37.5Mt CO₂ per annum (including international aviation), as set out by the Committee on Climate Change⁴⁶;
 - ▶ The BEIS Clean Growth Strategy⁴⁷ uses 44Mt CO₂ per annum for each scenario;
 - ▶ The DfT UK Aviation Forecast 2017³⁹ sets out a range of forecasts for 2050 between 35Mt CO₂ and 44.4 Mt CO₂; and
 - ▶ The Airports Commission Strategic Fit: Forecasts⁴⁸ set five scenarios with emissions between 37.8Mt CO₂ and 46.8 Mt CO₂ (all of which therefore exceed the 37.5Mt CO₂ target). A set of carbon capping forecasts show how the target can be met with a range of policies related to setting a carbon price.
- 16.4.23 As a worst-case scenario, it is assumed in this assessment that the Proposed Development will be required to meet the 37.5 Mt CO₂ UK aviation target for aviation emissions.
- 16.4.24 The DfT Aviation Forecast 2017³⁹ sets out the emissions sources that are to be considered within the totals emissions assessment, which are detailed in Section 16.7, however it is clear that there is significant uncertainty as to whether this is a realistic aim.
- 16.4.25 As a result of the uncertainty around the mechanism by which the UK aviation sector will achieve emissions in-line with the Government's carbon obligations, it is not possible to define a quantified GHG emission level for Manston Airport that is in-line with UK policy. This is not detrimental to the GHG assessment for the Proposed Development, as the *Airports National Policy Statement* states:
- “Any increase in carbon emissions alone is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the project is so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets.”*
- 16.4.26 Therefore, the significance of effects relating to GHGs is not directly related to an emissions value for this specific development, but to the satisfactory provision of mitigation that meets the requirements of the *Airports National Policy Statement*:
- “The Government also acknowledges the local and national environmental impacts of airports and aviation... and believes that capacity expansion should take place in a way that satisfactorily mitigates these impacts wherever possible. Expansion must be deliverable within national targets on greenhouse gas emissions...”*
- 16.4.27 Therefore, the future baseline is a UK aviation industry that exists within an overall 80% reduction in total UK GHG emissions by 2050, with emissions from international aviation included. It is not possible to prescribe a quantified level of GHG emissions to the site at peak operation that would be in-line with meeting this target or otherwise as there are too many other factors that influence the satisfaction of the 80% emissions reduction target and any associated UK aviation targets.

16.5 Environmental measures incorporated into the Proposed Development

- 16.5.1 This section lists the environmental measures relevant to climate change which have been incorporated into the design of the Proposed Development.
- 16.5.2 The broad approach adopted is that where achievable and agreed, environmental measures have been incorporated into the design of the Proposed Development. The effect that those environmental measures have on the significance of potential effects will be considered during the

assessment. In some cases, a potential effect may require no further consideration following incorporation of appropriate environmental measures.

Climate change resilience

- 16.5.3 Climate change resilience is addressed within the design and future operation of the site at two levels. Firstly, details embedded within the outline design (masterplan) and secondly measures that cannot be detailed at this stage but will instead form part of the detailed design process.
- 16.5.4 In the first category, the measures incorporated largely relate to topics that are the subject of specific legislation and practice. In this case the only topic that incorporates specific climate change resilience design measures is flood risk assessments in (see **Table 8.14** in **Chapter 8: Freshwater Environment**).
- 16.5.5 In terms of the second level, it is not unusual at this stage in the application process that the majority of building, engineering and other design details have not been finalised. It is also the case that a high degree of certainty regarding the minimum level of performance of those buildings can be assured due to the existence of robust and established design standards that ensure the performance and quality of new and refurbished infrastructure and buildings.
- 16.5.6 RiverOak has committed to developing a Climate Change Adaptation Strategy following DCO approval. In-line with IEMA guidance⁵ and the upcoming ISO 14090, 'Framework for adaptation to climate change'⁴⁹, the Climate Change Adaptation Strategy will put in place a series of measurable actions for ensuring the functionality of the airport is not reduced by climate change over time.
- 16.5.7 The Strategy will assess the extent to which design standards and codes are fit for purpose for the specific design lives of assets. A 'whole life cost' approach to asset design will be taken. This means that a design impact assessment will be carried out for each asset group to ensure that the established design standards consider climate change where necessary, and to apply uplifts as appropriate. For example, climate change will be considered in the thermal modelling of buildings to ensure that the final design functions across a range of projected climate futures, either through direct design measures or by designing in adaptability. This is in-line with the principles set out in BREEAM Health and Wellbeing⁵⁰
- 16.5.8 The Strategy will embed the routine assessment of climate change within the detailed design of assets, and the alteration of design approaches as required. This includes, but is not limited to, considering:
- ▶ Heat stress within buildings impacting the functionality of assets and causing health impacts for visitors and staff, as well as impairing pavements, concrete surfaces and fleet maintenance;
 - ▶ Increased frequency and severity of drought risk and changes to soil moisture deficit;
 - ▶ Increased variability of snowfall presenting challenges to winter contingency planning;
 - ▶ Increased disruption to airfield operations due to stormy conditions; and
 - ▶ Extreme wind damage to assets, standing aircraft, vehicles and injuries to staff.
- 16.5.9 The Strategy will identify 'win-win' options for adaptation that provide benefits under a range of future climate scenarios. It will also consider adaptive management strategies, comprising flexible asset groups and systems which can be developed and enhanced over time in response to a changing climate and passenger demands.
- 16.5.10 The Strategy will mandate working with interdependent infrastructure operators to ensure climate change challenges are tackled collaboratively. It will mandate that best practice, learning and innovation are considered from and shared with sectors relevant to the Proposed Development (e.g. power, water resources, road, rail, other aviation operators and telecommunications).
- 16.5.11 The Strategy will contain an action plan that formalises targets, reporting requirements, dates for review and update, and timelines for implementation of individual adaptations over a long-term perspective.

In-combination climate change impacts

16.5.12 A summary of embedded in-combination climate change impact approaches that are considered part of the Proposed Scheme design are described in **Table 16.5**. All of these measures have been incorporated to avoid, reduce or compensate for potential adverse climate change effects. The best practice and guidance described in **Section 16.2** has been used to develop the measures.

Table 16.5 Summary of measures incorporated to respond to climate change impacts in other topics

Topic area	Projected changes and potential effects	Incorporated measure
Biodiversity (Chapter 7)	Average temperature impacts on vegetation in compensation areas for Species of Principal Importance (SPI)/red-listed bird species.	To ensure that the conservation status of SPI/red-listed Bird of Conservation Concern (BoCC) is maintained, appropriate habitat, using plant species appropriate for the changing climate, will be created prior to commencement of construction within the c.36 ha compensation site (land parcel 1362) south of the Proposed Development.
Biodiversity (Chapter 7)	Temperature increase impacts on vegetation resilience.	The habitat creation will use species of local provenance adapted to local conditions to increase resilience to climate change impacts. In the long-term, monitoring will determine if new native species better adapted and more resilient to climate change are required and management will be amended accordingly.
Biodiversity (Chapter 7)	Average temperature increases impact on receptor mitigation habitats created for breeding birds.	The number of pairs of breeding birds will be monitored for at least five years from the first breeding season successful post-habitat creation. This will enable adaptive management of any of the measures in place to enhance the nesting suitability of the compensation site, including any adaptation required due to climate change impacts. Any changes to the type of measures implemented will generate further monitoring.
Biodiversity (Chapter 7)	Temperature change impacts on receptor mitigation habitats created for reptiles.	Monitoring of the reptile population within the receptor site will occur every two years for six years beginning the year after translocation. The results of the monitoring will permit any adaptive management required to ensure continued effective delivery of suitable reptile habitat, including any adaptation required due to climate change. Further monitoring will be implemented if significant intervention is required as shown by monitoring results.
Freshwater Environment (Chapter 8)	Overwhelming of local drainage system in future flooding events.	The drainage system will be designed so that there would be no offsite flooding for a 1% Annual Exceedance Probability (AEP) event with a 40% climate change allowance (scenario agreed with KCC as Lead Local Flood Authority (LLFA)). All surface water will be captured, attenuated within two ponds, treated and then discharged to Pegwell Bay via an existing pump and outfall.
Freshwater Environment (Chapter 8)	Increased peak rainfall extremes impacts the functionality of the attenuation ponds.	The attenuation ponds will be designed to an appropriate capacity with a 40% allowance for climate change.
Land Quality (Chapter 10)	Overwhelming of local drainage system in future flooding events. Contaminated run-off generated by de-icer storage and use enters the groundwater environment as a potential pollutant.	It is proposed that there are two ponds on site, one of which will receive "dirty" run-off (for example that containing de-icer) and one receiving "clean" run-off. Water will only be discharged from the "dirty" run-off pond once treatment is complete and pumped discharge will only take place from the "clean" pond. These ponds have been sized to attenuate site run off for the 1% AEP storm plus a 40% climate change allowance. Further details can be found in the outline site drainage plan (Appendix A of Appendix 8.2) and Flood Risk Assessment.

GHGs

16.5.13 A summary of the environmental measures that have been incorporated into the development proposals to date in order to avoid, reduce or compensate for potential adverse GHG effects is provided in **Table 16.6**.

Table 16.6 Rationale for incorporation of environmental measures

Potential receptor	Projected changes and potential effects	Incorporated measure
Construction Phase Measures		
Global atmosphere	Potential GHG emissions from vehicles and plant during the construction phase	<p>As part of the Construction Environmental Management Plan (CEMP) the contractor will include measures to reduce or limit air quality effects during the construction phase of the Proposed Development that have an added benefit of reduced GHG emissions. They include:</p> <ul style="list-style-type: none"> • Avoiding the use of diesel or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; • Ensuring all vehicles switch off engines when stationary - no idling vehicles; and • A construction logistics plan will be produced to manage the sustainable delivery of goods and materials. <p>The details of the CEMP will influence the actual emissions savings involved, so these mitigation is not considered in the quantitative assessment of GHG emissions at the Proposed Development in this Chapter.</p>
Global atmosphere	Changes in the character of traffic (such as increases in Heavy Goods Vehicles (HGVs)) as a result of proposed construction traffic.	<p>A Construction Traffic Management Plan (CTMP) is to be agreed in consultation with KCC prior to construction works commencing. The CTMP includes a Construction Travel Plan, which includes the following mitigations:</p> <ul style="list-style-type: none"> • Traffic routing strategy – ensuring vehicles access the site via the most appropriate route and avoid unnecessary conflict with sensitive areas; • Staff travel plan – will provide details of how staff will travel to the site by alternative modes in an effort to reduce single occupancy vehicles travelling to the site.
Operational Phase Measures		
Global atmosphere	Congestion on the local road network.	Agree and enforce a strict routing plan for incoming and outgoing HGVs, avoiding, where possible, peak traffic flow hours in order to reduce congestion and queuing.
Global atmosphere	Potential GHG emissions from vehicles.	Agree and enforce delivery and dispatch schedules for HGVs that avoid, where possible, causing congestion on the local road network and excessive emissions to atmosphere. Also, enforce a “no unnecessary idling” policy for all vehicles on the development site.
Global atmosphere	Potential effects on GHG emissions as a result of emissions from the Landing and Take-Off (LTO) cycle.	<p>Planning aircraft arrival and departure scheduling to avoid, where possible, over-long idling, taxiing and hold times.</p> <p>Airfield layout design to minimise times taxiing and holding.</p> <p>Use of Fixed Electrical Ground Power (FEGP) to minimise engine/auxiliary power unit use.</p>

Potential receptor	Projected changes and potential effects	Incorporated measure
Global atmosphere	Potential effects on GHG emissions as a result of emissions from the cruise phase of aircraft	Bans on older, less efficient aircraft.
Global atmosphere	Potential effects on GHG emissions as a result of emissions from aircraft ground support equipment (GSE).	Largely electric GSE fleet. Diesel GSE largely bought new and meeting current emissions standards. Planning aircraft arrival and departure scheduling to avoid, where possible, over-long operation of liquid fossil-fuelled GSE.

16.6 Scope of the assessment

- 16.6.1 This section sets out information on: the process whereby receptors are identified; the potential receptors that could be affected by the Proposed Development, and; the potential effects on receptors that could be caused by the Proposed Development.

Climate change resilience

Approach to identifying receptors

- 16.6.2 The identification of receptors is based on relevant guidance listed in **Section 16.2** and the professional judgement of a qualified technical specialist who has undertaken a desk study for the site location. This includes assessment of the design of the Proposed Development and mapping across to climate change assessments of other airports.
- 16.6.3 The climate change resilience sub-topic inevitably uses a different interpretation of 'receptor' given that the focus is on the impact on the environment (exacerbated by climate change) of the Proposed Development itself. The in-combination climate change impacts assessment covers the impact of climate change *and* the Proposed Development on environmental receptors identified elsewhere in this ES.

Potential receptors

- 16.6.4 The receptors potentially affected by climate change are any of the built infrastructure elements of the design described in **Chapter 3: Description of the Proposed Development** that are exposed to the natural hazards identified in **Section 16.3**.

Spatial and temporal scope

- 16.6.5 The spatial scope of the assessment of airport assets is the redline boundary for the Proposed Development.
- 16.6.6 The temporal scope of the assessment is the '2050s', for the operational phase, which represents the time period 2041-2069²². As the detailed design develops through time, the design lives of individual assets will need be considered (e.g. the terminal buildings will be expected to function beyond the '2050s'). This will form part of the Climate Change Resilience Strategy described in **Section 16.5**. However, given that detailed design for individual assets is not currently available, the 2050s is deemed to be sufficient to cover the Proposed Development as a whole, and offers a reasonable time horizon to cater for long-term planning in the context of climate change at this stage of design.

Potentially significant effects

- 16.6.7 There are no potentially significant effects identified for climate change resilience. This is due to the commitment to embed a Climate Change Adaptation Strategy within the detailed design, construction and operation of the airport. This is justified given that detailed design is a more

suitable time to interrogate climate resilience at an asset level. This Strategy is outlined in **Section 16.5**, alongside the embedded climate change flood risk mitigations.

16.6.8 Climate change resilience is therefore not considered further in this Chapter.

Inter-related effects

16.6.9 Inter-related effects are assessed in relation to a specific receptor where the effect could be caused by the interactions of different types of effect from project activities even if individually these are insignificant. The climate change resilience sub-topic uses a different interpretation of the term 'receptor' with the focus being to ensure on the impact of the environment (exacerbated by climate change) on the Proposed Development itself is sufficiently addressed. Therefore, to conduct an assessment of this sub-topic would not be consistent with the inter-related effects assessment structure and as such it is not necessary to consider this beyond the measures described above.

Cumulative effects

16.6.10 Potential for cumulative effects is provided through an assessment at **Chapter 18: Cumulative Effects** and includes potential cumulative effects of the proposed development together with other identified major development proposals that were scoped in to the assessment.

16.6.11 All of the developments identified have the potential to be impacted by climate change. The airport has interdependencies with infrastructure systems already existing (power, transport, telecommunications, water etc.) and under development (such as highway works associated with many developments, Thanet Parkway Railway Station and Richborough Connection). If climate change resilience is considered (as it should be for all new infrastructure) within the design of any proposed new infrastructure developed in the area as well as within the detailed design of the airport itself, then the cumulative effect would not be expected to be significant and is thus not considered any further here.

In-combination climate change impacts

Approach to identifying receptors

16.6.12 Receptors are identified from the existing assessments for each topic within this ES.

16.6.13 Using expert judgement and the climate projections described in **Section 16.4**, the following considerations have been taken into account in identifying potential receptors:

- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
- ▶ The sensitivity of the receptors to the changes that are likely to occur;
- ▶ Professional judgement is used to determine whether climate change poses a potentially significant effect to each receptor. This is carried out collaboratively between the technical expert for the topic area and the climate change technical lead. Potential impacts of climate change that would impact upon the receptor were the Proposed Development not present are scoped out of the assessment. Such potential impacts include the impact of climate change on landscapes physically unaltered by the presence of the airport, or impacts of heatwaves on human health and communities near the Proposed Development (thermal conditions in buildings within the Proposed Development are considered in the Climate Resilience topic).

Potential receptors

16.6.14 Potential receptors are those where there is a potential environmental change, as predicted in other topic areas, which has the potential to be exacerbated by climate change.

Spatial and temporal scope

- 16.6.15 The spatial scope is that identified from the existing assessment chapters for each topic.
- 16.6.16 The temporal scope is the '2050s' in the UKCP09 projections, which represents the time period 2041-2069²².

Potentially significant effects

- 16.6.17 Of the potential impacts relating to climate change exacerbation of existing changes, the most pressing are:
- ▶ The impact of climate change on flooding of environmental receptors, heritage assets and property.
 - ▶ The impact of climate change on migrating birds that use habitats potentially affected by the Proposed Scheme through barrier effects, aircraft noise and aircraft movements.
 - ▶ The impact of climate change on bat assemblages affected by the Proposed Scheme.
 - ▶ The impact of climate change on community exposure to air quality.
 - ▶ The impact of climate change on the potential for increased migration and the spread of disease through the Proposed Development.
- 16.6.18 The full assessments for these topics are described in **Section 16.8**. The methodology for this assessment is detailed in **Section 16.7**.

Inter-related effects

- 16.6.19 Inter-related effects are assessed in relation to a specific receptor where the effect could be caused by the interactions of different types of effect from project activities even if individually these are insignificant (e.g. the interaction of changes in setting, visual amenity, noise and light levels on a heritage asset, none of which are significant in their own right, but which could aggregate to comprise a significant adverse effect). The in-combination climate change impacts assessment is inherently an assessment of interactions between climate change and the other environmental topics, i.e. it assesses whether climate change will exacerbate impacts on receptors which have already been assessed in other Chapters. For example the additional effect of both climate change and habitat loss (due to aircraft noise causing displacement) on wintering wading birds. As such, inter-related effects are not assessed separately within this chapter.
- 16.6.20 Assessments have been drawn from the following Chapters for the in-combination climate change impacts assessment:
- ▶ **Chapter 6: Air Quality;**
 - ▶ **Chapter 7: Biodiversity;**
 - ▶ **Chapter 8: Freshwater Environment;**
 - ▶ **Chapter 9: Historic Environment;**
 - ▶ **Chapter 12: Noise and Vibration;** and
 - ▶ **Chapter 15: Health and Well-being.**
- 16.6.21 The inter-related effect of climate change and other environmental topics, such as the freshwater environment, land quality and transport, on the risk and effects of major accidents and disasters on human and environmental receptors is assessed within **Chapter 17: Major Accident and Disasters**.

Cumulative effects

- 16.6.22 Potential for cumulative effects is provided through an assessment at **Chapter 18: Cumulative Effects** and includes potential cumulative effects of the proposed development together with other identified major development proposals that were scoped in to the assessment.

GHGs

Approach to identifying receptors

- 16.6.23 For GHGs, the only receptor is the global atmosphere. Impacts are global with no specific local impacts.

Spatial and temporal scope

- 16.6.24 All emissions, be they from aviation or non-aviation sources, are considered within the scope. However, the cruise phase of flights are only considered one-way, following ACRP guidance⁵¹ and the DfT Aviation Forecast 201739.
- 16.6.25 Year 20, the year of peak airport usage, is taken as the assessment year for all sources except embodied carbon related to the construction of the Proposed Development.
- 16.6.26 Construction is a one-off source of emission (albeit spread over several years) rather than an on-going source. It is therefore proposed to assess emissions from construction as a single total from the whole activity.

Potentially significant effects

- 16.6.27 The overwhelming majority of airport GHG emissions arise from the combustion of fuel in the cruise and LTO cycle of aircraft. Although research is being undertaken to introduce lower-carbon biofuels, it is likely that fuel will remain largely fossil-derived with only a fairly small percentage of biofuel in the mix over the timescale of this assessment. Emissions from non-aviation sources are significantly smaller than those from aviation sources, and are more within the control of the infrastructure owner/operator during the construction and operation phases of the Proposed Development.
- 16.6.28 Given that the Proposed Development would create GHG emissions that would contribute to climate change through its construction and operational phases, the effect of GHG emissions upon the global climate is considered likely to be significant. This approach is in-line with current guidance⁴.
- 16.6.29 Aviation and non-aviation sources are assessed in greater detail in the full assessment.

Inter-related effects

- 16.6.30 Inter-related effects are assessed in relation to a specific receptor where the effect could be caused by the interactions of different types of effect from project activities even if individually these are insignificant (e.g. the interaction of changes in setting, visual amenity, noise and light levels on a heritage asset, none of which are significant in their own right, but which could aggregate to comprise a significant adverse effect).
- 16.6.31 This assessment is concerned with the Proposed Development's impact on the global climate, and any design changes related to other environmental topics that influence that design and thus may alter the GHG emissions.

Cumulative effects

- 16.6.32 Potential for cumulative effects is provided through an assessment at **Chapter 18: Cumulative Effects Assessment** and includes potential cumulative effects of the proposed development together with other identified major development proposals that were scoped in to the assessment.

16.7 Assessment methodology

In-combination climate change impacts

- 16.7.1 The aim of the assessment is to determine where climate change exacerbates the effects of the impacts on environmental receptors to an extent that a new significant effect is found.
- 16.7.2 The assessment of likely significant effects associated with the Proposed Development considers the operational phase of the Proposed Development, characterised as the '2050s' (representative of 2041-2069)²². The significance level attributed to each effect will be assessed qualitatively based on the magnitude of the climate change impact and the sensitivity of the affected receptor to resulting changes.
- 16.7.3 The in-combination climate change impacts assessment relies upon the production of a valid determination of significance for environmental receptors without the application of climate change information.

Determination of significance

- 16.7.4 Significance is determined by applying the climate projection trends in **Section 16.4** to the existing assessments of significance in the topic chapter, to ascertain whether climate change exacerbates the effects the Proposed Development will have. There is no distinct criteria for significance for in-combination climate change impacts, as the criteria for each environmental topic in question is used.
- 16.7.5 Thus, the assessment in **Section 16.8** ascertains whether the difference between the impact of the Proposed Development on a receptor without climate change (i.e. the assessments in the other topic chapters of this ES which assumed baseline conditions described in **Section 16.4**) is considerably less than the impact of the Proposed Development on a receptor with climate change (i.e. the 'emerging baseline' described in **Section 16.4**).
- 16.7.6 Qualitative statements of significance are made based on expert judgement, and mitigation measures are suggested based on those statements if necessary.
- 16.7.7 There is substantially more planning guidance for considering climate change in flood risk assessments than any other topic in the ES. The NPPF guidance on climate change allowances is therefore used as detailed in **Section 16.5**. Delivering consistent conclusions of significance relies on expert judgement, and the use of climate trends rather than a more quantitative assessment is justified as there are rarely usable metrics of climate change that can be applied to determine significance or otherwise.

GHGs

- 16.7.8 The methodology used to determine the significant effects of the Proposed Development on the global climate is detailed in this section.

Emissions scenarios

- 16.7.9 Year 20, representing the peak forecast year in terms of aircraft movements, and also non-aviation operations, is used to represent the peak operation. Year 2 (2020) is used to represent the opening of the Airport. Emissions are assumed to be constant beyond Year 20, thus Year 20 also serves as the worst-case scenario. For all emissions sources, a worst-case is taken where there is uncertainty.

- 16.7.10 The future scenarios for the Proposed Development are:
- ▶ **No development.** The Proposed Development is not built. In this scenario, GHG emissions associated with the Proposed Development are zero;
 - ▶ **Embedded mitigation.** The Proposed Development is built based on the Scheme Description including the 'embedded mitigations' that are described in **Table 16.6**. Peak operation (Year 20) is the worst-case scenario; and
 - ▶ **Further mitigation.** The Proposed Development is built with the embedded mitigations described in **Table 16.6** as well as a Carbon Minimisation Action Plan, to be agreed by the Secretary of State, which goes beyond good practice and aims to significantly reduce GHG emission associated with the design, construction and operation of the scheme. The mitigation measures in this case are ambitious. RiverOak, will produce the plan at the point where the design is sufficiently advanced so that the effects of any measures will be better quantified. This will occur prior to the commencement of site works.
- 16.7.11 No change to the efficiency of aircraft in terms of GHG emissions over time is assumed, thus representing a worst-cast scenario.

Emissions sources

- 16.7.12 To estimate the future GHG emissions associated with the Proposed Development in the 'embedded mitigation' scenario, and the significance of them compared to the 'further mitigation' scenario, a range of emissions sources have been assessed.
- 16.7.13 The sources, covering the areas described in the *Airports National Policy Statement*⁶ are:
- ▶ Aviation emissions from cruise phase (one-way) and LTO (referred to as 'aviation sources');
 - ▶ Carbon impact from construction of the Proposed Development;
 - ▶ Emissions from airport operation, including ground support equipment;
 - ▶ Emissions from surface access due to airport and construction staff, emissions from surface access due to freight and retail operations and construction site traffic, and emissions from surface access due to airport passengers / visitors (collectively referred to as road transport and traffic); and
 - ▶ Guaranteed offsetting commitments.
- 16.7.14 GHG emissions are sub-totaled for aviation and non-aviation sources.
- 16.7.15 GHG emissions are sub-totaled for international and domestic flights.

Aviation sources

- 16.7.16 Eurocontrol publishes the *Small Emitters Tool (SET)*⁵², which calculates fuel use and CO₂ emissions from the whole flight (see below), given aircraft type and sector length. SET is intended to help small airlines compile emissions inventories for historic years. It is updated annually to reflect each year's fleet, as aircraft may be fitted with different engine models which vary slightly in fuel consumption. For this assessment, the 2016 version of SET was used, being the latest available at the time.
- 16.7.17 It is conventional to calculate GHG emissions from the LTO cycle at the airport (below 3000 feet elevation) plus the departure cruise phase for domestic and international flights. For the purposes of emissions budgets, this prevents double-counting arriving and departing aircraft at the origin and destination airports. The SET does not differentiate between the cruise phase and the LTO phase, so the take-off aspect (up to 3000m) is counted in both parts. However, the uncertainty in the stage lengths means that this aspect.

- 16.7.18 Other tools for calculating GHG emissions from aircraft are available, again aimed at calculating inventories for historic years. These include *Eurocontrol's Advanced Emission Mode*⁵³ and the European Environment Agency's *EMEP/EEA air pollutant emission inventory guidebook*⁵⁴. However, the major uncertainty in the assessment is forecasting the future fleet and routes. Given the uncertainties associated with this, more complex and data-hungry methods are not considered to be justified and the relatively simple SET is most appropriate.
- 16.7.19 For the LTO cycle, the EMEP/EEA air pollutant emission inventory guidebook 2016 is used as the data source for CO₂ in kg/LTO⁵⁵. This is an established and authoritative source of data on aircraft burn fuel rates. Where kg/LTO is not available for the aircraft type, the ICAO Aircraft Engine Emissions Databank 2017⁵⁶ is used. Engine types associated with each aircraft are shown in **Appendix 6.1**.
- 16.7.20 The departure journeys by aircraft type and stage length are summarised in **Table 16.7**. Each departure is also equivalent to one LTO cycle.

Table 16.7 Movement data

Aircraft	Stage length (km)	Annual Departures (Year 2)	Annual departures (Year 20)
767-400	5555	260	0
777-200	5555	0	924
747-8	6268	104	231
767-300	7026	312	0
757-200	352	312	1001
330-200	5523	0	1001
ATR72	348	728	2155
777-200	5505	26	38
777-200	4432	260	385
777-200	5505	26	77
777-200	3536	32	95
777-200	6080	24	36
737-800	534	156	385
777-200	5245	100	296
747-400	2553	104	616
747-400	6812	100	0
747-8	6812	0	148
737-300	424	52	1155
C17	4749	8	11
C-130E	4749	8	11
747-400	3583	10	0
747-8	3583	0	15

Aircraft	Stage length (km)	Annual Departures (Year 2)	Annual departures (Year 20)
F70	259	0	728
A320	1315	0	89
757-300	7105	0	77
737-800	1133	0	3637
737-800	1984	0	119

- 16.7.21 For the Proposed Development 50% of ATR-72 and B737-800 freighter flights are assumed to be domestic flights. All other flights are international. This is based on estimates from RiverOak.
- 16.7.22 Light aircraft operations at Manston Airport have not been estimated as non-commercial flights in UK airspace are not included in the UK aviation emissions forecasts developed by the Department for Transport⁵⁹. The forecast flights for the recycling centre are assumed to be all international. Given that they are to be dismantled on site they have no departure leg and are thus excluded.
- 16.7.23 Assessment results are described in **Section 16.9**.

Non-aviation sources

Airport operations

- 16.7.24 Annual emissions from airport operations are calculated using the estimated annual energy consumption of the proposed buildings as set out in the **Proposed Development** masterplan (**Figure 3.1**). This includes buildings and typical loads within the building types (based on CIBSE characterisation)^{57,58}. The vast majority of buildings are to be completed in Construction Phases 1 and 2, and are thus relevant to both Year 2 and Year 20 assessments. This is a worst-case scenario with no mitigation measures applied. There are currently no embedded mitigations for reducing GHG emissions in the buildings in the **Proposed Development** masterplan (**Figure 3.1**), so this is representative of the worst-case scenario.

Ground support equipment

- 16.7.25 Emissions from ground support equipment (GSE) and vehicles are considered but are minimal in relation to other sources. The Heathrow 2013 air quality inventory⁵⁹ includes carbon emissions, and calculated emissions of 31kt CO₂ from GSE, compared with 1,047kt from aircraft in the LTO cycle (i.e. 3%). This figure is to be used as a proxy for the Proposed Development in the embedded mitigation scenario (and thus also worst-case), given good practice in place at Heathrow Airport and the embedded mitigations outlined in **Table 16.6**.

Road transport and traffic

- 16.7.26 All surface access emissions for the Proposed Development are road-based. There are no direct rail connections forming part of the Proposed Development.
- 16.7.27 Emissions factors (kgCO₂ per km) are used for the following vehicle types: HGV, LGV, Car and Bus from the 2017 conversion factors published by Department for Business, Energy and Industrial Strategy for GHG reporting to calculate GHG emissions⁶⁰.
- 16.7.28 The HGV emissions factor used is for an average HGV type ('All HGVs') fully laden. The LGV emission factor used is for an average (up to 3.5t). Passenger vehicles are considered to be of average size. Fuel types are diesel for HGV and unknown for LGVs and passengers, which represent the worst-case scenario. Local bus emission factors are used, expressed in passenger/km.

- 16.7.29 The emissions factors used for the assessment are:
- ▶ HGV: 0.8598 kgCO₂/km
 - ▶ LGV: 0.2576 kgCO₂/km
 - ▶ Passenger vehicle (car, taxi): 0.1811 kgCO₂/km
 - ▶ Bus: 0.12 kgCO₂/passenger
- 16.7.30 HGV freight movements are taken from the Air Freight Forecast in **Chapter 3: Description of the Proposed Development**. The average trip length is estimated at 150km based on centres where warehousing and other industries would have an operational interest in the Manston airport site, as described in the Transport Assessment. The most likely destination, representing an estimated 60% of HGV movements, is to south-east London, which is a substantially shorter distance. This value is also used for construction HGVs and access though, in reality, the average trip is likely to be from more local sources. Therefore, in both cases, this is considered a worst-case scenario. All freight movements are assumed to HGVs and not LGVs.
- 16.7.31 HGV and LGV construction movements for the peak construction period are described in the Construction Traffic Management Plan (Appendix K to the Transport Assessment). This is representative of Year 2. There are no construction movements in Year 20.
- 16.7.32 97% of passenger movements are by car and taxis and 3% in buses, as stated in the Transport Assessment. Car and taxi trips to site are based on average car occupancy of 2 per vehicle based on the DfT National Travel Survey 2016 data for 'Holiday/day-trip'⁶¹. The origin/destination is likely to be from the local area, as stated in the Transport Assessment. A worst-case scenario of 100km is taken as the average trip length for each passenger journey. Both arrival and departure of passengers is considered.
- 16.7.33 Staff journeys are added based on a worst-case scenario of each member of staff travelling to work by car twice a day over the average working year (262 days), with a local journey length estimated to be 25km, which is longer than the average commute trip length in the UK in order to represent a worst-case scenario⁶². Staff numbers for Year 2 and 20 are presented in **Chapter 3: Description of the Proposed Development**.
- 16.7.34 The assessment is representative of the embedded mitigation scenario, given that the data in the Transport Assessment considers mitigations for reducing traffic around the site of the Proposed Development.

Embodied carbon in construction

- 16.7.35 Due to the nature of the design, there are uncertainties about the exact materials that will be used in the construction of individual assets. The footprints of the different land use types, listed in the **Design and Access Statement (document TR020002/APP/7.3)**, are used as the basis of the assessment.
- 16.7.36 Embodied carbon is calculated based on WRAP's *Designing Out Waste Tool* (DoWT)⁶³ figures for the embodied carbon of extracted materials, either reported directly for materials or for waste elements. This represents a suitable tool for the quality of input data available and the stage of design of the Proposed Development.
- 16.7.37 The calculations were based on the following assumptions:
- ▶ As carbon totals in the DoWT-Building output files are reported for 'waste' element amounts rather than 'construction' element amounts, a carbon factor for the waste portions was calculated using WRAP's netwaste tool guidance⁶⁴ and applied to the construction element tonnages;
 - ▶ For elements of the building waste where carbon wasn't reported (e.g. frame and roof structure), general construction material type was checked (i.e. steel or concrete) and a proxy carbon emissions factor was applied; and

- ▶ The embodied carbon associated with the construction of the Proposed Development is averaged out over the assessment period to give a representative annual emission for Year 2 and Year 20. A majority of the construction work on the airport infrastructure itself is complete by Year 2 in time for opening.

Land use change

- 16.7.38 Given the site has historically operated as an airfield, has not been substantially changed and will continue to function the same service albeit with more paved area, the carbon emissions due to land use change will be negligible and have not been considered further.

Guaranteed offsetting commitments

- 16.7.39 There are no guaranteed offsetting commitments associated with the Proposed Development.

Determination of significance

- 16.7.40 Aviation and non-aviation emissions are quantified separately, with a single determination of significance applied for the entire Proposed Development. Only aviation emissions sources are included in the DfT UK Aviation Forecast³⁹ and the same approach is taken in this assessment. They are stated as:

- ▶ All domestic flights within the UK;
- ▶ All international passenger flights departing UK airports;
- ▶ All passenger aircraft while on the ground in the UK e.g. taxiing;
- ▶ All domestic freighter aircraft departing UK airports;
- ▶ All international freighter aircraft departing UK airports; and
- ▶ All freighter aircraft while on the ground in the UK e.g. taxiing.

- 16.7.41 It is not possible to prescribe a specific level of GHG emissions to the Proposed Development at peak operation that would be in-line with meeting the UK target of 80% reduction in aviation emissions, nor the range of targets for the UK aviation emissions that would be required to meet the overall UK carbon reduction target.

- 16.7.42 On its own, the Proposed Development would be a relatively small contributor to overall UK GHG emissions from aviation given the scale of major airports in the south-east. However, any increase in emissions from a new source clearly has an adverse effect on both the UK target and the receptor itself (the global climate). Furthermore, the cumulative effects of small contributions to emissions could reduce the ability to meet the UK GHG emission target. This means that in the context of an ES for an individual development, a single threshold against which to definitively quantify what GHG emissions are 'so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets' is not possible.

- 16.7.43 The Proposed Development does not only produce emissions from the aviation phase. Therefore, significance of effect must consider all emissions sources rather than just the impact on the UK's aviation carbon budget.

- 16.7.44 The approach taken is to assume that the significance of GHG emissions for the Proposed Development is dependent on the mitigations put in place to reduce them. This reflects the statement made in the Airports NPS (Para 5.83): "*The Secretary of State will consider the effectiveness of... mitigation measures in order to ensure that, in relation to design and construction, the carbon footprint is not unnecessarily high. The Secretary of State's view of the adequacy of the mitigation measures relating to design, construction, and operational phases will be a material factor in the decision-making process*".

- 16.7.45 Therefore, an assessment of the worst-case scenario, with the embedded mitigation in **Table 16.6**, is provided quantitatively (results are shown in **Table 16.16**). Expert judgement will be used to determine whether developing the scheme with further mitigations (i.e. the mitigations described in **Table 16.6** plus a more rigorous set of GHG emissions mitigations within a Carbon Minimisation Action Plan) constitutes a development that has 'adequate' mitigations in place.
- 16.7.46 This approach means that whilst '*any increase in carbon emissions alone is not a reason to refuse development consent*' (as stated in the *Airports National Policy Statement*) holds true, there is a requirement to reduce emissions where there is scope to do so.
- 16.7.47 The estimation of future GHG emissions in the embedded mitigation scenario in this assessment are therefore used to understand the scale of the impact on the climate in the worst-case, and to act as a baseline against which to reduce the impact as the design of the Proposed Development would progress following DCO approval.

16.8 In-combination climate change impacts assessment

Introduction

- 16.8.1 This assessment of effects incorporates the environmental measures referenced in **Section 16.5** and uses the methodology described in **Section 16.7**.

Construction phase effects

- 16.8.2 There are no construction phase effects for consideration. Climate change impacts within the UKCP09 datasets in the 2020s are minimal in comparison to the effects of natural variation, and therefore climate change does not warrant a separate assessment.

Operational phase effects

- 16.8.3 The Proposed Development has the potential to have an effect on a range of environmental receptors during the operational phase, as evidenced elsewhere in this ES. **Table 16.8** describes the potential for climate change to exacerbate those effects, and the associated significance of that exacerbation.

Table 16.8 Summary of effects of climate change and the Proposed Development on environmental receptors

Topic	Potential effect	Potential climate change exacerbation of effect	Assessment	Significance
Biodiversity	Treated water discharge into Pegwell Bay and associated designated nature conservation sites – change in habitat quality	Increases to the magnitude of peak rainfall events, potentially overwhelming treated water discharge.	Given that the system has been designed to a 1 in 100 year peak rainfall event plus a climate change allowance, climate change does not exacerbate any risks. Therefore, the in-combination climate change impact for this receptor is Not Significant .	Not significant
Biodiversity	Operational - displacement (barrier effects)	<p>The future baseline golden plover population for the Thanet Coast and Sandwich Bay Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) may alter due to the effects of climatic change on productivity, survival rates, breeding and wintering ranges.</p> <p>Recent collaborative work by Durham University, the British Trust for Ornithology (BTO) and Royal Society for the Protection of Birds (RSPB) predict substantial changes in species ranges during the coming decades with an average shift north of 4km per year and contraction of range and species richness (Huntley et al., 2007lxv). For example, there is increasing evidence that the overwintering distributions of many coastal waders in the UK have shifted in recent decades in response to warming. In the last decade, this has resulted in declines in usage of east coast sites in favour of The Netherlands, although during recent cold winters, this trend has been partially reversed (Pearce-Higgins and Holt, 2013lxvi).</p>	<p>Whilst there is evidence to indicate that the wintering areas for golden plover have shifted from grassland (in the western Britain) to arable farmland in eastern Britain (Gillings, 2006lxvii), there is little evidence to suggest any long-term (up to 25 years) decline in golden plover numbers within the Thanet Coast and Sandwich Bay SPA due to a shift in the range, though it is acknowledged that there have been considerable between-year variations in numbers. Conversely, numbers of golden plover on the nearby Swale SPA (in north Kent) have shown an increase of 1,233% over the long-term, though there have been more recent, short term (5 year) and medium term (10 year) declines in numbers: 23% and 14% respectively (Cook et al., 2013lxviii). In addition, the primary foraging resource for the SPA wintering population of golden plover is likely to be early growth-stage winter cereals (Kirby 1997, Mason & MacDonald 1999). There is no evidence to indicate that this crop type is particularly vulnerable in the UK to the effects of climate change (Semenov, 2009).</p> <p>To conclude, the evidence to indicate that the SPA/SSSI population of golden plover is vulnerable to climate change is mixed and unclear at present. The continued monitoring of the numbers, distribution and habitat usage of golden plover at the SPA/SSSI (e.g. by WeBS) will identify any substantial declines, if they occur. Until such a point, the in-combination climate change impact for this receptor is Not Significant.</p>	Not significant
Biodiversity	Operational disturbance - breeding failure due to the noise from aircraft flights	Sea-surface temperatures in the north east Atlantic and UK coastal waters have been rising since the 1980s by around 0.2-0.9°C per decade, with the most rapid rises occurring in the southern North Sea and the English Channel ^{lxix} . These rises in sea temperature have already had impacts on seabirds in the UK, mainly through indirect effects via the food chain, on which they rely. Direct impacts are likely to become more evident in response to projected rises in sea-level and in the frequency of extreme	Noise from, physical activity at the Site, and aircraft flightpaths during construction and operation could disturb these species preventing use of otherwise suitable habitat within the designated sites approximately 925m from the airport. Whilst the climate change impact could be substantial, the effect of the Proposed Development to exacerbate the impact on this receptor is minimal	Not significant

Topic	Potential effect	Potential climate change exacerbation of effect	Assessment	Significance
		weather. Population declines are likely to result from changes in distribution that are predicted to occur in response to local changes in ambient climate.	and the in-combination climate change impact is therefore Not Significant .	
Biodiversity	Operational displacement - habitat loss due to aircraft flights	<p>In common with many other wading bird species, there is evidence to suggest a change in the numbers and distribution of wintering turnstone in the UK, potentially due to increased temperatures as the climate changes. The long-term (up to 25 year) trend for turnstone in the UK is downwards both in England (a decline of 23% in numbers) and within the Thanet Coast and Sandwich Bay SPA (down 38%) (Cook <i>et al.</i>, 2013).</p> <p>In addition, the coastal habitats (rocky shorelines and mudflats) that the species depends upon for foraging are likely to be reduced in extent due to sea-level rise, particularly in eastern England. The effect of climate change could therefore reduce the resilience of a receptor already affected by aircraft flights.</p>	The disturbance of wading birds by noise from aircraft movements occurs on a different temporal timescale to the reduction in species wintering at the site due to increased temperatures. Therefore, whilst monitoring of the site may consider that climate change is having an effect on numbers, there is no obligation of the Proposed Development to monitor for the impacts of climate change or put mitigations in place. Whilst the climate change impact could be substantial, the effect of the Proposed Development to exacerbate the impact on this receptor is minimal and the in-combination climate change impact is therefore Not Significant .	Not significant
Biodiversity	Assessment of effects on the bat assemblage	<p>Bats may be affected at all stages in their annual cycle: temperature changes may affect hibernation of bats, both in terms of the availability of suitable sites and behaviour, length and timing of hibernation. Changes in temperature and precipitation may affect breeding success of female bats through changes in prey availability, including the time of year when insects are abundant. Climate change may also affect the habitat types and insect prey types available for bats for foraging, which could have indirect effects on bat populations. The distribution of UK bat species may also change in response to climate change.</p> <p>Also, bats may emerge from hibernation earlier in the year if spring temperatures are higher and then could be at risk from mortality during subsequent cold periods (Jones <i>et al.</i> 2009^{xxx}).</p> <p>As temperatures increase with climate change, shifts in or expansion of species' ranges are expected to be in a northerly direction or to higher elevations. Some UK bat species reach the northern limit of their range in the UK and are predicted to expand northwards in the future (Rebelo <i>et al.</i> 2010^{xxxi}). However, this assumes that there will be suitable roosts and habitats available and that the bats are able to disperse successfully into new areas. Dispersal may be more likely for bat species than other mammals due to their ability to fly and for some species, to migrate.</p>	Mitigating any climate change effects on bats will be achieved by effective implementation of national and local biodiversity (planning) policy and initiatives, including the aim of net gain for biodiversity with any planning consents. These will positively influence bat habitats helping to provide foraging habitat and roosting opportunities. There are therefore no other mitigations required explicitly for this Proposed Development and the in-combination climate change impact is Not Significant .	Not significant

Topic	Potential effect	Potential climate change exacerbation of effect	Assessment	Significance
Cultural heritage	Flooding of heritage assets	Increases to the magnitude of peak rainfall events, potentially overwhelming drainage and causing damage to cultural heritage assets and landscapes.	Given that the system has been designed to a 1 in 100 year peak rainfall event plus a climate change allowance, climate change does not exacerbate any risks. The climate change mitigation in place means that the in-combination climate change impact is Not Significant .	Not significant
Freshwater environment	Impacts on flood risk receptors during the operation phase.	Increased winter rainfall and increased magnitude of extreme rainfall events exacerbates flood risk	All site drainage will be contained and discharged through the Pegwell Bay pipe. The system will be designed to mitigate onsite flood risk for the 1%AEP plus 30% climate change event and offsite flood risk for the 1%AEP plus 40% climate change event. Therefore, there will be no increase in uncontrolled site run-off as a result of the increase in hardstanding. The climate change mitigation in place means that the in-combination climate change impact is Not Significant .	Not significant
Land quality	Overwhelming of local drainage system in future flooding events. Contaminated run-off generated by de-icer storage and use enters the groundwater environment as a potential pollutant.	Increased winter rainfall and increased magnitude of extreme rainfall events exacerbates flood risk	<p>It is proposed that there are two ponds on site, one of which will receive "dirty" run-off (for example that containing de-icer) and one receiving "clean" run-off. Water will only be discharged from the "dirty" run-off pond once treatment is complete and pumped discharge will only take place from the "clean" pond. These ponds have been sized to attenuate site run off for the 1% AEP storm plus a 40% climate change allowance.</p> <p>Following the production of a compliant Flood Risk Assessment, it is concluded that all effects during the operation phase will be negligible and there will not be any likely significant effects to on or off-site during the operation phase of the site. The climate change mitigation in place means that the in-combination climate change impact is Not Significant.</p>	Not significant
Air quality / health	Increased impact of air quality	Increased temperatures and frequencies of heat waves lead to an exacerbation of air quality and pollutions effects.	Combined heatwaves and air pollution present health risks. Whilst the increase in temperatures will be substantial at the site by the 2050s, the air quality impact associated with the Proposed Development has been determined to be minor adverse. The climate change impact is not enough to raise this to a significant level and is thus Not Significant .	Not significant
Cultural heritage	Effects on buried archaeology	Increase of potential for desiccated soils and lowered groundwater levels, which increase the risk of decay to waterlogged archaeological and paleoenvironmental remains	Archaeological and paleoenvironmental are not anticipated on the site but will be confirmed and mitigated by archaeological investigation. In the worst-case scenario, in which a high significance receptor is found, then the significance will be high and major mitigations would be necessary. In this case, the impact of climate change would be considered, but climate change has no	Not significant

Topic	Potential effect	Potential climate change exacerbation of effect	Assessment	Significance
			bearing on the likelihood of this occurring, so the in-combination climate change impact is Not Significant .	

16.8.4 Due to the low impact of the effects in **Table 16.8**, there are **no significant effects** related to the combined impact of the Proposed Development and climate change on environmental receptors. The embedded mitigation measures in **Table 16.6** have been considered as part of this assessment.

Inter-related effects

16.8.5 The in-combination climate change impacts assessment is inherently an assessment of interactions between climate change and the environmental topics. As no significant effects have been found, interactive effects are also **not significant**.

16.9 GHG assessment

Introduction

16.9.1 This assessment of effects of the Proposed Development on the global climate considers both aviation and non-aviation sources of GHG emissions. Construction and operation phases are considered for non-aviation sources. Embedded mitigation measures are incorporated into this assessment, and is therefore representative of the 'embedded mitigation' scenario. Peak operation (Year 20) represents the worst-case scenario for GHG emissions at the Proposed Development.

Construction phase effects

Embodied carbon

16.9.2 WRAP's *DoWT* and the methodology set out in **Section 16.7** was used to calculate embodied carbon. The embodied carbon of the construction aspects of the Proposed Development are estimated to be approximately 636 kt CO₂. A breakdown of this is shown in **Table 16.9**.

Table 16.9 Embodied Carbon

	Embodied Carbon (ktCO ₂)
ATC Tower	0.75
Cargo Facilities	25.16
Fire Station	2.35
Maintenance Hangar	47.15
Museum	0 (existing structure retained)
Terminal	9.10
Parking/Access/Storage	147.58
Aprons/Taxiways	12.57
Runway	7.41
Business Park	383.87
TOTAL	635.94

16.9.3 For the purposes of reporting, the embodied carbon emissions are divided across the 20 year assessment period.

Operational phase effects

Aviation emissions

16.9.4 Aircraft emissions associated with aircraft departures from Manston Airport are shown in **Table 16.01**. Aircraft emissions associated with the LTO cycle at Manston Airport are shown in **Table 16.11**.

Table 16.10 Aircraft Emissions from flight departures – Year 2 and Year 20

Aircraft type	Stage length (km)	Aircraft flight emissions (Year 2) (kt CO ₂)	Aircraft flight emissions (Year 20) (kt CO ₂)
767-400	5555	30.5	0
777-200	5555	0	155.6
747-8	6268	26.6	59
767-300	7026	42.2	0
757-200	352	2.4	7.7
330-200	5523	0	118.5
ATR72 (international)	348	0.8	2.4
ATR72 (domestic)	348	0.8	2.4
777-200	5505	4.3	6.3
777-200	4432	35.6	52.6
777-200	5505	4.3	12.9
777-200	3536	3.6	10.6
777-200	6080	4.4	6.6
737-800 (international)	534	0.7	1.7
737-800 (domestic)	534	0.7	1.7
777-200	5245	16	47.3
747-400	2553	11.	66.2
747-400	6812	26.3	0
747-8	6812	0	37.8
737-300	424	0.4	8.9
C17	4749	0.9	1.4
C-130E	4749	0.3	0.5
747-8	3583	0	2.1
F70	259	0	3.4
A320	1315	0	1.4

Aircraft type	Stage length (km)	Aircraft flight emissions (Year 2) (kt CO ₂)	Aircraft flight emissions (Year 20) (kt CO ₂)
757-300	7105	0	8.8
737-800	1133	0	53.1
737-800	1984	0	2.7
Total international aircraft emissions		210.5	667.6
Total domestic aircraft emissions		1.5	4.1
Total freight emissions		207.9	602.2
Total passenger emissions		0	69.4
Total aircraft emissions		207.9	671.6

Table 16.11 CO₂ emissions from LTO cycle in Year 2 and Year 20

Aircraft	Aircraft LTO emissions (Year 2) (kt CO ₂)	Aircraft LTO emissions (Year 20) (kt CO ₂)
A320	0.01	0.22
A330-200	0	6.8
737-300	0.14	3
737-800	0.4	10.8
747-400	2.35	6.76
747-800	1.15	4.34
757-200	1.40	4.48
757-300	0	0.35
767-400	1.43	0
767-300	1.71	0
777-200	4.56	18.01
ATR72	0.65	1.90
C17	0.06	0.09
F70	0	1.57
C-130E	0.08	0.12
Total	13.9	58.5

16.9.5 Overall aviation emissions are therefore estimated to be 227.4 ktCO₂ in Year 2, and 730.1 ktCO₂ in Year 20.

Non-aviation emission

Airport operations energy use

- 16.9.6 Based on the estimated annual energy consumption associated with the proposed buildings as described in the Proposed Development Masterplan (**Figure 3.1**) using CIBSE characterisation⁵⁷⁵⁸, associated annual carbon emissions are estimated to be of 8.98kt CO₂e per annum (3.36 from electricity; 5.62 from natural gas). The buildings are assumed to be fully functional in both Year 2 and Year 20. Year 20 represents the worst-case scenario.
- 16.9.7 Values for CO₂ rather than CO₂e are reported for the other GHG emissions sources by necessity given the information available. The difference between CO₂ and CO₂e is always less than 1% and is not considered significant⁷², and is well within the uncertainty for estimates of flight movements. Aviation emissions are reported in CO₂ to be consistent with the DfT Aviation Forecast.

Ground support equipment

- 16.9.8 Emissions associated with GSE have been calculated to be approximately 0.42 ktCO₂e per annum for Year 2 and 1.75 ktCO₂e per annum for Year 20 based on 3% of LTO cycle emissions, as described in the methodology.

Road transport and traffic

- 16.9.9 The methodology for calculation of road traffic and transport emissions associated with the Proposed Development is described in **Section 16.7**.
- 16.9.10 **Table 16.12** sets out the number of movements and emissions for construction and freight traffic. **Table 16.13** sets out the number of movements and emissions for passenger and staff traffic.

Table 16.12 CO₂ emissions from construction and freight traffic

	Year 2 (operation)	Year 2 (construction)	Year 20 (operation)
HGV movements / year	9903	112785	64906
LGV movements/year	0	74460	0
Journey distance (km)	150	100	150
Total journey distance / year (km)	1485450	18724500	9735900
Total emissions (kt)	1.28	11.62	8.37

Table 16.13 CO₂ emissions from passenger and staff traffic

	Year 2	Year 20
Passengers / year	0	1407753
Staff journeys / year	221652	526576
Journey distance (km)	Passengers: 100	Passengers: 100

	Staff: 25	Staff: 25
Car journeys	221652	1365520
Bus passengers	0	42232
Bus emissions (kt CO ₂)	0	0.51
Car emissions (kt CO ₂)	1.00	27.16
Total passenger and staff emissions (ktCO₂)	1.00	27.66

16.9.11 Total Year 2 emissions from transport and traffic associated with the Proposed Development is 13.90 ktCO₂, of which 11.62 ktCO₂ is related to construction and 2.28 ktCO₂ is related to operation. Total Year 20 emissions from transport and traffic associated with the Proposed Development is **36.03 ktCO₂**, all of which is related to operation and represents the worst-case scenario for road transport and traffic emissions.

Overall emissions

16.9.12 **Table 16.14** shows the GHG emissions associated with the Proposed Development in Year 2 and Year 20. Worst-case emissions associated with the Proposed Development are in Year 20. Embodied carbon emissions from construction are spread over the 20-year development period to give an annual representation.

Table 16.14 Total Emissions

Source	Year 2 emissions associated with the Proposed Development (kt CO ₂)	Year 20 emissions associated with the Proposed Development (kt CO ₂) – Worst-case
Flights / Aircraft engines	213.5	671.6
LTO cycle	13.9	58.5
Road traffic and transport	13.9	36.0
Airport operations energy use	9	9
Ground support equipment	0.4	1.8
Land use change	0	0
Offsetting	0	0
Embodied carbon	31.8	31.8
Sub-total aviation sources	221.8	730.1
Sub-total non-aviation sources	55.1	78.6
Total all sources	276.9	808.7

16.9.13 In the worst-case scenario, Year 20, flight emissions associated with the Proposed Development contain 83% of GHG emissions, the LTO cycle accounts for 7.2%, and non-aviation emissions including construction are 9.8%.

Assessment of effects of GHG emissions on the global climate

16.9.14 The Proposed Development inevitably has an impact on the global climate, even if 730.1 KtCO₂ per annum from aviation emissions only represents 1.9% of the total UK aviation carbon target of 37.5 Mt CO₂ for 2050. It is therefore deemed that the 'further mitigation' scenario is required in order to reduce the carbon footprint of the Proposed Development as a whole where practical.

- 16.9.15 A number of embedded mitigation measures in construction and operation have already been incorporated in to the scheme design (**Table 16.6**) and are included in the estimated emissions, wherever possible.
- 16.9.16 Further mitigation measures would reduce the GHG emissions associated with the Proposed Development from the worst-case scenario provided. The impact of this further mitigation scenario on the total emissions from the airport has not been quantified as it can be more usefully estimated during detailed design of assets. It will also assess the emissions sources against relevant comparators for each sector, such as the UK Green Construction Board low carbon routemap⁷³ and comparable surface access and operational energy emissions trends.
- 16.9.17 The development of a Carbon Minimisation Action Plan, including incorporation of mitigations such as those listed in **Table 16.15** following DCO approval has therefore been committed to. An adequate target for reduction of the 78.6 ktCO₂ per annum from non-aviation sources and the 808.7 ktCO₂ per annum from all sources will be set within the Carbon Minimisation Action Plan by the applicant, and signed off by the Secretary of State. The mitigation suggested in **Table 16.15** are indicative of what could be included in the Carbon Minimisation Action Plan, and are not an exhaustive list.
- 16.9.18 The Proposed Development's effect on the global climate is **not significant** given that the further mitigation, in the form of a Carbon Minimisation Action Plan, has been committed to following DCO approval. Quantified reductions in emissions have not been provided at this stage, as they are more able to be defined at the detailed design stage. RiverOak will provide a plan at the point where the design is sufficiently advanced so that the effects of any measures will be quantified – this plan will be signed off by the Secretary of State. This will occur prior to the commencement of site works.

Table 16. 15 Proposed GHG mitigations for incorporation into the Carbon Minimisation Action Plan

Source of GHG emissions	GHG mitigation	Details
All	Targets and monitoring	A set of defined, achievable and measurable actions put in place within the Carbon Minimisation Action Plan. This will include metrics relating to emissions per passenger, emissions from construction activities and the use of operational efficient mitigations including Fixed Electrical Ground Power (FEGP)
LTO cycle	Fixed Electrical Ground Power (FEGP)	Mandatory use of the FEGP facilities that are installed, and a drive towards efficiency of their use (e.g. use up to a certain number of minutes after arrival/before departure, as evidenced at Barcelona El Prat Airport ⁷³)
	Reduced thrust during take-off	Set targets for reduction of thrust levels during take-off. This can be achieved through engagement with airlines to influence policies on thrust rates.
Energy used in construction	Energy Efficiency	Effective programme management during the construction phase, ensuring that energy requirements are minimised as far as possible, reducing overall GHG emissions associated with energy use in the construction phase.

	Reduce emissions from plant vehicles	Hybrid models of various plant vehicles are now available, e.g. excavators. Retrofit diesel filters can also be fitted on many plant vehicles. These significantly reduce exhaust emissions of particulates as well as carbon monoxide in order to deliver overall reductions in the volume of GHG emissions.
	Low carbon welfare facilities	'Eco-cabins' offer an alternative to conventional modular welfare cabins. These are designed to be solar powered and include canteen facilities and WC and washroom capacity. The water system is also self-contained which means no need to draw on mains supplies.
	Encourage construction and operational staff to use public transport	Integration of the Travel Plan (Appendix L to the Transport Assessment) and the Construction Travel Plan (within the Preliminary Construction Travel Management Plan) into the Carbon Minimisation Action Plan in order to quantify and optimise emissions reductions.
Energy used in operation	Low carbon energy supply and storage	Opportunities for roof mounted solar photovoltaic (PV), solar carports, thermal storage, battery storage and a decentralised energy system to power buildings, tools and equipment should be explored.
	Energy efficient buildings	New buildings and conversions designed to reduce emissions using natural light and natural ventilation. Government guidance on high energy efficiency to be followed.
Embodied energy in construction	Design out waste	Reduce waste through appropriate materials specification and construction methodologies. e.g. using modular building designs or prefabrication of riser modules for mechanical and electrical services.
	Supply chain management	Seek out opportunities for contracts with suppliers and contractors that include stipulations to use designs and materials that facilitate the reuse, recycling or recovery of materials upon de-commissioning or replacement of the site. Set requirements for contractors that demonstrate commitment to sustainable procurement and practices.
	Re-use and recycling of materials	Reclamation of valuable resources generated during demolition, such as metals, or recycling of inert materials for use as aggregates for any fill required for the development.
	Pre-fabrication	Assembling pre-constructed components on site reduces the requirement for raw materials and therefore waste.
	Effective storage and segregation	The provision of effective storage and segregation of waste materials at the site will be a key element to ensure waste is managed safely and efficiently to maximise the potential for reuse and recycling.
	Material selection and life-cycle assessment	Ensure the use of sustainable materials in construction by considering the life-cycle emissions associated with them. The embodied carbon assessment can serve as the starting point for identifying key areas of improvement (e.g. ceiling finishes, which make up a large amount of the embodied carbon in office buildings in the worst-case scenario provided in this assessment).

Inter-related effects

The GHG assessment considers any embedded mitigations in other environmental topics, and the impacts of climate change on other topics are considered in **Section 16.8**, so the inter-related effect is **Not Significant**.

16.10 Conclusions of significance evaluation

16.10.1 The conclusions on the significance of the effects that have been subject to assessment in **Section 16.8** and **Section 16.9** are summarised in **Table 16.16**.

Table 16.16 Summary of significant effects

Receptor and effects	Significance Level	Rationale
The effects of climate change and the Proposed Development on environmental receptors (in-combination climate change impacts).	Not significant	Mitigations for the impacts of climate change on receptors have been incorporated into the design of the Proposed Development. The Climate Resilience Strategy, which has been committed to, will further strengthen action on climate change throughout the detailed design, construction and operation of the Proposed Development.
The effects of GHG emissions from the Proposed Development on the climate.	Not significant	<p>The Proposed Development inevitably has an impact on the global climate, even if 730.1 KtCO₂ per annum from aviation emissions only represents 1.9% of the total UK aviation carbon target of 37.5 Mt CO₂ for 2050. It is therefore deemed that the 'further mitigation' scenario is required in order to reduce the carbon footprint of the Proposed Development where practical.</p> <p>The Proposed Development's effect on the global climate is not significant given that the further mitigation, in the form of a Carbon Minimisation Action Plan, has been committed to following DCO approval. This Action Plan is to be agreed by the Secretary of State, which goes beyond good practice and aims to significantly reduce GHG emission associated with the design, construction and operation of the scheme. Quantified reductions in emissions have not been provided at this stage, as they are more able to be defined at the detailed design stage.</p>

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