For continuation refer to drawing 11107_PL_12_004 General Arrangement - Sheet 1 of 2

PLOT 5

DEVELOPMENT PLOTS SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

DEVELOPMENT PLOTS SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

PLOT 1

HE INFORMATION SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

CAR PARK WITH FENCING AND ACCESS TO CHURCH (REFER TO PROPOSED CHURCH CAR PARK SITE LAYOUT REF.10601_005 REV C)

PLOT 4

DEVELOPMENT PLOTS SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

DEVELOPMENT PLOTS SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

PLOT 2

PLOT 3

DEVELOPMENT PLOTS SHOWN INDICATIVELY SUBJECT TO SEPARATE APPLICATIONS

CHURCH ROAD

LIMIT OF WORKS

Scale 1:1250

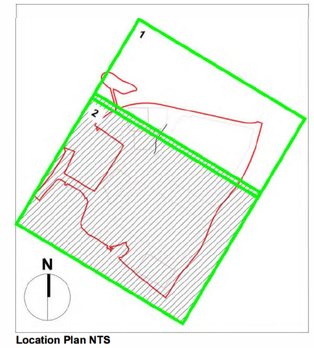
0 50 100

Figured dimensions only are to be used. All dimensions to be checked onsite. Differences between drawings and between drawings and specification or bills of quantities to be reported to the PRC Group.

Revisions:	Drawn/Chkd:	Date:
A. Planning Comments Incoporated	EM	Apr.'19
B. Planning Comments Incoporated	EM	May 19
C. Church car park amended	SA	Jun 19

NOTES

1. FOR LEGEND PLEASE REFER TO DRAWING 11107_PL_12_004
2. FOR PROPOSED FINISHED LEVELS AND LAND CONTOUR FOR HARD LANDSCAPING PLEASE REFER TO ENGINEERS DRAWING REFERENCE 08-125 / 423
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEER'S DRAWINGS AND THE SPECIFICATION.
4. ALL WORKMANSHIP AND MATERIALS ARE TO COMPLY WITH THE SPECIFICATION, BUILDING REGULATIONS, RELEVANT BRITISH STANDARD AND MANUFACTURERS RECOMMENDATIONS.
5. THIS DRAWING IS NOT TO BE SCALED. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
6. SITE AND DISCREPANCIES REPORTED TO THE CONTRACT ADMINISTRATOR.
7. ECOLOGICAL ENHANCEMENTS LOCATIONS ARE APPROXIMATE AND WILL BE DETERMINED BY AN ECOLOGIST WHEN THE FEATURES ARE INSTALLED, AND THAT BAT AND BIRD BOXES SHOULD BE INSTALLED ON POSTS, OR ON SPECIMEN TREES AFTER FIVE YEARS OF GROWTH.



Location Plan NTS

Client:
AVIVA LIFE AND PENSIONS UK LTD

Project:
STOUR PARK WEST PHASE 1
INFRASTRUCTURE WORKS
RMA/PRE-START CONDITIONS

Drawing Title:
ILLUSTRATIVE LANDSCAPE
MASTERPLAN COLOURED
SHEET 2

Scale @ A1:	Checked by:	Date:
1/1250	■	MAR.'19

Job No:	Stage:	Drawing No:	Rev:
11107	PL	12 005	C

Issue Status:

Construction	☐	Preliminary	☐
Information	☐	Approval	☒
Tender	☐		

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MOTT MACDONALD

Sevington Inland Border Facility

An Analysis of the Likely Environmental Effects of the Development Report

18 November 2020

Confidential

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	30/10/20	[redacted]	[redacted]	[redacted]	First draft
P02	06/11/20	[redacted]	[redacted]	[redacted]	Final for Article 4 submission
P03	18/11/20	[redacted]	[redacted]	[redacted]	Revised for final Article 4 submission

Document reference: 419419 | 419419-MMD-XX-SV-RP-YE-0002 | P03

Information class: Secure

Contents

Tables

Figures

1 Introduction

1.1 Purpose of the Report

Mott MacDonald has been appointed by the Department for Transport (DfT) to undertake an analysis of the likely environmental effects of the development for the proposed use of a site at Sevington near Ashford in Kent (hereafter referred to as 'the site') for a temporary Inland Border Facility (IBF) (hereafter referred to as 'the scheme'). The analysis is presented within this report, and it is required as per article 4(2)(h) of the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020.* The objective of this analysis is to identify any likely adverse or beneficial significant environmental effects as a result of the scheme, and where relevant outline the measures incorporated in the scheme design and delivery methods to avoid, eliminate or reduce what might otherwise have been significant adverse environmental effects.

Chapter 2 of this report describes the physical characteristics and location of the scheme. Chapter 3 of this report describes the environmental baseline, environmental constraints, sensitivity of the environmental receptors and the potential environmental effects of the scheme. The analysis has been undertaken in accordance with the guidance provided in the Sustainability and Environmental Sections of the *Design Manual for Roads and Bridges* (DMRB). As the scheme is principally a transport related project, and as such, the DMRB provides the most appropriate published guidance for undertaking the analysis of environmental effects. Additional discipline specific guidance has also been applied where relevant, in order to provide a robust analysis of the effects. Relevant guidance is referenced for each discipline in Chapter 3 of this report.

1.2 Screening under the Environmental Impact Assessment (EIA) Regulations

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('the EIA Regulations') set out procedures for determining whether or not development is 'EIA Development' for which an Environmental Statement must be prepared to accompany a planning proposal. The EIA Regulations defines 'EIA Development' as either:

(a) "Schedule 1 development; or,

(b) Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location."

Regulation 2(1) defines 'Schedule 2 development' as:

"Development, other than exempt development, of a description mentioned in Column 1 of the table in Schedule 2 where –

(a) Any part of the development is to be carried out in a sensitive area; or,

(b) Any applicable threshold or criterion in the corresponding part of Column 2 of that table is respectively exceeded or met in relation to that development."

The scheme does not comprise development listed under Schedule 1 of the EIA Regulations. However, there are particular provisions under Schedule 2 that are of relevance. The scheme, as described in Chapter 2 of this report is likely to comprise development listed under Column 1 of Schedule 2, i.e. *"Category 10(b) Urban development projects, including the construction of*

shopping centres, car parks, sports stadiums, leisure centres and multiplex cinemas, where the overall area of the development exceeds 5 hectares."

1.2.1 Selection Criteria for Screening

Schedule 3 of the EIA Regulations sets out selection criteria for screening Schedule 2 development, which are the criteria used to determine whether the development is considered to be EIA Development.

Table 1.1 outlines where the relevant Schedule 3 selection criteria can be found within this report.

Table 1.1 Locations within this Report of the Selection Criteria for Screening Schedule 2 Development

Selection criteria for screening Schedule 2 development	Location within the report
1. Characteristics of development	
(a) the size and design of the whole development	2.2 and 2.3
(b) cumulation with other existing development and/or approved development	3.12
(c) the use of natural resources, in particular land, soil, water and biodiversity	3.5, 3.6, 3.7, 3.10 and 3.11
(d) the production of waste	3.7
(e) pollution and nuisances	3.2, 3.5, 3.7, 3.8,3.10 and 3.15
(f) the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge	3.11 and 3.14
(g) the risks to human health (for example, due to water contamination or air pollution)	3.2, 3.4, 3.5, 3.8, 3.9, 3.10 and 3.15
2. Location of development	
(a) the existing and approved land use	2.2 and 2.3
(b) the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground	NA – the scheme is not anticipated to affect the abundance, availability, quality or regenerative capacity of natural resources
(c) the absorption capacity of the natural environment, paying particular attention to the following areas	
(i) wetlands, riparian areas, river mouths	NA – the scheme is not located within and would not affect a wetland, riparian area or river mouth
(ii) coastal zones and the marine environment	NA – the scheme is not located within and would not affect a coastal zone and has no interactions with the marine environment
(iii) mountain and forest areas	NA – the scheme is not located within and would not affect a mountainous or forested area
(iv) nature reserves and parks	3.4 and 3.6 The scheme location is not situated within any nature reserves or parks. Designations within the Zone of Influence (ZOI) are discussed under Section 3.6
(v) European sites and other areas classified or protected under national legislation	The scheme location is not situated within any European Sites and other areas classified or protected under national legislation. Designations within the Zone of Influence (ZOI) are discussed under Section 3.6
(vi) areas in which there has already been a failure to meet the environmental quality standards, laid down in	No Environment Agency pollution incidents have been declared on the site.

Selection criteria for screening Schedule 2 development	Location within the report
Union legislation and relevant to the project, or in which it is considered that there is such a failure	
(vii) densely populated areas	NA – the scheme is not located within a densely populated area
(viii) landscapes and sites of historical, cultural or archaeological significance	3.3
3. Types and characteristics of the potential impact	
(a) the magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected)	2.2 and 3.2 – 3.14
(b) the nature of the impact	3.2 – 3.14
(c) the transboundary nature of the impact	N/A – the scheme is located entirely within the UK and no transboundary effects are anticipated.
(d) the intensity and complexity of the impact	3.2 – 3.14
(e) the probability of the impact	3.2 – 3.14
(f) the expected onset, duration, frequency and reversibility of the impact	3.2 – 3.14.
(g) the culmination of the impact with the impact of existing and/or approved development	3.12
(h) the possibility of effectively reducing the impact	Relevant mitigation measures are included within Sections 3.2 – 3.14 and outlined within the REAC (Appendix C).

2 The Scheme

2.1 Background to the need for the Special Development Order

The United Kingdom (UK) has left the European Union (EU) and a transition period is now in place until 31 December 2020. The transition period is a timeframe in which the UK and EU negotiate a future trading relationship, as the UK's membership of both the Single Market and the Customs Union will end. The current rules on trade, travel, and businesses for the EU and UK continue to apply during the transition period until new rules are brought into effect as of 1 January 2021.

With the new rules in place, there would be greater requirements for inland border infrastructure. This includes providing facilities to provide checks on goods moving under a Common Transit Convention and providing customs checks on non-transit imports and exports (including sanitary / phyto-sanitary checks where required).

Given the national importance of the timely delivery of border infrastructure, a Special Development Order (SDO) has been made under the provisions of Schedule 59 of the *Town and Country Planning Act 1990.* The SDO specifically is the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020*[1]*.*

The SDO grants temporary planning permission for development consisting of the use of land in specified parts of England for border processing and the associated stationing of vehicles entering or leaving the UK, and the provision of facilities and infrastructure associated with this use.

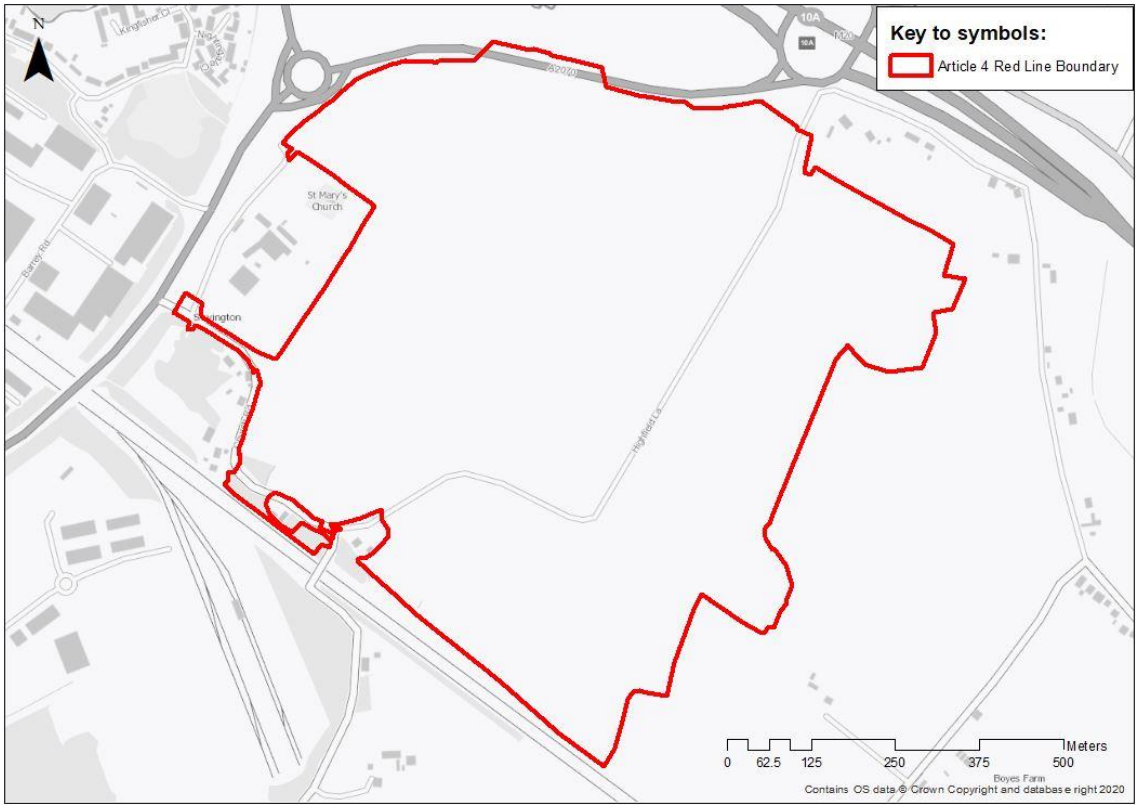
The SDO requires a further site-specific 'Relevant Approval' from the Secretary of State for Housing, Communities and Local Government (MHCLG) for the use of the land and operations comprised in the development. Proposals granted under this SDO, grant temporary planning permission until 31 December 2025 (unless a shorter duration is specified) for the use of the sites for customs management and would require reinstating by 31 December 2026 (unless an earlier date is specified).

2.2 Site Description

The site is in a strategic location near the M20 Junction 10a, south of Ashford between Sevington and Mersham. The land is divided into two distinct parcels divided by Highfield Lane running north to south. The land which is the subject of the Article 4 submission is principally focussed on the western parcel which comprises 48ha of agricultural land, with all operational facilities limited to land west of Highfield Lane. A further 19.58ha of land to the east of Highfield Lane has been included in the Article 4 Red Line Boundary (drawing ref: 419419-MMD-00-MO-DR-Z-0002) in order to authorise the temporary stockpiling of material necessary for the earthworks and associated bunding and landscaping. There is also a smaller portion of land to the south adjacent to the railway line, made up of woodland included within the Article 4 Red Line Boundary. This small portion of land would be used for drainage and strategic utilities required to support the use of the site. In total the land subject to the Article 4 submission would be 67.58ha and is shown on plan Article 4 Land Plan (drawing ref: 419419-MMD-00-MO-DR-Z-0002) edged in red. The location of the site can be seen in Figure 2.1 below.

[1] Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020 (2020/928). Available at: https://www.legislation.gov.uk/uksi/2020/928/contents/made

Figure 2.1 Site Location Plan



Source: Mott MacDonald (2020)

The M20 motorway runs to the east of the site from Folkestone towards London. The M20 Junction 10 is located approximately 250m north-west, and the new M20 Junction 10a, now approaching completion, is located approximately 80m north-east. The A2070 is approaching construction completion and is located north of the site connecting an existing section of the A2070 to the new M20 Junction 10a. The site is also bounded by Church Road and the rail link for the Channel Tunnel to the south. Residential properties are present along Church Road and further east along Kingsford Street.

The local area is a mixture of residential, commercial and agricultural land use. Ashford, specifically Willesborough, is the main settlement located 100m west of the site. The existing land use and character of the area is a mixture of commercial and light industry in nature. Within the wider area, the William Harvey Hospital is located approximately 660m north of M20 Junction 10.

Immediately to the west of the site is the Church of St Mary, a Grade I Listed Building, and the Milbourn Equine Centre. Numerous Grade II Listed Buildings are located on the site's southern boundary along Church Road and Hatch Park Registered Park and Garden is situated approximately 390m north-east of the scheme at its closest point. The Church of St Mary has a significant visual relationship with the Church of St John the Baptist in Mersham, which is also a Grade I listed building. Visibility between the spires of the two churches is maintained on the route of the public footpath that runs across the site as described below. As such, the central corridor of the site along the route of this footpath is termed as the 'viewing corridor' between the two churches.

There are four Public Right of Ways (PROW) within the scheme boundary. There are two PROW which run west to east across the site (AE639 and AE363); AE639 runs across the western parcel of land and AE363 runs across the eastern parcel of land. Two PROW connect to AE639 (AE337A, and AE338) and run north to south in the western section of the site. A list of PROW within and surrounding the site is detailed in Section 3.9. The closest site designated for nature conservation is Ashford Green Corridors Local Nature Reserve (LNR) 50m west of the site. Hatch Park Site of Special Scientific Interest (SSSI) is 550m north-east. All are shown in the Environmental Constraints Plan in Appendix A.

The site is located within National Character Area (NCA) 120 (Wealden Greensand) and NCA 121 (Low Weald). These areas are rich in biodiversity, with woodland and farmland present across the landscape. Low Weald comprises an intricate mix of woodlands, much of it ancient, including extensive broadleaved oak over hazel and hornbeam coppice, shaws, small field copses and tree groups, and lines of riparian trees along watercourses. Veteran trees are a feature of hedgerows and in fields. In the east of Kent, the Wealden Greensand has a gentler and more open aspect than in the wooded west. This part of the area is also more marked by development, with the presence of major towns and communication corridors including the M26, M25 and M20 motorways and railway lines including the HS1 line.

In addition, the site consists of arable land, occupying over 75% of the site, along with hedgerows, ditches, improved grassland, plantation woodland, poor semi-improved grassland, mature scattered trees, scrub, tall ruderal vegetation and hardstanding. The most notable habitats are considered to be the hedgerows which would be retained along Highfield Lane, along with the mature belt of trees in the north-western corner which would also be retained as these provide an effective screening function.

An Outline Planning Application for the Stour Park Development was submitted in 2014 (reference: 14/00906/AS). The Stour Park Development was intended as a mixed-use scheme, it is described as follows in the planning application:

'Development to provide an employment led mixed use scheme, to include site clearance, the alteration of highways, engineering works and construction of new buildings and structures of up to 157,616 sq. m … together with ancillary and associated development including utilities and transport infrastructure, car parking and landscaping'.1

The Stour Park Development planning permission was approved in 2018 (in line with amended details submitted in 2018). In July 2019, a reserved matters application (19/00579/AS) was granted for the development Phase 1A of the Stour Park Development, relating to the formation of the internal estate roads, the landscaping scheme and its sustainable drainage system. The construction of these works has subsequently commenced on-site.

2.3 Scheme Description

The scheme requires Heavy Goods Vehicle (HGV) parking and border checking facilities for Her Majesty's Government (HMG) for a temporary period, commencing on the 1 January 2021 up until 31 December 2025. However, as set out below the extent, use and operation of the facility, along with the associated earthworks, HGV parking areas and extend and scale of buildings and structures would be implemented on a phased basis in response to the respective requirements of DfT, Her Majesty's Revenue and Customs (HMRC) including Border Force as its operational agent, Department for Environment, Food and Rural Affairs (Defra), Department for Business, Energy and Industrial Strategy (BEIS), and Driver and Vehicle Standards Agency (DVSA). The site would operate 24-hours, seven days a week over the course of all phases of its operation.

The Article 4 (2) Submission is seeking relevant approval for the temporary use for of land for up to 5 years for an Inland Border Facility, including the laying out of up to 1,272 HGV parking spaces, formation of a new access (main access to the M20 junction 10a link road) onto the highway and an emergency access point to the north, the erection of buildings and structures for border processing purposes (as set out in drawings Day 1 General Arrangement 419419-MMD-01-MO-DR-C-0181 and Day 200 General Arrangement 419419-MMD-01-MO-DR-C-0182 for Day 200) to a maximum height of 12m, security fencing to a maximum height of 2.1m, noise attenuation bunds and fences to a maximum height of 5m, lighting columns to a maximum height of 12m, drainage and all associated engineering and extensive hard and soft landscape works.

Approval is also sought for the temporary use of part of the site (see plan 419491-MMD-01-MO-DR-C-0142) for a period of up to 12 months for storage of stockpile material. The full details of all these works are set out in Table 2.2 and Table 2.3, along with the details of the drawings that are being submitted for approval.

The majority of the construction works in terms of the development plot areas, and drainage etc. would be carried out with the aim of providing Day 1 readiness by 1 January 2021. However, there would be a 'transition period' where works associated with the Day 200 operations would be carried out. There is a commitment by DfT to ensure the early delivery of the extensive landscape works so as to ensure mitigation measures are given the best possible opportunity to mature over the lifetime of the proposed development and it is anticipated the landscape works (as shown on Environmental Masterplan Day 1 419491-MMD-01-MO-DR-L-3030 and Environmental Masterplan Day 200 419491-MMD-01-MO-DR-L- 3031) and programme for their delivery, would be the subject of a suitably worded condition.

There are four key stages in the phasing of the construction and operation of the scheme, and these are summarised in Table 2.1 below.

Table 2.1 Summary of Works and Operational Phases

Phasing	Description
Construction up until Day 1	The construction of the facility for the Day 1 scenario and the associated works as set out in Table 2.2.
Day 1 to Day 200 Operation and Construction of Day 200 infrastructure	The operation of the Day 1 scenario (with the DfT, HMRC / Border Force (include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) on behalf of Defra), Drivers and Vehicle Standards Agency (DVSA), BEIS (Business, Energy and Industrial Strategy) and trading standards use of the site). This phase would also include the construction of the Defra Border Control Post (BCP), additional HMRC inspection sheds, to be operational by 1 July 2021. These works are set out in Table 2.2. This phase will also include the carrying out of the landscape works and mitigation measures as per drawing: • Environmental Masterplan Day 1 419491-MMD-01-MO-DR-L-3030
Day 200 Operation	Defra, HMRC / Border Force, BEIS, and trading standards use of the site. This phase would include the suspension of the parking areas in the north and the south of the site 'reserved areas', and the removal of the parking areas in the viewing corridor. This phase will also include the carrying out of the landscape works and mitigation measures as per drawing: • Environmental Masterplan Day 200 419491-MMD-01-MO-DR-L- 3031
Reinstatement	This phase would involve the complete reinstatement of the site, and the removal of the infrastructure associated with the Inland Border Facility, following the five-year use of the site (described further below). Plus, additional enhancement works including public access, additional soft landscape works and interpretation

Phasing	Description
	materials as per the Long-Term Enhancement Plan 419491-MMD-01-MO-DR-L-3032.

The above scenarios and phasing are shown on the following plans:

- General Arrangement Day 1 Plan (drawing ref: 419419-MMD-01-MO-SK-C-0028)
- General Arrangement Day 200 Plan (drawing ref: 419419-MMD-01-MO-SK-C-0029)
- Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030)
- Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031)

Long-Term Enhancement Plan (drawing ref: 419419-MMD-01-MMD-01-MO-DR-L-3032) Further details of the individual phases in terms of their operation and associated works are set out below.

2.3.1 Day 1 Operation and Works

2.3.1.1 Operations

The following operations would be undertaken on-site by the respective Government Bodies from Day 1:

- DfT Border Readiness Advisory Checks facility and lorry holding as part of contingency traffic management purpose.
- HMRC / Border Force operations for Common Transit Convention (CTC) movements (Offices of Departure / Destination) & Admission Temporaire / Temporary Admission (ATA) Carnets and CITES checks on behalf of Defra.
- DVSA undertaking vehicle and driver checks. DVSA would bring vehicles to the site which their ANPR system recognises as being not border ready, they would examine the vehicle and the driver's hours aspects with a view to enforcement.

Market surveillance activities: checking compliance of imported goods for product safety compliance by market surveillance authorities (principally Local Authority Trading Standards) - discharging legal obligations and BEIS responsibilities. Market surveillance authorities would be operating on-site sharing the HMRC / Border Force premises (i.e. office buildings, inspection sheds, staff car park, HGV parking spaces). The site would be divided into the following parts:

- Entry check points, the entry lanes in the north-eastern end of the site, primarily serves as the entry point to the site. The lorries on entering the site through the main site entrance would be ushered into the entry lanes, at the end of which, there would be a brief security check and the lorry drivers would be guided to the relevant part of the site.
- Northern, and north-western, and central parts of the site are primarily allocated for DfT use (Plots A, B D & E, with D potentially shared depending on the operational need).
- Southern parts of the site would be primarily used for HMRC functions (Plots C & F, with C potentially shared depending on operational need).
- Within the northern section a small number of spaces would be allocated to DVSA.
- Market surveillance authorities may use the HMRC section of the site to discharge BEIS responsibilities for checking product safety compliance of imported goods. They would use parking allocated to HMRC of the site and would be required to use the inspection sheds.
- A staff car park would be located to the west of the site.
- There would be a designated area to the north of the site to deal with emergencies, i.e. spillages etc, where the vehicles would be directed upon entry to the site.

A maximum capacity of 1,272 HGV spaces, with an additional 286 bays contained within 42 entry lanes, would be provided in the Day 1 scenario. The DfT and DVSA operations at the site is expected to last between three to six months.

2.3.1.2 Works

Table 2.2 below sets out the physical works associated with the Day 1 scenario.

Table 2.2 Works Associated with Day 1

Works	Description of Works	Drawing / Document Reference
Enabling works		
Topsoil and Subsoil Stripping	Topsoil and subsoil stripping of western parcel of land and temporary stockpiling on the eastern parcel of land. Stockpiling would be limited to 12 months as per agreement with the Environment Agency. The materials would be used for the construction of bunds on the western parcel of land to reduce noise, light and visual impacts from the facility on surrounding land users. The bunds and ponds to be constructed at the western parcel of land would comprise an approximate total of 42,160m^3 of the stockpiled materials, thus resulting in an excess of approximately 83,140m^3 of material being temporarily stockpiled at the eastern land.	Stockpile Location Drawing 419491-MMD-01-MO-DR-C-0142 Stockpile Cross Section Details 419419 MMD-00-MO-SK-C-0028
Temporary Access	Two temporary access points would be required during the construction phase, entrance off Church Road and temporary entrance off A2070. A PROW diversion would be needed for the footpath which runs through the middle of the site (AE639) and also for the footpath that extends to the eastern parcel of land (AE363).	
Vegetation and ecological works	Vegetation clearance and associated ecological mitigation works defined within this report and outlined in the Framework Ecological Management Plan.	Vegetation Clearance Drawing 419419-MMD-01-MO-DR-C-0201 Framework Ecological Management Plan 419419-MMD-XX-SV-RP-BD-0002
Archaeological investigation	Archaeological investigations across the site as defined within this report and outlined in the Written Scheme of Investigation Technical Note.	Written Scheme of Investigation Technical Note 419419-MMD-XX-SV-RP-HE-0001
Main construction works		
Permanent Access	An access and egress road would be created on the northern end of the site off the A2070. An access and egress road would be created on the western side of the site off Church Road. HGVs would enter and exit through the dedicated entrance on the A2070. This would be a new signalised junction, constructed specifically for the use of the site. Staff vehicles would enter the site through a dedicated access on the western side of the Site (Church Road access). The temporary access off the A2070 would be retained as a permanent emergency access. There would be a separate pedestrian gate on the northern perimeter.	Permanent Access General Arrangement Drawing 419419-MMD-01-MO-DR-C-0110-A1
Drainage	Sustainable Drainage System (SuDS) ponds would be constructed, one is proposed in the	The location of the SuDS ponds is shown in General Arrangement

Works	Description of Works	Drawing / Document Reference
	north-eastern corner of the site, two are proposed in the north-western portion of the site, and three along the southern boundary.	Drawing Day 1 419419-MMD-01-MO-SK-C-0028
Development Plot Areas	Hardstanding is proposed to be constructed for access, parking areas and entry lanes, as well as internal road layouts. Staff parking would be constructed in the western portion of the site adjacent to the Church Road access. This would provide 357 spaces. The parking areas for both HGVs and staff parking would be created through the painting of white lines. Works would involve the levelling of the ground and works associated with the development plot areas. The roads would be paved, and the parking would be gravel with a cellular plastic reinforcement (grasscrete).	General Arrangement Drawing Day 1 419419-MMD-01-MO-DR-C-0181 Ground Levelling Plans 419419-MMD-01-MO-M3-C-0007
Lighting/Fencing	Lighting columns are proposed on the site, at 12m height in the lorry parking areas and in the entry lanes, with 8m columns near the staff parking areas. Fencing surrounding the site would be palisade permanent fencing at a height of 2.1m. Acoustic fencing / noise barriers would also be required, to the north of the site (5m in height), the south of the site (a 2m bund with a 3m barrier on top and a 5m barrier where there are no bunds), south-west corner (2m bund plus 3m barrier and a 5m barrier where there are no bunds) and a 4.5m barrier along the access road to the staff car park off Church Road. CCTV is proposed on-site at the entry lanes area and the staff parking area, at 8m high for all CCTV cameras not facing the entry lanes.	Lighting Details are shown on Plan 419419-MMD-01-MO-DR-E-1361 Fencing and Noise Barriers are shown on Drawing 419419-MMD-01-MO-DR-C-0301-A1
Buildings	The following buildings would be required: • Two HMRC Examination Buildings • Two HMRC Inspection Building Office • Two HMRC Marshals Building • Two HMRC Driver Welfare Building • Two HMRC Accommodation Building • DfT / DVSA Office Building • One Control Building *Covering a development plot area of 10,762m^2 (HMRC, BEIS) and 1,106m^2 (DfT).* In terms of site design, it should be noted that the height of any building would not exceed 12m and no building would be erected or extended within 25m of the boundary of the curtilage of any residential dwelling', in accordance with the conditions set out in the SDO.	See General Arrangement Drawing Day 1 419419-MMD-01-MO-DR-C-0181
Landscape	Implementation of landscaping would be undertaken throughout construction and may need to extend into the first year of operation to ensure the mitigation is in place during operation and for the 5-year operational period. Further environmental enhancements have been proposed for implementation following the 5-year period, which are outlined further in Section 2.3.4 below.	Environmental Masterplan Day 1 419491-MMD-01-MO-DR-L-3030

Works	Description of Works	Drawing / Document Reference
Bunds	Four earth bunds would be constructed on the site, ranging from 2-3m height (along the eastern, southern and western sections of the site). Some acoustic fencing would also be provided on top of the bunds, as described previously.	See Earth Bund drawing 419419-MMD-01-MO-DR-C-0603

2.3.2 Day 200 Operation and Works

2.3.2.1 Operation

The following operations would be undertaken on-site by the different Government Bodies in Day 200:

- Defra checks in relation to live animals[2], animal products and food and feed of non-animal origin border control posts (BCP). BCP (operational for Eurotunnel) would be operated by the Port Health Authority. Defra would also use the site to undertake sanitary and phyto-sanitary checks at the BCP designated for consignments from Eurotunnel inbound to the UK.
- Continued HMRC / Border Force operations for Common Transit Convention (CTC) movements (Offices of Departure / Destination) & Admission Temporaire / Temporary Admission (ATA) Carnets, as well as CITES checks on behalf of Defra
- Marshall surveillance activities would be operating on-site to discharge BEIS responsibilities for checking product safety compliance of imported goods, sharing the HMRC / Border Force premises (i.e. office buildings, inspection sheds, staff car park, HGV parking spaces).

On Day 200 a total of 651 HGV spaces would be provided. On completion of DfTs role in border readiness, the northern and southern plots (Plots E and F) would be suspended and would become 'reserved spaces', all temporary infrastructure in these areas would be removed, and the parking spaces in the viewing corridor would also be removed. The operational arrangements for such processes as traffic management, although reduced in numbers, would be expected to remain the same. In readiness for July 2021 operations (or herein after referred to as 'transition period') Defra BCP would be constructed as well as three additional inspection sheds for HMRC / Border Force.

2.3.2.2 Works

Table 2.3 below sets out the physical works associated with the Day 200 scenario; these works would commence within the Day 1-200 period (between month four to six).

Table 2.3 Works Associated with Day 200

Works	Description of works	Drawing / Document Reference
Suspension of parking areas to the north and south of the site	Prior to the day 200 Scenario, the northern and southern plot areas would be suspended, with the removal of the all built infrastructure (excluding lighting columns) within these areas. The hardstanding and drainage within these plots would remain.	See General Arrangement Drawing Day 200 419419-MMD-01-MO-DR-C-0182

[2] In line with Eurotunnel guidance, animals accepted on passenger shuttles include dogs, cats and ferrets (pets or for commercial purposes); rodents, rabbits, birds, invertebrates, amphibians, and reptiles; and domestic equidae (horses, ponies, donkeys and mules).

Works	Description of works	Drawing / Document Reference
Viewing Corridor	Removal of all parking infrastructure, including hardstanding and lighting, within the viewing corridor and implementation of soft landscaping within this corridor.	See Environmental Masterplan Day 200 Details 419491-MMD-01-MO-DR-L-3031
Landscape Works	Implementation of landscaping would be undertaken throughout construction and may need to extend into the first year of operation to ensure the mitigation is in place during operation and for the 5-year operational period. Further environmental enhancements have been proposed for implementation following the 5-year period, which are outlined further below.	See Environmental Masterplan Day 200 Details 419491-MMD-01-MO-DR-L-3031
Buildings	Construction of the following buildings • Defra BCP, containing buildings for plant, produce and live animals. • Three additional HMRC Examination and Inspection Buildings *Covering a development plot area of 10,762m^2 (HMRC, BEIS) 14,546m^2 (Defra) and 582m2 (DVSA).* In terms of site design, it should be noted that the height of any building would not exceed 12m and no building would be erected or extended within 25m of the boundary of the curtilage of any residential dwelling', in accordance with the conditions set out in the SDO.	See General Arrangement Drawing Day 200 419419-MMD-01-MO-DR-C-0182

2.3.3 Security Arrangements (During both Day 1 and Day 200 Scenario)

Approximately 322 staff from Day 1 and 406 staff on Day 200 would be required on the site for the processing of vehicles, marshalling and security purposes. The following security arrangements would be put in place:

- Each site would be manned by staff provided by a chosen security company.
- The security staff that are present on-site would be part of a basic command structure on-site which involves senior marshals and a site supervisor or duty manager.
- Access and egress for the site would be controlled using security measures which would be outlined in the Operational Management Plan (OMP) (to be submitted as a subsequent site approval).
- Security marshals would deal with incidents as they occur on-site.
- Some security staff would be required to take on Traffic Management Roles, and Fire Marshall Roles separate from a security role.
- Some security staff would also be trained in dealing with spillages separate from a security role.
- Combined spill kits and fire extinguishers would be available at regular intervals across the site and regular inspections of parked vehicles would be carried out.

- The use of land for repairs to goods vehicles (examining the vehicle on land) would not take place other than to enable a vehicle to leave the site or to be assisted to the site.

Table 2.4 sets out a summary of the Day 1 and Day 200 scenarios.

Table 2.4 Summary table of Day 1 and Day 200 scenarios

	Day 1	Day 200
Government body on-site	DfT, HMRC, Border Force, Trading Standards, DVSA, BEIS	HMRC, Border Force, Defra (PHA operating BCP), BEIS, Trading Standards
HGV Parking Spaces	1,272 (plus 286 in entry lanes)	651 (plus 286 in entry lanes)
Staff Parking Spaces	357	357
Building Requirements	• Two HMRC Examination Buildings • Two HMRC Inspection Building Offices • Two HMRC Marshals Building • Two HMRC Driver Welfare Building • Two HMRC Office Buildings • 1 x DfT / DVSA Office Building • 1 x Control Building *Covering a development plot area of 10,762m^2 (HMRC) and 1,106m^2 (DfT/DVSA)*	• 1 x DVSA Office Building • Five HMRC Examination Buildings • Five HMRC Inspection Building • Two HMRC Marshals Building • Two HMRC Driver Welfare Building • Two HMRC Office Buildings • 1 x Control Building • Defra Border Control Post with buildings for plant, produce and live animals *Covering a development plot area of 10,762m^2 (HMRC) 14,546m^2 (Defra) and 582m^2 (DVSA)*

2.3.4 Reinstatement Works

Further environmental enhancements have been proposed for implementation following the 5-year period, which are outlined further below. All operations on the site would cease by 31 December 2025. A Reinstatement Plan would be submitted by 30 June 2025 which would set out the reinstatement of the site following the five-year operation of the site.

In this case, the reinstatement would not encompass the complete reinstatement of the site to its former use. The reinstatement would involve the removal of all built infrastructure on the site as permitted under Article 3(1) of the SDO, including all buildings, cabins, fencing (including acoustic and security fencing) and lighting. The only elements that would be retained on the site would be the development hardstanding plot areas, the drainage system, including all SuDS ponds, and the landscaping, including all bunds.

A Long-Term Enhancement Plan (drawing ref: 419491-MMD-01-MO-DR-L-3024) is submitted with the Article 4 submission. This plan shows the retainment of the landscape planting on the non-operational areas of the site which outlines the framework for reinstatement, providing a green framework and ensuring habitat connectivity in the long-term. The plan also identifies proposals for additional environmental enhancements that could be implemented on the site once the operational of the site ceases, and primarily when public access to a wider area of the site can be made available. The proposals include integration of trails for the public use and information boards to highlight the significance of the surrounding heritage assets and how the planting supports a range of biodiversity across the site.

A Reinstatement Plan would be submitted under Schedule 2 (Conditions) Part 4 (Reinstatement) for approval, which would further detail and develop the environmental enhancement proposals included in the Long-Term Enhancement Plan (drawing ref: 419491-

MMD-01-MO-DR-L-3024). This would be subject to further consultation with stakeholders including Ashford Borough Council and the local communities. The Landscape and Ecological Management plan (LEMP) (document ref: 419419-MMD-XX-SV-RP-L-0001) that has been submitted with the Article 4 submission provides the management and maintenance functions for the first five-years. The LEMP would need to be updated for the remaining ten-years when the Reinstatement Plan is submitted in detail.

2.4 Transport Assessment

A Transport Assessment has been prepared to assess the impact on the transport network of the scheme. The scheme would serve inbound and outbound HGVs and would operate in two phases. On opening (Day 1), the scheme would have a capacity for up to 1,272 HGV parking spaces, plus 286 spaces in entry lanes. After six months (Day 200), the scheme operation would be significantly reduced, and the HGV spaces would also reduce to 651, plus 286 in entry lanes. Throughout the scheme operation, there would be 357 staff parking spaces. The Transport Assessment predicts that, during the first six months of operation, the scheme would generate a maximum of 114 inbound HGVs and 268 outbound HGVs accessing and egressing from the site every hour. After this, HGV numbers would decrease. Modelling has assumed up to 183 staff vehicle movements in and out of the site would take place during key staff changeover periods throughout the life of the scheme.

Strategic traffic modelling has been undertaken to assess the impact of the scheme on the Strategic Road Network (SRN) (for disruption and non-disruption days), local junction modelling for seven key junctions between the M20 and the site access, as well as microsimulation modelling for the site itself to confirm that as HGVs enter the site there would be no 'blocking back' of queues onto the public highway.

For the first six months of operation, DfT would predominantly use the site to manage disruption caused by HGVs heading out of the UK via the Port of Dover or Eurotunnel which are not border ready, but could also be use the site to hold HGVs as part of Kent Traffic Management plans, along with HMRC who will be processing inbound and outbound HGV's. It has been assumed all HGVs would be required to travel through the Quick Moveable Barrier phase of Operation Brock on M20 (Operation Brock allows the storage of 2,100 HGVs on the M20 between Junction 8 and 9). After six months (from Day 200), HMRC would use the site to process inbound and outbound HGVs with Defra using the site to process inbound HGVs. Border readiness disruption is not expected to occur after six months and therefore the DfT would not require use of the site and Operation Brock would not be required on the M20.

In addition to assessing both 'disruption days' and 'non-disruption days' two demand scenarios have been considered; a Maximum Operating Capacity scenario and a Realistic Case scenario. The Maximum Operating Capacity scenario ensures a robust assessment of the impact of the site based on maximum possible HGV movements. The Realistic Case is based on HMRC profiled ferry crossing data and the number of HGVs expected to visit the site, with the numbers refined to reflect the total expected demand and the profile of vehicle arrivals and departures at the ports and the journey time between the ports and the site. The Realistic Case scenario represents the more likely impact on the site on the highway network. The total number of outbound HGVs visiting the site does not change on disruption days as any reduction in HMRC related HGV results in an equivalent increase in DfT HGVs.

The strategic modelling results indicate that key impacts are broadly similar across the two scenarios (Maximum Operating Capacity scenario and Realistic Case scenario) and for the first six months and beyond six months of site operation (disruption and non-disruption days). An increase of approximately 650-700 vehicles per hour (two-way) is forecast for the main access

route between the M20 and the site along the A2070 Link Road for the first six months of operation (disruption days). There are also small forecast changes in flow on the M20 both east and west of the site to reflect DfT operations sending HGVs back to their depot (rather than onto the ports) if not 'border ready'. After six months the forecast increase on the A2070 reduces to 500 or less per hour (two-way). Small levels of re-routing of local 'existing' traffic are forecast across all scenarios equating to approximately 100 two-way vehicles or less in the average hour on any single route. The forecast impacts of the operation of the site are predicted to be localised to Ashford.

Local junction modelling has been undertaken to assess the impact of the forecast numbers and routings of HGVs and staff trips at seven junctions on the road network between the Strategic Road Network (M20 motorway) and the site via the A2070 Link Road and A2070 Bad Munstereifel Road. Modelling has been undertaken for both 2021 and 2025, for both baseline and operational scenarios. As the traffic demand data used for the junction assessments is based on the 2020 traffic surveys, an uplift has been applied to account for any traffic increases associated with background traffic. The factors used to uplift the flows have been derived at Local Authority Level from TEMPro to take cognisance of local development. The 2021 modelling is based on the disruption scenario, while the 2025 modelling is based on the non-disruption scenario.

In both 2021 and 2025, the junctions are all predicted to operate within capacity for the baseline and operational scenarios. The assessment undertaken presents a robust assessment of the traffic generated by the site because it is based on the Maximum Operating Capacity scenario for the first six months of operation.

It should be noted that the 2025 local junction modelling has considered the proposed signalisation of the existing A2070 Orbital Park roundabout and indicates the scheme could accommodate the Maximum Operating Capacity scenario once operational. However, the programme for construction for this signalisation is currently unknown. This could present challenges if the construction of this signalisation is commenced during operation of the scheme, especially during the first six months of operation when traffic flows associated with the scheme are at their highest. The proposed signalisation would remove the u-turn from A2070 Bad Munstereifel Road westbound to the A2070 Bad Munstereifel Road eastbound which would be used by staff exiting the site requiring destinations accessed via the route to the M20 motorway. The signalisation of the A2070 Bad Munstereifel Road/Church Road junction has therefore been tested which would allow staff to turn right out of Church Road. The modelling of a signalised version of the Church Road junction (if required) indicates it would operate within capacity in the Maximum Operating Capacity scenario. The programme for construction for the Orbital Park signalisation is currently unknown and could present challenges for staff if the construction is commenced during operation of the scheme. At the time of writing, discussions are ongoing with Highways England to understand phasing of the works.

VISSIM micro-simulation modelling has been undertaken to confirm that the internal site layout has sufficient capacity to cater for the expected demand from HGVs based on the worst-case Maximum Operating Capacity scenario for the first six months of site operation. The results show that queues of HGVs can be managed within the site using the 42 proposed 'entry lanes' which are predicted to be sufficient for the expected arrivals of HGVs.

To mitigate impacts and support the operation of the site, an OMP will be developed as required under Schedule 2 Conditions of *The Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020.* The aim of the OMP is to provide a comprehensive operational plan for the site and to deliver policies and procedures allowing for its safe operation. The document would contain a Traffic Management Plan,

Signage Strategy and Staff Travel Plan. Further details are included in the Transport Assessment in Appendix B.

2.5 Stakeholder Engagement

An extensive desk-based stakeholder identification and mapping exercise has been conducted to ensure all relevant stakeholders were identified and engaged prior to the planning consents being approved. Key environmental stakeholders, including the Statutory Environmental Bodies (SEBs) (Natural England, the Environment Agency and Historic England), have been engaged about the scheme proposals. A summary of this engagement is found in Table 2.5 below. Full details of the engagement undertaken can be found in the *Sevington Inland Border Facility Stakeholder Engagement Report* (document ref: 419419-MMD-XX-SV-RP-Z-0001).

Table 2.5 Summary of SEB Engagement

Organisation	Start and end of engagement period	Total period of engagement	Information provided	Date information provided
Historic England	Initial engagement: 20/07/2020 Start of formal engagement: 13/10/2020 End of formal engagement: 27/10/2020	Informal engagement 85 days Formal engagement 14 days	Technical document – site layout	20/07/2020
			Meeting – discussions regarding operational management, parameter of the development, viewing corridor, existing consent and section 106	30/07/2020
			Technical document – drawing of the viewing corridor from St. Marys Church.	31/07/2020
			Introductory meeting – summary construction and operational plans	10/08/2020
			Red Line Boundary	10/08/2020
			Meeting – discussions regarding heritage and archaeology	10/08/2020
			Meeting – discussions regarding understanding of site, sect 106, landscaping / environmental mitigation, SDO process and lighting	13/08/2020
			Meeting – discussions regarding environment, section 106 and engagement	06/10/2020
			Notification of engagement period	13/10/2020
			Site General Arrangement Drawings	13/10/2020
			Meeting – environmental findings and Section 106	14/10/2020
			Engagement period reminder	20/10/2020
			Updated General Arrangement Drawings	20/10/2020
Natural England	Initial engagement: 13/08/2020 Start of formal engagement: 13/10/2020 End of formal	Informal engagement 61 days Formal engagement 14 days	Technical document – method statement and works Schedule	13/08/2020
			Technical document – application form and charge screening form	13/08/2020
			Technical document – Reasoned statement and supporting documents to include: Her Majesty's Revenue and Customs site sifting report and Sevington Inland Border Facility supporting document	13/08/2020

Organisation	Start and end of engagement period	Total period of engagement	Information provided	Date information provided
	engagement: 27/10/2020		Technical document – plans showing site detail	13/08/2020
			Notification of engagement period	13/10/2020
			Site General Arrangement Drawings	13/10/2020
			Meeting – Air quality, Stodmarsh Report and Engagement	13/10/2020
			Engagement period reminder	20/10/2020
			Updated General Arrangement Drawings	20/10/2020
			Wastewater Strategy	21/10/2020
The Environment Agency	Initial engagement: 30/07/2020 Start of formal engagement: 13/10/2020 End of formal engagement: 27/10/2020	Informal engagement 79 days Formal engagement 14 days	Meeting – discussion regarding drainage and operations on site	30/07/2020
			Technical document – map provided of bund locations and water courses.	04/08/2020
			Meeting – discussion regarding community engagement, ground water & contaminated land, management, flood risk, site management and fisheries, biodiversity & geomorphology	13/08/2020
			Meeting – fire plans overview	18/08/2020
			Meeting – discussion regarding drainage, wastewater and management of materials	27/08/2020
			Meeting – discussion regarding fire safety, wastewater and management of materials	10/09/2020
			Meeting – design principles	10/09/2020
			Meeting – discussion regarding drainage, wastewater and management of materials	28/09/2020
			Meeting – draft of Flood Risk Assessment and Pollution Prevention Strategy	28/09/2020
			Meeting – draft operation and maintenance manual	02/10/2020
			Meeting – discussion regarding OMP	12/10/2020
			Notification of engagement period	13/10/2020
			Site General Arrangement Drawings	13/10/2020
			Meeting – draft of Flood Risk Assessment and Pollution Prevention Strategy	14/10/2020
			Meeting – review of SDO documents	19/10/2020
			Engagement period reminder	20/10/2020
			Updated General Arrangement Drawings	20/10/2020

3 Environmental Effects

3.1 Assessment Methodology

This chapter considers each environmental discipline in turn, describing the environmental baseline and providing an analysis of the likely environmental effects of the scheme, including those that are potentially significant. The consideration of effects for each environmental discipline has broadly followed the assessment methodology outlined in the Sustainability and Environmental Sections of the Design Manual for Roads and Bridges (DMRB). In addition, this has been supplemented by further guidance where appropriate in order to provide a more robust assessment of the effects. Further information on the guidance used for each environmental discipline is outlined in Sections 3.2 to 3.14 below.

The environmental constraints and receptors within the vicinity of the site are shown on the Environmental Constraints Plan in Appendix A. The environmental commitments including the management and mitigation requirements identified within this chapter are summarised within the Record of Environmental Actions and Commitments (REAC) in Appendix C. The REAC identifies which of those measures are required in order to prevent what would otherwise have been significant environmental effects. All of the measures would be incorporated into a Construction Management Plan (CMP) and OMP which would be adhered to by the Principal Contractor Principal Operator on-site during the construction and operation reinstatement respectively. The CMP contains the relevant environmental actions usually contained within a Construction Environmental Management Plan but for the purpose of this scheme is referred to as a CMP. In addition, a Reinstatement Plan is to be produced by the Principal Operator prior to the reinstatement of the site. This Reinstatement Plan would include the measures outlined within the REAC for the contractor responsible for the reinstatement to adhere to, hereafter referred to as the 'Reinstatement Contractor'. The Reinstatement Plan would also be developed taking into consideration and further developing the environmental enhancements which have been proposed in the Long-Term Enhancement Plan (drawing ref: 419419-MMD-01-MO-DR-L-3032). The CMP, OMP, and Reinstatement Plan are required under Schedule 2 Conditions of The Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020.

3.1.1 Key assumptions and limitations

The assessment has been undertaken in accordance with the scheme description outlined in Section 2.3. In addition, as outlined in Section 2.2, it is understood that development on-site has commenced under Phase 1A of the Stour Park Development planning permission (14/00906/AS). However, for the purpose of this assessment, the baseline has been assumed as being prior to the implementation of the Stour Park Development planning permission. This enables the assessment presented within this report to consider the worst-case scenario with regards to the amount of change, and captures all environmental effects associated with all elements of the scheme. As such, the construction phase within this assessment has been considered as six months in order to capture the construction works that have already commenced under the Stour Park Development in July 2020.

For the purposes of the air quality, noise and climate assessments, the traffic data for the Maximum Operating Scenario has been used. Refer to the summary of the Transport Assessment in Section 2.4 above and the full Transport Assessment in Appendix B for further details. This has considered two scenarios, a 'disruption scenario' and a 'non-disruption'

scenario. The disruption scenario is representative of the Day 1 to Day 200 operation of the scheme, i.e. the first six months, and the non-disruption scenario is representative of the Post-Day 200 operation of the scheme, i.e. the remaining 4.5 years. The two scenarios are:

- Scenario 1: With disruption
  - Do-Minimum traffic flows with disruption caused by the Quick Moveable Barrier (QMB) and an extended (by distance) Operation Traffic Access Protocol (TAP). These traffic management measures form part of Operation Brock.
  - Do-Something
    - Traffic flows with disruption caused by the Quick Moveable Barrier (QMB) and an extended (by distance) Operation TAP
    - Traffic flows associated with rerouting of HGVs heading into and out of the UK to the scheme
  - 549 staff movements per day (i.e. 1098 two-way movements)
- Scenario 2: No disruption
  - Do-Minimum traffic flows
  - Traffic flows associated with rerouting of HGVs heading into and out of the UK to the scheme
  - 549 staff movements per day (i.e. 1098 two-way movements)

Additional HGV movements associated with removal of wastewater from the site have not been explicitly included within the traffic model. It is expected that the number of additional movements would be 2-4 per day, on the basis that the current assessment for air quality, noise and climate assumes a Maximum Operating Scenario, which is 100% capacity of the site every day of the year, the environmental assessment is already conservative. Therefore, the additional movements would not likely result in the current traffic flows which have formed the basis of assessment being exceeded on an annual basis.

3.2 Air Quality

In addition to *DMRB LA 105*[3], the assessment of air quality was assisted by the Defra's *Local Air Quality Management Technical Guidance (TG16).*

The study area for this environmental discipline is 200m from the site and the affected road network (ARN). In line with *DMRB LA 105*, the extent of the study area has been limited to within 200m of roads where a change in more than 200 heavy duty vehicle (HDV[4]) traffic movements is anticipated, and sensitive receptors are located.

There are approximately 40 residential properties and farms within 200m of the scheme. The closest residential properties are located along Church Road adjacent to the south of the site. In addition, there are multiple human health receptors located within 200m of the ARN as outlined in the Air Quality Impact Assessment (Appendix D). Ambient air quality monitoring undertaken in areas adjacent to affected roads where the scheme is anticipated to increase HDV movements is presented in the Air Quality Impact Assessment (Appendix D). Annual mean NO_2 concentrations in 2019 (the most recent full year of monitoring available) demonstrates that there are no recorded exceedances of the annual mean NO_2 objective at any of the presented monitoring locations.

[3] DMRB (2019) *LA 105 Air Quality*. Available at: https://standardsforhighways.co.uk/dmrb/search/10191621-07df-44a3-892e-c1d5c7a28d90

[4] HDV refers to any vehicle with a weight above 3.5 tonnes and is the definition used within DMRB LA105

No Air Quality Management Areas (AQMAs) have been declared by Ashford Borough Council. However, there are expected to be increases in HDVs flows on the A20 through the Dover District Council (DDC) 'A20 AQMA' and on the M20 through the 'Maidstone Borough AQMA', both declared for exceedances of the annual mean NO_2 air quality objective.

There are eight ecological sites with statutory status, within 200m of the ARN as follows:

- North Downs Woodland Special Area of Conservation (SAC)
- Folkestone to Etchinghill Escarpment SAC
- Wouldham to Detling Escarpment Site of Special Scientific Interest (SSSI)
- Seabrook Stream SSSI
- Hatch Park SSSI
- Folkestone Warren SSSI
- Ashford Green Corridor Local Nature Reserve (LNR)
- Western Heights LNR

These sites have been considered in the Air Quality Impact Assessment (Appendix D).

Construction: In line with *DMRB LA 105*, the impact of construction activities on vehicles movements require assessment where construction activities are programmed to last for more than two years. Where construction activities are less than two years, it is unlikely that the construction activities would result in a significant air quality effect. In addition, construction traffic movements are anticipated to be approximately 220 HGV movements per day for a maximum of six months and therefore likely be lower than the assessment threshold of 200HDV[5] movements per day on an annual average daily traffic (AADT) basis. Given that the construction period would be relatively short (maximum of six months), and the likely number of construction traffic movements would not meet the assessment threshold, emission associated with construction traffic are not anticipated to cause a significant air quality effect.

Furthermore, there is potential for the creation of dust from the construction activities which could cause a potential nuisance to nearby residential properties. In addition, there is also the potential for wind-blown dust from the presence of the temporary stockpiling on the eastern side of the site. However, it is not anticipated that this would result in a significant effect. Nonetheless, the implementation of best practice construction methods to control dust such as ensuring that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed and seeding of the stockpiles, would be implemented onsite to reduce the creation of dust during the construction phase. Such best practice measures are outlined in the REAC (AQ1) in Appendix C and would be included within the CMP, which would be adhered to and implemented by the Principal Contractor. Overall, no significant air quality effects are anticipated during construction of the scheme.

Operation: The potential impacts on air quality from an increase in oxides of nitrogen and particulate matter at the human health (residential properties) and ecological receptors has been modelled for both scenarios outlined in Section 3.1.1 above. The results are presented within the Air Quality Impact Assessment (Appendix D). This assessment found that at all modelled human health receptors, the resultant concentrations would be either below the relevant air quality objective or the difference in concentration is less than 1% of the relevant air quality objective. As such, it is concluded that there would be no significant air quality effects on human health receptors. Additionally, the results indicate that the scheme would not be predicted to cause any new exceedances of the critical level or a change in nitrogen deposition

[5] An HDV is any vehicle with a gross weight greater than 3.5 tonnes.

greater than 1% of the relevant minimum critical load at any of the modelled ecological transects. As such, no significant effects on ecological receptors as a result of changes in air quality are anticipated. Therefore, the assessment has concluded that the operation of the scheme would be unlikely to cause a significant air quality effect in accordance with the DMRB. In addition, the assessment concluded that the scheme would have a low risk of causing non-compliance with the *Air Quality Directive*[6] and would not contravene relevant planning policy related to air quality.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially different effects than the construction of the scheme as the temporary infrastructure would be removed from the site and the hardstanding and drainage retained. Therefore, no significant air quality effects are anticipated during the reinstatement phase. Nonetheless, the implementation of best practice construction measures such as ensuring that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed would be implemented onsite to reduce the creation of dust and potential nuisance to nearby residential receptors. These methods are outlined in the REAC (AQ1) in Appendix C and would be included within the Reinstatement Plan, to be prepared and agreed six months prior to the reinstatement of the site.

3.3 Cultural Heritage

DMRB LA 106[7] has provided the assessment framework for cultural heritage. This has been supplemented by guidance from Historic England and the Chartered Institute for Archaeologists. This is outlined in the Cultural Heritage Assessment in Appendix E that has been undertaken to support this report.

The study area for this environmental discipline is 1.5km from the site for designated heritage assets, and 500m from the site for non-designated assets.

There are no designated heritage assets within the site. There are 100 designated heritage assets within the 1.5km study area, this includes four Grade I listed buildings, five Grade II* listed buildings, 91 Grade II listed buildings, two Scheduled Monuments, one Grade II registered park and garden, and two Conservation Areas. These are outlined in detail in Appendix A of the Cultural Heritage Assessment in Appendix E.

There is one Grade I listed building, Church of St Mary (NHLE: 123390, MM002) located approximately 30m west of the site. It has a significant visual relationship with the Church of St John the Baptist (National Heritage List for England (NHLE): 1276693, MM003) in Mersham, which is also Grade I listed. The Church of St Mary has a significant visual relationship with the Church of St John the Baptist in Mersham. Visibility between the spires of the two churches is maintained on the route of the public footpath that runs across the site (termed as the viewing corridor). This contributes to the value of both churches as it maintains the historic relationship between the contemporary churches of neighbouring parishes.

Within 200m of the south and south-western edge of the site are seven Grade II listed buildings clustered along Church Road, associated with the historic village of Sevington:

- Court Lodge (NHLE: 1276463, MM067)
- Barn About 20 Metres South East of Court Lodge (NHLE: 1276464, MM068)
- Ashdown Cottage (NHLE: 1233932, MM049)

[6] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

[7] Highways England (2020) *DMRB Sustainability and Environment Appraisal LA 106 Cultural heritage assessment*. Available at: https://standardsforhighways.co.uk/dmrb/search/8c51c51b-579b-405b-b583-9b584e996c80

- Orchard Cottage (NHLE: 1233763, MM046)
- Maytree Cottages (NHLE: 1233936, MM050)
- Bridge Cottage (NHLE: 1233764, MM047)
- Imber (NHLE: 1233971, MM051)

In addition, there are a collection of Grade II listed buildings along Kingsford Street situated north of the site:

- Kingsford Hall (NHLE: 1233751, MM040)
- Barn/Garage About 20 Metres West of Redbur (NHLE: 1233753, MM041)
- Redbur (NHLE: 1276462, MM066), Ransley Cottage (NHLE: 1233755, MM042)
- Swanton Court (NHLE: 1233765, MM048) and Longthorne Farmhouse (NHLE: 1276460, MM065)

Further details of the designated heritage assets within the study area are detailed in the Cultural Heritage Assessment in Appendix E.

Mersham Conservation Area is in the north of the settlement and the group of listed buildings surrounding Mersham Manor (MM001) and the Church of St John (MM003) is to the south. Hatch Park,[8] a Grade II registered park and garden (NHLE: 10021291, MM062) is located 390m north-west of the site at its closest point.

There are various non-designated heritage assets that have been recorded within the site, including the Royal Observer Corps underground monitoring post (HER: TR04SW126, MM110). Full details and their locations, and the archaeological potential of the site are outlined in the Cultural Heritage Assessment (Appendix E).

Construction: The full assessment of the effects upon heritage assets during construction is provided in Appendix E. In summary, there would be no direct impacts on any heritage assets as a result of the construction of the scheme. However, it is likely that the visual changes caused by construction plant, machinery and construction activities on the site, including within the viewing corridor for the Church of St Mary, would result in temporary changes to the setting of nearby heritage assets, including the Grade I listed Church of St Mary adjacent to the site, the collection of Grade II listed buildings along Church road to the south of the site, the collection of Grade II listed buildings along Kingsford Street to the east of the site, heritage assets within Mersham to the east of the site, and Loud House to the south-east of the site. The introduction of construction noise into the setting of the Church would disrupt the semi-rural setting and designed peacefulness of the churchyard. However, due to the existing noise from the M20 and the commercial and light industrial units on the edge of Ashford, HS1 and the A2070 Bad Munstereifel road, impacts to these heritage assets during construction are considered to be minor, with effects not considered to be significant. Further details are within the Cultural Heritage Assessment (Appendix E).

No excavation is proposed within the field east of Highfield Lane and therefore archaeology would not be removed. This area would be used temporarily for stockpiling material, however it is not anticipated that there would be any impacts to archaeology as it is unlikely that there would be any waterlogged or other sensitive archaeological features which could be impacted through compaction. Therefore, no significant effects on buried archaeology are anticipated on this portion of the site. However, construction would result in the removal or truncation of buried archaeology within the footprint of the scheme. As such, archaeological investigation would be undertaken during the construction phase where excavations are required. This would allow for

[8] Historic England (2020) *Hatch park*. Via: https://historicengland.org.uk/listing/the-list/list-entry/1001291 (accessed September 2020)

remains present to be recorded and interpreted to mitigate this impact. The archaeological investigation would be in accordance with the Written Scheme of Investigation (WSI) produced for the Stour Park Development. The application of the WSIs to the scheme and the suitability of this application is outlined in a Written Scheme of Investigation Covering Technical Note (document ref: 419419-MMD-XX-SV-RP-HE-001). The methodology applied in the WSIs has been extended, where required, to cover the area which is used for the scheme but did not form part of the Stour Park Development in consultation with the Kent County Council Archaeologist. This enhanced understanding of the remains reduces the harm created by their loss. As such, this programme of archaeological investigation would therefore prevent a significant adverse effect on buried archaeology. The details of this are outlined in the REAC (CH1) in Appendix C, and the requirements would be incorporated into the CMP adhered to and implemented by the Principal Contractor. The Royal Observer Corps monitoring post would be avoided during construction and as such would not experience any impacts. Overall, there are not anticipated to be any significant effects on heritage assets as a result of the construction of the scheme. Further details of the construction effects on non-designated heritage assets are detailed in the Cultural Heritage Assessment in Appendix E.

Operation: The full assessment of the effects upon heritage assets during operation is provided in Appendix E. In summary, the presence and operation of the scheme would result in a temporary change in setting to heritage assets, including the Grade I listed Church of St Mary, the collection of Grade II listed buildings along Church road, the collection of Grade II listed buildings along Kingsford Street, heritage assets within Mersham, and Loud House, through the introduction of the built infrastructure including hardstanding, buildings and lighting and potential increases in noise. The Church of St Mary would experience the greatest impact during the initial operational phase of the facility when the view line between the Church of St Mary and the Church of St John would be temporarily filled with parking spaces. This impact would vary throughout the Day 1 – Day 200 period dependent on the extent to which the parking bays are filled at any one time. Although the view would be impeded, reducing the ability to understand the relationship between the two churches, some intervisibility between the spires would remain. Therefore, the ability to appreciate some of this historic context would be retained. This impact would be temporary and as such would not result in a significant effect. After 200 days, the viewing corridor would not be used for HGV parking and would be constructed in accordance with the Day 200 General Arrangement Plan (drawing ref: 419419-MMD-01-MO-SK-C-0029) which includes planting used to draw attention to this viewing corridor.

The landscape design as shown in the Day 1 and Day 200 Environmental Masterplan (drawing ref: 419419-MMD-01-MO-DR-L-3030 and drawing ref: 419419-MMD-01-MO-DR-L-3031) would provide mitigation to the setting of heritage assets by softening the visual impact of the scheme. This mitigation is outlined in more detail in the Cultural Heritage Assessment in Appendix E, and includes retention of hedgerows and mature tree lines, woodland understorey planting, landscaping bunds, and planting within the SuDS ponds. This coupled with the integration of noise barriers within the design would ensure that there would be no significant effects on heritage assets as a result of the operation of the scheme. No impacts are anticipated on archaeology during the operation of the scheme.

Overall, given the temporary nature of the operation (maximum of five years) there are not anticipated to be any significant effects on heritage assets. Further details are provided in the Cultural Heritage Assessment in Appendix E.

Reinstatement: The reinstatement phase of the scheme is not anticipated to result in any new or materially different effects than those anticipated during the construction of the scheme as the site would have all temporary structures removed. The effects would likely be reduced

compared to that during the construction phase as the scale of works for reinstatement would be smaller. This is due to the retention of the hardstanding plots on-site and as such the reinstatement would only include the removal of associated infrastructure, such as the dismantling and removal of buildings, lighting and acoustic barriers. By this time the planting on-site would have further established, and along with the presence of the landscape bunds which would remain in situ would aid screening to the reinstatement works. As such, no significant effects are anticipated on designated and non-designated heritage assets upon reinstatement of the site.

Following the removal of infrastructure on the site, including buildings and lighting, permanent impacts would remain in the post-five-year consent period. This includes the loss of agricultural land within the site which contributes to the setting of the heritage assets, particularly the Church of St Mary, and the retention of the hardstanding. However, the retention of landscaping bunds and planting would soften the impact of the hardstanding, along with the proposed introduction of information boards and reintroduction of trails through the area, as outlined in the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032) and included within the REAC (CH3) in Appendix C. The inclusion of landscaping and information boards would provide an enhancement on-site by resulting in a greater understanding of heritage assets around the site, particularly the Church of St Mary and the Royal Observer Corps Post. Further details are included in the Cultural Heritage Assessment in Appendix E.

3.4 Landscape and Visual Effects

DMRB LA 107[9] has provided the assessment framework for landscape and visual effects, which aligns with the *Guidelines for Landscape and Visual Impact Assessment 3* produced by the Landscape Institute and Institute of Environmental Management and Assessment (IEMA), third edition, 2013. Appendix F presents the Landscape and Visual Impact Assessment which has been undertaken to support this report.

Good practice indicates that a study area should extend to contain all areas in which visual impacts have the potential to occur based on topographical indications only. This is known as the Zone of Theoretical Visibility (ZTV). This is shown in the of the Landscape and Visual Assessment (Appendix F) and covers an area of 1km from the scheme boundary.

The scheme is not located within a National Park or Area of Outstanding Natural Beauty (AONB). The nearest AONB is the Kent Downs AONB, which is located approximately 2.6km north of the site. There are three Conservation Areas within the study area; one in the north at Willesborough Lees, one at Lacton Green in the north east of the study area and one covering the village of Mersham in the south. The local landscape character is a mixture of residential, commercial and agricultural land use as described in Section 2.2. The site is located within Natural England's National Landscape Character Area (LCA) 120 Wealden Greensand. Five Landscape Character Areas (LCAs) cover the study area as shown on the Landscape Character Plan in the Landscape and Visual Impact Assessment (Appendix F):

- LCA 1 Ashford Urban Centre
- LCA 2 Mersham Farmland
- LCA 3 Upper Stour Valley
- LCA 4 Mersham Village
- LCA 5 Brabourne Lees Mixed Farmland

[9] Highways England (2020) DMRB *Sustainability and Environment Appraisal LA 107 Landscape and visual effects*. Available at: https://standardsforhighways.co.uk/dmrb/search/bc8a371f-2443-4761-af5d-f37d632c5734

The site itself lies within LCA 2 Mersham Farmlands and has historically been part of a long standing rural agricultural landscape. Further information on the landscape character baseline can be found in the Landscape and Visual Impact Assessment in Appendix F.

A number of visual receptors have been identified within the study area and included in the assessment. Of the 18 receptors identified as part of the assessment, the majority of receptors are located within 500m of the site, with several high sensitivity residential receptors neighbouring the periphery of the site, and PROW AE639 traversing the site itself from north west to south east. The visual receptors include:

1. PROW AE639 also representative of views from Court Lodge
2. Representative of the Church of St Mary
3. PROW crossing A2070 footbridge leading to the Church of St Mary
4. Residential properties on eastern edge of Ashford (Willesborough)
5. PROW AU534 representative of views from residential properties along the A20
6. PROW AE639
7. Representative of residential properties on Kingsford Street (western end)
8. Representative of residential properties on Kingsford Street (eastern end)
9. Properties on Blind Lane, Mersham
10. PROW AE363, off Blind Lane, Mersham
11. PROW AE365 off Church Road, Mersham
12. Hillcrest residential property off Blind Lane, Mersham
13. Properties on Cheeseman's Green Lane
14. Collier's Hill PROW AE401, east of Cheeseman's Green
15. Waterbrook Avenue junction between PROW AE667A and AE350
16. Representative of residential receptors May Tree Cottage and Bridge Cottage adjacent to junction of Church Road / Highfield Lane and Cheeseman's Green Lane
17. Representative of residential properties on Church Road
18. PROW AE138 at Devils' Kneading Trough, representative of elevated views from within Kent Downs AONB

Further information on the baseline views from these visual receptors is given in the Visual Impact Schedules and are shown on the Visual Receptor Plan in the Landscape and Visual Impact Assessment in Appendix F.

Construction: The full assessment upon landscape and visual receptors during construction is provided in Appendix F. During construction, there is potential for adverse effects on landscape character due to the presence of construction activities, which would bring new features into the landscape that would be at odds with the current agricultural landscape but set in the context of adjacent large-scale infrastructure. There would also be temporary stockpiling of earth on land to the eastern side of Highfield Lane. Only one of the five LCAs (LCA 2 Mersham Farmlands) assessed would be directly affected as a result of the construction of the scheme. However, given the presence of detracting features within the LCA and the limited impacts on the wider context of the LCA, the effects on the LCA during construction are not anticipated to be significant. In addition, the effects on the remaining four LCAs are also not anticipated to be significant during construction. Nonetheless, best practice measures would be implemented to reduce non-significant adverse effects. This includes ensuring stockpiles are seeded and kept to a maximum height of 2m and located as far away from residential receptors as possible, ensuring task lighting is kept to a minimum and is directional, and ensuring the site is well-

managed and tidy, with construction materials delivered on an as and when needed basis to reduce material stockpiles on-site. These measures are outlined in the REAC (LVE1, LVE2, LVE3, and LVE4) Appendix C. These measures would be carried through to the CMP that would be adhered to and implemented by the Principal Contractor.

The construction period would see the introduction of discordant features in views towards the site for a number of nearby receptors, including near distance views for properties neighbouring the scheme such as those on Church Road, Court Lodge and PROW AE639 immediately adjoining the site. Of the 18 receptors identified above, five receptors would be subject to changes in the immediate foreground of their view and the effects would be difficult to fully mitigate during the construction period. However, given the short duration and temporary nature of construction (maximum six months), the effects are not considered to be significant for these visual receptors. In order to aid visual screening and landscape integration any landscape bunds should be created early in the construction period and should be seeded as a priority to 'green up' earthworks. Planting would be implemented at the earliest opportunity to aid the integration of the scheme with the surrounding landscape. These measures are outlined in the REAC (LVE1) Appendix C, and would be carried through to the CMP that would be adhered to and implemented by the Principal Contractor.

Operation: The full assessment upon landscape and visual receptors during operation is provided in Appendix F. In summary, there is potential for adverse effects on the local character of the area due to the presence of infrastructure including buildings, cabins, fencing and lighting and HGVs within the site. Only one of the five LCAs (LCA 2 Mersham Farmlands) would be directly affected by the scheme, as these new features would be a distinct change from the existing landscape with notable development in a previously arable scene, albeit with detracting features in the immediate area. Whilst these features would appear discordant within the LCA as a whole, the detracting features are not uncommon within this part of the LCA, with the presence of the A2070, A20, M20 and associated junctions next to the site. Given the scale of the change to the LCA as a whole and following the implementation of the landscape design included in the Environmental Masterplan (419491-MMD-01-MO-DR-L-3022 and 419491-MMD-01-MO-DR-L-3023) (and LVE5 in the REAC in Appendix C), no significant adverse effects are anticipated on this LCA. In addition, no significant effects are anticipated on the remaining four LCAs as a result of the operation of the scheme.

As with the construction period, the operation of the scheme would see the introduction of new discordant features into several local views. For the majority of receptors (13 out of 18), the presence of existing intervening vegetation, and implementation of the 2m high landscape bunds and associated landscape mitigation included within the Environmental Masterplans (419491-MMD-01-MO-DR-L-3022 and 419491-MMD-01-MO-DR-L-3023), would screen views to the operational aspects of the scheme. However, for five out of the 18 receptors, the change during the short-medium term during the five-year operation would be moderate. Nonetheless, with the benefit of the landscape mitigation included within the Environmental Masterplans (419491-MMD-01-MO-DR-L-3022 and 419491-MMD-01-MO-DR-L-3023) (and LVE5 in the REAC in Appendix C), these views to site would be progressively softened during operation as structural planting establishes. As such with the implementation of mitigation detailed within the Environmental Masterplans and given the short to medium term nature of the operational aspects of the scheme, the overall effect for visual receptors would not be significant during operation.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new effects or effects of greater significance than those associated with the construction of the scheme. The effects would likely be reduced compared to that during the construction phase as the scale of

works for reinstatement would be reduced. This is due to the retention of the hardstanding plots on-site and as such the reinstatement would only include the removal of associated infrastructure, such as the dismantling and removal of buildings, lighting and acoustic barriers. By this time, the planting on-site would have further established, and this along with the presence of the landscape bunds which would also remain in situ, would aid screening to the reinstatement works. As such, no significant effects on landscape and visual receptors are anticipated from the reinstatement works. Nonetheless, best practice measures to reduce the risk of non-significant effects during reinstatement, such as keeping task lighting to a minimum and keeping a tidy and well managed site, would be included as part of the Reinstatement Plan to be implemented by the Reinstatement Contractor. These measures are outlined in the REAC (LVE3 and LCE4) to be incorporated in the Reinstatement Plan.

Upon reinstatement after five years, all infrastructure would be removed from the site, leaving only areas of hardstanding in the once operational plots of the site, along with the drainage infrastructure and the SuDS ponds. The green-blue infrastructure and all landscape bunds within the Environmental Masterplan (drawing ref: 419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) would also remain on-site which would ensure that there are no adverse effects on visual receptors. As such, in summary the Landscape and Visual Impact Assessment (Appendix F) has concluded that following the removal of the infrastructure on the site and the retention of the landscape mitigation, there would be no significant adverse effects upon landscape character or visual amenity upon reinstatement of the site at Year 5 and beyond into the long-term, up to Year 15 when it is considered that planting would have fully established to meets its intended screening and landscaping integration functions. In time, it is expected that the retention of this green-blue infrastructure would provide long-term benefits for landscape character and visual receptors.

Additionally, in order to ensure a positive long-term legacy for the local community, further enhancements to the site would also be implemented at this stage. Indicative enhancement proposals are documented in the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032) which would be further developed, and a detailed plan included as part of the Reinstatement Plan for the scheme. This is included in the REAC (LVE6) in Appendix C to be implemented by the Restatement Contractor.

3.5 Geology and Soils

DMRB LA 109[10] has provided the assessment framework for geology and soils. Appendix G presents the Geotechnical Desk Study which has been produced that supports this report.

The study area for this environmental discipline is 250m.

There are no geological designations or sensitive and valuable non-designated geological features within the study area. The high level (1:250,000 scale) Agricultural Land Classification (ALC) mapping from Natural England for London and the South East indicates that the study area is located in a Grade 2 (very good) area. The post-1988 ALC surveys for England identify that the area within the site boundary is mainly Grade 2, with areas of Grade 3a and 3b to the north and south of the western parcel of land and an area of Grade 1 on the eastern parcel of land. There is one historic landfill located within 250m of the site: the Mersham Quarry landfill located approximately 155m north-east of the site. There is one licenced waste management facility within 250m of the site: Brett Aggregates Limited located approximately 165m south-west of the site. No Environment Agency pollution incidents have been declared within 250m of the

[10] Highways England (2019) *DMRB Sustainability and Environment Appraisal LA 109 Geology and soils.* Available at: https://standardsforhighways.co.uk/dmrb/search/adca4c7d-4037-4907-b633-76eaed30b9c0

scheme. The underlying bedrock is Hythe Formation (sandstone and subequal/subordinate) limestone and Atherfield Clay Formation (mudstone, sandy).

The site has historically been agricultural land with no known development. Site investigation and laboratory analysis of soils on-site has not identified any elevated levels of contaminants above generic screening criteria, indicating that the soils are clean, natural material. Further details are shown within the Geotechnical Desk Study (Appendix G). The site is categorised as having a low risk for Unexploded Ordnance (UXO)[11].

Construction: Excavations would be required for the construction of the hardstanding areas and drainage across the site. This includes a topsoil strip to allow the site to be surfaced as well as excavations to create the SuDS ponds. Valuable topsoils and subsoils would be stripped, segregated and stockpiled appropriately for re-use across the site within the landscaping bunds. Temporary stockpiles would be created on the eastern part of the site for a maximum period of 12 months in order to promote re-use of excess soils on nearby sites. The stockpiling itself would also be managed appropriately by the Principal Contractor in line with the Defra *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites*[12] guidance to ensure that the topsoil is not lost as a resource. The stockpile may remain in the eastern parcel for up to one year from excavation if a use is not found for it. The pile would be seeded to maintain the quality of the soil and therefore its use as a resource. These measures are required to mitigate any potential significant effects and are included in the REAC (GS1) in Appendix C to be incorporated in the CMP to be adhered to and implemented by the Principal Contractor. Additionally, as the soils have been proven to be uncontaminated, there would be no impacts with regard to deterioration of the quality of soils underlying the stockpile as a result of leaching, nor any risks to construction workers from contact with contaminated soils, leachates or ground gases. No significant effects are anticipated due to contamination of soils from construction works. Nonetheless, best practice measures such as ensuring that any fuels, oils or hazardous materials used during the works are appropriately stored and kept in bunded areas to prevent contamination of any underlying soils, providing spill kits on-site for the duration of the works with construction staff trained in their correct application would be followed to reduce the risks of contamination. These measures are included in the REAC (GS2) in Appendix C.

The permanent loss of Grade 2, Grade 3a and Grade 3b agricultural land is expected on the western parcel of land to facilitate the scheme. However, considering the wider availability of Grade 2 agricultural land within the study area, along with the opportunities for the re-use of this resource elsewhere (as described above), it is not considered that the loss of these agricultural soils would be significant. In addition, as outlined in Section 2.2, construction works under the approved consent for the Stour Park Development have already commenced on site and as such the site is no longer an arable field with much of the agricultural resource lost to facilitate those works. Furthermore, the use of the eastern parcel of land for stockpiling would be temporary and would not involve any excavations, and therefore would not result in the permanent loss of agricultural land.

Overall, there are not anticipated to be any significant effects on geology and soils during the construction of the scheme.

Operation: There are not anticipated to be any adverse effects during the operation, as the operation of the scheme would not disturb the underlying geology and soils. This is due to the

[11] Zetica UXO (2020) *Risk Maps*. Available at: https://zeticauxo.com/downloads-and-resources/risk-maps/

[12] Defra (2009) *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

incorporation of impermeable hardstanding and a drainage system that does not allow for infiltration or soakaway within the design. Overall, no significant adverse effects on geology and soils is anticipated during the operation of the scheme.

Reinstatement: There are not anticipated to be any adverse effects from the reinstatement of the scheme. This is because the hardstanding of the development plots and drainage would remain in-situ, and as such the reinstatement activities would not disturb any underlying geology and soils.

3.6 Biodiversity

In addition to *DMRB LA 108*[13], the assessment of biodiversity was guided by *Guidelines for Ecological Impact Assessment in the UK*[14] and the CIEEM *Sources of Survey Methods*[15]. A Biodiversity Assessment has been undertaken to support this report and can be found in Appendix H. An Arboricultural Impact Assessment has also been undertaken and is contained in Appendix I.

The study area for this environmental discipline varies for different ecological features depending on their sensitivity to an environmental change. The Zone of Influence (ZOI) are summarised below:

- Statutory designated sites: 2km from the site boundary
- Non-statutory designated sites: 1km from the site boundary
- Designated sites for bats: 30km from the site boundary
- Habitats/species: within and adjacent to the site boundary
- Great crested newt: 500m from the site boundary

The following sites designated for ecological conservation are located within the relevant study areas of the scheme:

- Hatch Park SSSI is located approximately 550m north east of the site.
- Ashford Green Corridors Local Nature Reserve (LNR) is located approximately 50m west of the site.
- Willesborough Lees and Flowergarden Wood Local Wildlife Site (LWS) (AS44) is located approximately 900m north of the site.
- South Willesborough Dyke LWS (AS19) is located approximately 1km south west of the site.

There are no European designated sites within 2km of the scheme, nor any European sites designated for bats within 30km of the scheme. However, the North Downs Woodland SAC and Folkestone to Etchinghill Escarpment SAC are located within 200m of the ARN for the air quality assessment. In addition, the scheme would outfall to the Old Mill (Aylesford) Stream, which is hydrologically connected to the Stodmarsh SPA, SAC, and Ramsar. As such, a Habitats Regulation Assessment (HRA) (document ref: 419419-MMD-XX-SV-RP-BD-0001) has been produced to assess any potential likely significant effects on these designated sites.

The site consists of arable land, occupying over 75% of the site, hedgerows, ditches, improved grassland, plantation woodland, poor semi-improved grassland, mature scattered trees, scrub, tall ruderal vegetation and hardstanding as shown on the Phase One Habitat Survey map in

[13] Highways England (2020) *DMRB Sustainability and Environment Appraisal LA 108 Biodiversity*. Available at: https://standardsforhighways.co.uk/dmrb/search/af0517ba-14d2-4a52-aa6d-1b21ba05b465

[14] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland.* Available at: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/

[15] http://www.ieem.net/sources-of-survey-methods-sosm-

Appendix B of the Biodiversity Assessment (Appendix H). The most notable habitats are considered to be the hedgerows. Other habitats of note include the plantation woodland, ditches and the mature scattered trees. The majority of other habitats on-site are either species-poor, well represented in the local area or could easily be replicated if lost. Further details of habitat importance are outlined in the Biodiversity Assessment in Appendix H.

Phase 2 ecology surveys undertaken for the outline planning permission for the Stour Park Development on the site (14/00906/AS) confirmed the presence of reptiles, dormouse, birds and foraging and commuting bats. To support the Biodiversity Assessment (Appendix H), additional walkover surveys were undertaken in 2020. An active outlier badger sett with one entrance was identified towards the north-west of the site during the walkover in May 2020. In 2019, a dormouse survey of the site was undertaken. Dormice evidence was recorded in the small block of broadleaved woodland to the west of the site, within vegetation located to the north of Church Road, and towards the southern extent of the hedgerow along Highfield Lane. The site supports two areas that are considered to be 'Key Reptiles Sites' in accordance with Froglife[16] criteria. Further details are provided within the Biodiversity Assessment in Appendix H.

Construction: A temporary adverse effect is anticipated for nearby nature conservation features as a result of construction noise, lighting and visual disturbance from the associated personnel, plant and traffic management during the works. The proximity of Ashford Green Corridors LNR to the site means that some temporary minor indirect effects could occur as a result of dust deposition and noise pollution during construction. However, this would be temporary, lasting a maximum of six months, and would not result in a significant effect. As the two non-statutory designated sites are within 1km of the scheme, no direct or indirect construction effects are anticipated on any other designated sites.

There would be a permanent loss of approximately 47.73ha of habitat including a hedgerow, scrub and scattered trees, as a result of construction. The majority of this loss would be arable land (47ha). However, to avoid significant effects for protected species, vegetation clearance would be undertaken outside of the breeding bird season, between September and February, and supervised by a suitably qualified ecologist. This is included in the REAC (B6) to be incorporated in the CMP to be adhered to and implemented by the Principal Contractor on-site.

Mitigation measures, including waterborne pollution prevention measures and dust and noise suppression measures, would ensure retained hedgerows, ditches and habitat creation areas are protected from deterioration caused by the release of harmful pollutants during construction and disturbance to protected species is reduced. In addition, night-time working would not be allowed during the months when bats are actively foraging (April to October inclusive) to prevent light disturbance to foraging bats. These are outlined in the REAC (B1) in Appendix C to be incorporated in the CMP to be adhered to and implemented on-site by the Principal Contractor. A Natural England development licence would be acquired for the closure of the badger sett and the sensitive method of vegetation clearance of dormouse habitat to ensure no significant effects to badger and dormice (B4 and B5 in the REAC in Appendix D). A reptile mitigation strategy would be implemented prior to construction and would incorporate a number of sensitive working methods including translocation to a receptor site and ecological supervision to mitigate the impacts of construction on reptiles (B3 in the REAC in Appendix D). Appropriate ecological and arboricultural supervision would establish root protection areas of retained trees and hedgerows and prevent direct and indirect impacts. An Arboricultural Report (Appendix I) has been produced which sets out the measures required to protect trees that are being retained on-site, these include measures such as installing protective barriers at distances

[16] Frogilife (1999) *Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10.* Froglife: Peterborough.

dictated by the root protection area of the trees (as identified in the Arboricultural Report). The impact of habitat degradation of retained habitats would be not be significant. Nonetheless, best practice guidelines are outlined in the REAC (B2) in Appendix C to reduce the risk of non-significant effects. These measures would include protective fencing around retained trees and vegetation with the placement confirmed by an Arboriculturalist, the area within the barriers would be a construction exclusion zone (CEZ) which would include no mechanical digging or scraping, no storage of plant, no vehicular or plant access, no fire lighting within 10m of tree canopies, no handling of any chemical substance, no alteration to ground levels, no construction of hard surfaces, no attachment of boards, and no storage of excavated materials. These would be carried through to the CMP that would be adhered to and implemented by the Principal Contractor.

Overall, no significant effects on biodiversity are anticipated during the construction of the scheme. Further details can be found in the Biodiversity Assessment in Appendix H.

Operation: The Air Quality Impact Assessment (Appendix D) identified eight designated sites where there could be changes in nitrogen deposition as a result of the scheme due to changes in traffic flows on the ARN:

- North Downs Woodlands SAC
- Folkestone to Etchinghill Escarpment SAC
- Wouldham to Detling Escarpment SSSI
- Seabrook Stream SSSI
- Hatch Park SSSI
- Folkestone Warren SSSI
- Ashford Green Corridors LNR
- Western Heights LNR

The assessment modelled the potential changes in nitrogen deposition on these sites. In accordance with the DMRB LA 105, the significance of impacts at ecological designations is assessed against changes in the critical loads. The assessment concluded that in both modelled scenarios outlined in Section 3.1.1 above, for all ecological sites there are no predicted increases in nitrogen deposition greater than 1% of the minimum nitrogen deposition critical load applied to the habitat. Therefore, on that basis in accordance with the DMRB LA 105, the effect on these ecological receptors is not considered to be significant. Refer to the Air Quality Impact Assessment in Appendix D for further details. Additionally, the impacts on North Downs Woodlands SAC and Folkestone to Etchingill Escarpment SAC were considered within the HRA (document ref: 419419-MMD-XX-SV-RP-BD-0001), which has concluded that there would be no likely significant effects on the two SACs as a result of nitrogen deposition from changes in traffic due to the scheme.

Nutrient rich run-off produced from activities within the scheme have been determined as having potential to result in Likely Significant Effects on the Stodmarsh SPA, SAC and Ramsar. Therefore, a Stage 2 Appropriate Assessment (Section 6, document ref: 419419-MMD-XX-SV-RP-BD-0001) has been undertaken to further assess the potential for an adverse effect on the integrity of the three European sites at Stodmarsh. The assessment concluded that as a result of the measures included in the drainage design for the scheme there would be no significant effect, alone or in-combination, on the integrity of Stodmarsh SAC, SPA or Ramsar or its dependant features during construction and operation.

There are no other operational phase effects anticipated for the non-statutory nature conservation-sites due to the distance from the site.

Polluted run-off and accidental pollution have the potential to cause habitat degradation, in particular to sensitive habitats such as ditches. This risk would be avoided or reduced by the SuDS features on-site which would provide sufficient treatment to the run-off as well as through the implementation of a pollution prevention plan which would be included within the OMP to be adhered to be the Principal Operator. Temporary effects from the accumulation of litter, fires and small pollution incidents would be appropriately managed through the OMP and are not considered to be significant. These measures are outlined in the REAC (B8) in Appendix C to be incorporated in the OMP which would be adhered to and implemented on-site by the Principal Operator.

The habitats lost would not be replaced on a like for like basis due to the nature of developing the area from predominantly arable to areas of hardstanding. However, the ecological attributes of the habitats would be replaced with habitats of greater ecological value than the existing habitats. The landscape design includes provision for woodland, hedgerows, species rich wildflower meadows, native shrub, specimen trees and hedgerows, and SuDS ponds with marginal and aquatic planting. In addition, 10 bat, 10 bird and six dormice boxes would be installed within the site. This is shown on the Environmental Masterplan (drawing ref: 419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031). The habitat replanting scheme would increase the biodiversity value resulting in a positive biodiversity net gain of 9.7 units which has been calculated using the Defra *Biodiversity Metric 2.0*[17]. Further details are outlined in the Biodiversity Assessment in Appendix H.

The new habitats would increase in ecological value as they become established, reach maturity and develop features of value to wildlife during operation. To ensure the value of these habitats is maintained, appropriate management and maintenance would be required as detailed within the LEMP (document ref: 419419-MMD-XX-SV-RP-L-0001). Therefore, operation of the scheme is anticipated to result in slight beneficial effects for habitats. Refer to the Biodiversity Assessment in Appendix H for further details.

The operation of the scheme has potential to result in disturbance to protected species through noise, lighting and pollution. However, the increase in noise levels is unlikely to exceed tolerable levels and SuDS features on-site which would provide sufficient treatment to the run-off as well as through the implementation of a pollution prevention plan which would be included within the OMP to be adhered to be the Principal Operator. In addition, the lighting strategy has been sensitively designed to minimise light spill and to ensure both retained and newly created habitats would provide 'dark' areas surrounding the parking areas. Once the planting has become established, they would provide suitable habitats for a range of species as outlined in the Biodiversity Assessment in Appendix H. Overall, there is not expected to be a significant effect on breeding birds, wintering birds, bats, and dormice during operation. No significant effects are anticipated on badgers, water voles, and brown hare/hedgehogs. However, there would be a slight beneficial effect on reptiles and invertebrates. Refer to the Biodiversity Assessment in Appendix H for further details.

Overall, there would be no significant effects on biodiversity as a result of the operation of the scheme. Further details are provided in the Biodiversity Assessment in Appendix H.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially different effects than those anticipated during the construction of the scheme as all temporary structures would be removed, with the hardstanding and drainage remaining in situ. However, reinstatement activities could give rise to a temporary adverse effect on biodiversity

[17] Defra (2019) Biodiversity Metric 2.0 – Calculation Tool – Beta Test December 2019 Update. Available at: http://publications.naturalengland.org.uk/publication/5850908674228224

features as a result of noise, lighting and visual disturbance from the associated personnel, plant, and traffic management during the works. Measures to minimise disturbance are outlined in the REAC (B1) (Appendix C) and include ensuring lighting is minimised to avoid light spill on habitats for dormice, careful siting of haul routes, material storage areas, compounds, lighting and generators away from sensitive habitats, and no night-time working during months when bats are actively foraging (April to October inclusive) to prevent lighting disturbance to foraging bats. These measures would be carried through to the Reinstatement Plan that would be adhered to and implemented by the Reinstatement Contractor, and are not considered to be significant

The green-blue infrastructure would remain in situ as would all landscape bunds which would have settled in the landscape with associated planting having established throughout, providing a net gain in biodiversity. Further enhancements to the site would also be implemented at this stage as proposed indicatively in the Long-Term Enhancement Plan (drawing ref: 419419-MMD-01-MO-DR-L-3032) to ensure a positive long-term legacy with respect to the site's habitats and wildlife that utilise them. In addition, monitoring for dormouse, habitats, bats, reptiles and breeding birds would be undertaken throughout the operational period which have been incorporated in the LEMP (document ref: 419419-MMD-XX-SV-RP-L-0001) and outlined in the REAC (B10) to be implemented by the Principal Operator.-Overall, there is anticipated to be a biodiversity net gain in grassland, woodland, and wetland habitats, resulting in a beneficial effect for biodiversity in the long term.

3.7 Material Assets and Waste

DMRB LA 110[18] has provided the assessment framework for material assets and waste.

The study area for this environmental topic considers the site boundary and suitable waste management infrastructure within the vicinity of the scheme.

Material resources would be required for the construction of the scheme, including but not limited to, aggregates and minerals from primary, secondary and recycled sources and manufactured construction products, including modular style buildings for offices and inspection facilities. The study area is covered by a mineral safeguarding area (MSA) for limestone (Hythe Formation – Kentish Ragstone) under the *Kent Waste and Minerals Local Plan* (2016).

Construction: There is the potential for adverse effects on material assets, due to the requirement for material resources to be used in construction, thus resulting in a reduction in the availability of material resources and the potential depletion of natural resources. The main construction materials required for the scheme include asphalt and aggregate for the parking areas, pipes for drainage and modular style buildings for offices and inspection facilities. In order to reduce potential effects on material resources, site-won materials would be used where possible, as well as sourced locally where required and possible. Additionally, materials would be delivered on an as and when basis to avoid damage or contamination, and pre-case elements would be used, where practical to ensure efficient use of materials. These measures are outlined in the REAC (M1) in Appendix C to be incorporated into the CMP which would be adhered to and implemented by the Principal Contractor on-site. In addition, the buildings and inspection facilities have been designed taking into consideration the principles of re-use elsewhere in the future. With these measures in place, no significant effects on material resources are anticipated from the construction of the scheme.

[18] Highways England (2019) *DMRB Sustainability and Environment Appraisal LA 110 Material assets and waste. Available* at: https://standardsforhighways.co.uk/dmrb/search/6a19a7d4-2596-490d-b17b-4c9e570339e9

Waste from construction activities is likely to be generated from surplus site-won materials, vegetation clearance and materials brought to site which are not used for their original purpose (surplus construction materials and damaged stock or cut offs). Effects from waste generation during the construction phase may include temporary increased use of waste management facilities and permanent reduction to landfill capacity. In order to reduce effects from waste generation, mitigation would be implemented. This includes the implementation of the waste hierarchy to minimise disposal and maximum re-use and recycling of waste arisings. Opportunities for re-use and recycling onsite includes the re-use of excavated soils on-site in the landscaping bunds, chipping green waste on-site for use in the landscaping and re-use of surplus excavated materials on other nearby scheme or for uses with clear benefits to the environment, such as in the restoration of nearby quarries or other excavation-sites. In addition, materials would be delivered on an as and when basis to avoid damage or contamination to reduce the risk of waste. These measures are outlined in the REAC (M2) in Appendix C to be incorporated into the CMP which would be adhered to and implemented by the Principal Contractor on-site.

An estimated 125,300m^3 would be excavated from the western parcel of land to facilitate the scheme, comprising approximately 117,300m^3 of agricultural topsoils and 8,000m^3 of subsoils. Approximately 42,160m^3 of this material would be re-used onsite within the landscaping bunds, thus resulting in a surplus of approximately 83,140 m^3. This would be managed through the production of a Materials Management Plan as outlined in the REAC (M3) in Appendix C, which would be incorporated into the CMP to be adhered to and implemented by the Principal Contractor on-site. This surplus material would be temporarily stockpiled on the eastern parcel of land for a maximum of 12 months (as shown in the stockpile drawings ref: 419419-MMD-01-MO-DR-C-0142 and 419419-MMD-00-MO-SK-C-0028) in order advertise the re-use of this material in other nearby schemes. The stockpiling itself would also be managed appropriately by the Principal Contractor in line with the Defra *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites*[19] guidance to ensure that the topsoil is not lost as a resource. The stockpiling has been discussed and agreed with the Environment Agency, subject to the implementation of measures to reduce environmental effects of dust, noise and polluted run-off. These are included in the REAC (AQ1, NV2, RDWE1) in Appendix C which would be incorporated into the CMP to be adhered to and implemented by the Principal Contractor onsite. Should the temporarily stockpiled material be re-used off-site an appropriate permit would need to be obtained from the Environment Agency. If no use is found for the material within this 12-month period, it would be removed from site and be disposed of as waste to a suitably licenced waste management facility. However, the latest Kent County Council minerals and waste monitoring report[20] states that there is sufficient remaining capacity of inert waste landfill, more than is sufficient to meet Kent's need for their plan period. As such, should this material need depositing in landfill, no significant effects on the remaining landfill capacity in Kent is anticipated.

A very small proportion (<5%) of the mineral safeguarding area within which the scheme is located would be lost as a result of the scheme and therefore would not sterilise this resource as a whole. As such, this is not considered to constitute a significant effect.

Overall, no significant effects from waste generation are anticipated due to the construction of the scheme.

[19] Defra (2009) *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

[20] Kent County Council (2020) 13th Annual Minerals and Waste Monitoring Report [online] available at: https://www.kent.gov.uk/__data/assets/pdf_file/0016/110356/Kent-County-Council-Annual-Monitoring-Report-2018-2019.pdf

Operation: Small quantities of concrete, aggregate, bitumen and other materials, may be required for the maintenance of the proposed scheme during operation. This would include localised repairs to buildings, roads and parking areas. This has the potential to result in the reduction in the availability of those material resources and potentially the potential depletion of natural resources. However, maintenance is anticipated to require relatively negligible quantities of both primary raw materials and manufactured construction products compared to the construction phase. Therefore, it is anticipated that there would not be any significant adverse effects relating to the operation of the site as materials required for maintenance activities would be infrequent and unlikely to require large volumes of material resources.

The waste generated during operation would be managed by the placement of waste bins throughout the operational areas. It is assumed that waste would be managed by a number of wheeled bins around the site to accommodate the anticipated daily waste of the HGV drivers and staff on-site. The number of bins required would be estimate based on quantities of waste anticipated to be produced by drivers. Facilities management should ensure that waste bins are emptied and that litter pickers are utilised on-site. These best practice measures are outlined within the REAC (M4) in Appendix C which would be brought forward in the OMP and adhered to and implemented by the Principal Operator.

Materials for the construction of the additional HMRC sheds and Defra BCP for Day 200 would be required which would comprise of manufactured materials for the buildings. As no primary materials would be required, no significant effects from this element of the works are anticipated. In addition, the removal of parking infrastructure after Day 200 within the central viewing corridor for its restoration as a landscape area would likely generate some waste from the removal of aggregate in this location. This is expected to be fairly minimal and would be managed in accordance with the principles of the mitigation hierarchy as outlined in the REAC (M4) in Appendix C. As the number of HGV spaces would reduce on-site through the removal of parking in the central ‘viewing corridor’ along with the suspension in the north-western and southern plot areas, it is assumed that there would be less operational waste from drivers. Regardless, it is recommended that the four proposed 1100 litre wheeled bins are retained for this phase of operation. The placement of appropriately sixes waste bins throughout the operational area is included within the REAC (M4) (Appendix C) which would be included within the OMP to be adhered to and implemented by the Principal Operator.

Foul waste from the welfare facilities and the Defra BCP would be managed through the foul drainage system as outlined in the Drainage Strategy in Appendix K. This strategy has accounted for the capacity of the wastewater treatment facilities in discussions from Southern Water.

Given the temporary nature of the operation (maximum of five years) and the management arrangements that would be put in place, no significant effects are expected in relation to material assets and waste during the operation of the scheme.

Reinstatement: The reinstatement of the scheme is unlikely to require the use of any material resources. However, the temporary structures and associated infrastructure, such as lighting columns, would be removed which could constitute waste if not appropriately managed. The design of the modular buildings and inspection facilities have been designed with re-use in mind, and opportunities for these to be sold and re-used elsewhere following the reinstatement of the scheme would be explored.

Where possible, during reinstatement the waste hierarchy should be followed when dealing with waste on-site. The following opportunities include the re-use of excavated soils on-site, chipping green waste for use in landscaping, and the re-use of surplus excavated materials on other

nearby schemes or for uses with benefits to the environment, have been outlined within in the REAC (M2) in Appendix C and would be incorporated within the Reinstatement Plan. This would be adhered to and implemented by the Reinstatement Contractor. With these measures in place, no significant effects are anticipated from waste generation. The hardstanding and drainage in the plot areas would remain which promotes the re-use of those materials for future development, and hence no waste would be produced. Following reinstatement, the site is unlikely to require any material resources nor generate any waste. As such, no significant effects are anticipated upon material assets and waste for the reinstatement phase.

3.8 Noise and Vibration

DMRB LA 111[21] has provided the assessment framework for noise and vibration. In addition, *BS5228-1 Code of practice for noise and vibration control on construction and open sites*[22], BS4142 *Methods for rating and assessing industrial and commercial sound*, BS8233 *Guidance on sound insulation and noise reduction for buildings*[23], Calculation of Road Traffic Noise (CRTN)[24] and IEMA (2018) *Guidelines for Environmental Noise Impact Assessment*[25] have also been used to inform this assessment. The Noise Impact Assessment has been undertaken to support this report and is contained in Appendix J.

The study area is identified as an area within 600m of the physical works associated with the scheme. Within this study area, road traffic noise calculations are performed at any sensitive receptor. Furthermore, routes are identified where there is a possibility of a change of 1dB $L_{A10,18hr}$ upon scheme opening, or 3dB $L_{A10,18hr}$ in the long term. Usually for these routes the assessment reports only the change in basic noise level (BNL) which is the noise level at a reference distance of 10m from the nearest carriageway edge. The change in basic noise level; enables the impact to be classified using the criteria set out in Table 4. LA 111 allows study areas to be expanded or restricted if deemed appropriate.

In this assessment, noise important areas were identified within 1km of the site and as such road traffic noise calculations were performed at any sensitive receptor within 1km of the site boundary. Outside of this 1km boundary, the basic noise level of routes with a change of greater than 1dB $L_{A10,18hr}$ upon scheme opening are reported.

For further details on the study area used refer to the Noise Impact Assessment presented in Appendix J.

There were 21 representative receptors, including four farms and a place of worship located within the study area. These are detailed within the Noise Impact Assessment within Appendix J. Furthermore, there are two Noise Important Areas (NIA) located within the study area:

- One NIA is to the north west of the site along to A2070 to J10 (ref: r3_ID: 4509) containing approximately 50 properties.
- One is located along a short stretch of the M20 near J10a and contains two properties (r3_id: 4507).

Baseline noise conditions have been predicted at receptors within the study area using Datakustik's CadnaA MR 2020 software and were based on traffic volumes forecasted for

[21] Highways England (2020) *DMRB Sustainability & Environment Appraisal LA 111 Noise and Vibration.* Available at: https://standardsforhighways.co.uk/dmrb/search/cc8cfcf7-c235-4052-8d32-d5398796b364

[22] British Standards Institute (BSI) (2014) BS5228-1:2009+A1:2014. *Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.*

[23] BSI (2014) BS8233. *Guidance on sound insulation and noise reduction for buildings.*

[24] Department of Transport (1988) *Calculation of Road Traffic Noise.*

[25] IEMA (2014) *Guidelines for Environmental Noise Assessment.*

2021. The available data shows that the study area is subject to noise from the nearby M20 motorway, and adjacent A2070. The site is also subject to railway noise from the channel tunnel line to the south of the site.

Construction: There is potential for temporary, adverse effects on nearby residential receptors as a result of noise and vibration arising from the construction works associated with the scheme. The construction would mostly consist of the construction of hardstanding and stockpiling of material on land to the east of the site boundary. Any raised structures are limited to site offices and inspection sheds. Noise barriers would be constructed around the site by auger methods. As such, works would not consist of any high noise and vibration inducing activities such as piling and would be short in duration (maximum of 6 months). The closest receptors to the site are situated approximately 10m to 300m from the Article 4 Red Line Boundary and approximately 100m from the proposed stockpile. The stockpiling is expected to store site-won material on land to the east of the site boundary for a temporary period (up to 12 months). The main noise source would consist of plant such as dumper trucks and excavators moving fill material around which do not constitute high noise level activities. As such, there are not anticipated to be any significant effects from noise and vibration during the construction of the scheme

Nonetheless, best practice measures during construction would be implemented during construction to reduce non-significant effects, such as completing all noisy operations between 08:00 to 18:00 on weekdays, and 08:00 to 13:00 on Saturdays and switching off noise-emitting equipment when not in use. In addition, construction works would comply with the recommendations for practical measures to minimise noise and the maximum permissible noise limits set out in *British Standard 5228-1.* Where out of hours working is required, prior agreement would be sought through a Section 61 with the local authority. These measures are outlined in the REAC (NV1, and NV2) in Appendix C, which would be carried through to the CMP that would be adhered to and implemented by the Principal Contractor. In addition, noise effects from the temporary stockpiling activities would be reduced through the incorporation of measures such as positioning material closest to the residential receptors first which would ensure a bund between the works and the receptors is formed. This would reduce noise levels for the remainder of the stockpiling works. These measures are outlined in the REAC (NV3) in Appendix C, which would be carried through to the CMP that would be adhered to and implemented by the Principal Contractor.

Overall, it is not expected that construction would result in significant noise and vibration effects and a quantitative assessment has not been carried out.

Operation: The scheme has the potential to give rise to temporary increase in noise levels at nearby receptors in the daytime and night-time. These are predominantly due to increases in road traffic noise from HGVs and staff cars using access roads to the site and noise from HGVs and staff cars moving around the site. Vehicle idling would not be permitted on-site whilst the HGVs are stationary and any refrigerated HGVs that are not able to hook-up to an electricity supply to power their generators would be located within the northern most plot on the site away from the closest residential receptors. These measures are outlined in the REAC (NV4) to be incorporated in the OMP to be implemented and adhered to by the Principal Operator. The potential changes in noise levels for both the disruption and non-disruption scenarios have been modelled and the results of which are presented in the Noise Impact Assessment (Appendix J). The assessment has assumed that noise mitigation is in place around the site boundary as shown on the General Arrangement Plan (drawing ref: 419419-MMD-01-MO-SK-C-0028). This consists of a combination of bunds and timber reflective noise barriers including a combination of 5m barriers, a 4.5m barrier, and 2m bunds with a 3m barrier on top. The assessment

concluded that the temporary daytime and night-time noise increases in road traffic noise as a result of the scheme and noise from the site would not be significant in both the disruption and non-disruption scenarios. In addition, noise levels at both the NIAs would increase as a result of the additional lorry movements due to the scheme. However, the increases in noise at the NIAs are not considered to be significant. Further details are detailed in the Noise Impact Assessment (Appendix J).

Overall, the operational Noise Impact Assessment (Appendix J) shows that any effects are considered to be temporary and are not predicted to cause any significant effects. However, the OMP will details a procedure to handle noise complaints alongside other measures which may help to alleviate complaints. Measures would include engagement with the local authority, a straightforward complaints handling procedure, and noise monitoring on the site boundary. These measures are included in the REAC (NV5) in Appendix C to be incorporated into the OMP to be adhered to and implemented by the Principal Operator.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially worse effects than the construction of the scheme. However, there is the potential for a temporary, adverse effect on nearby sensitive receptors as a result of noise arising from the works associated with the reinstatement activities, such as the dismantling of infrastructure. However, this is not anticipated to consist of any high noise and vibration inducing activities. As such, given the small-scale nature of the works (as the hardstanding of the development plots would remain) and temporary nature of disturbance, no significant effects are anticipated. Nonetheless, best practice measures would include that works comply with the recommendations for practical measures to minimise noise and the maximum permissible noise limits set out in BS5228-1 and follow best practice guidelines. These measures are outlined in the REAC (NV2) in Appendix C which would be carried forward into the Reinstatement Plan to be adhered to and implemented by the Reinstatement Contractor. The baseline noise environment would then return to pre-construction conditions upon reinstatement.

3.9 Population and Human Health

DMRB LA 112[26] has provided the assessment framework for population and human health. In line with *DMRB LA112,* effects on land-use and accessibility (including private property and housing, community land and assets, development land and businesses, agricultural land holdings, and walkers, cyclists and horse-riders (WCH)) and human health have been considered.

In line with *LA 112*, the extents of the study area have been limited to 500m from the site boundary to capture the community effects of the scheme.

For information relating to the baseline and significance of effects to human health in relation to air quality and noise, refer to Sections 3.2 and 3.8 respectively, as well as the accompanying detailed assessments within Appendix D (Air Quality Impact Assessment) and Appendix J (Noise Assessment) respectively.

There is a total of 18 WCH facilities within 500m of the site. The details of which are outlined in Table 3.1. There are no cycle routes located within 500m of the site.

[26] Highways England (2020) *DMRB Sustainability and Environment Appraisal LA 112 Population and human health.* Available at: https://standardsforhighways.co.uk/dmrb/search/1e13d6ac-755e-4d60-9735-f976bf64580a

Table 3.1: WCH amenities within the study area

WCH Facility	Description	Location
Public footpath AE639	Runs west to east from Church Road to Highfield Lane for a length of 509m	Within the site footprint
Public footpath AE338	Runs north east connecting to public footpath AE337A for a length of 188m	Within the site footprint
Public footpath AE337A	Runs north connecting to public footpath AE639 for a length of 114m	Within the site footprint
Public footpath AE363	Runs west to east from Highfield Lane to Blind Lane (within the scheme footprint) and continues adjacent south of Kingsford Street for a total of 970m	Within the site footprint
Public footpath AE340	Runs north and south of public footpath AE639 for a total of 272m	Adjacent west of the site
Public footpath AE342B	Runs along the A2070 northbound for a total of 153m	Adjacent to the south west corner of the site
Public footpath AE344	Runs east to west from the south of Cheeseman's Lane and Highfield to join with public footpath AE364 for a total of 622m	Adjacent south of the site
Public footpath AE364	Runs east of adjoining public footpath AE344 to Blind Lane for a total of 274m and then heads north east to join with the eastern end of public footpath AE363 for a total of 741m	Adjacent south east of the site
Public footpath AE342A	Runs along the A2070 southbound for a total of 204m	50m west of the south west corner of the site. Adjacent west of public footpath AE324B.
Restricted byway AE350	Runs west to east south of the scheme and then heads south west for a total of 655m	90m south of the site
Public footpath AE342	Runs east to west for a total of 282m south of Ashford Business Park	280m south west of the site
Public footpath AE175	Runs north to south for a total 1.3km north of the M20 Junction 10a	300m north of the site
Public footpath AE357	Runs north to south for a total of 820m north of the M20	340m north east of the site
Public footpath AU53A	Runs north west to south east adjacent to the M20 Junction 10 for a total of 277m	355m north west of the site
Public footpath AU65A	Runs north of adjoining public footpath AU53A for a total of 109m	355m north west of the site
Public footpath AE349	Runs east to west for a total of 720m south of the HS1 line	360m south of the site

WCH Facility	Description	Location
Public footpath AE339	Runs east to west for a total 368m north of Ashford Business Park	375m west of the site
Public footpath AU103	Runs west to east for a total of 530m south of the M20 Junction 10	420m north west of the site

Milbourn Equine is located adjacent west of the western side of the site. Ransley Kennels is located adjacent north of the south eastern side of the site. There are also several businesses within 500m of the site including:

- TK Maxx 100m west
- B&M 140m west
- Smyths Toys Superstores 145m south-west
- Argos 195m west
- Wickes 270m west
- Willesborough Garden Centre 315m north
- Latter's Recycling 410m south-east
- Barretts Land Rover Ashford 450m south-west

The site boundary is designated as Employment Development Land in the Ashford Local Plan. The site does not have any current agricultural land holdings.

There are no areas of Registered Common Land, Village Greens, Millennium Greens or areas of open space within 500m of the site. There are no education or healthcare facilities within 500m of the site. However, the Church of St Mary is located adjacent to the site.

There are no areas of private property within the site boundary. The closest residential receptors are located along Church Road adjacent south of the site and Highfield Lane 35m east of the southern side of the site and 36m east of the northern side of the site.

Construction: PROWs A337A, AE338, AE363 and AE639 would be temporarily closed during construction to facilitate the works. A temporary diversion would be implemented during construction using the existing AE364 and AE344. All other PROWs would remain unaffected during construction. Although this diversion would add to the distance travelled by WCHs, the diversion would be temporary lasting a maximum of six months. No community facilities would be directly affected as a result of the works. There may be some slight disturbance for the community from the presence of construction activities on-site. However, the visual impacts on the community are considered in Section 3.4 above. There would be no demolition of property, or land take from private property, community facilities, businesses or agricultural land holdings, and access to community facilities and businesses would not be affected, including the Church of St Mary. As such no effects on private property and housing, community assets and land and businesses are anticipated as a result of construction of the scheme. The effects on human heath have been considered within the air quality and noise and assessments which are summarised in Sections 0 and 3.8 and have concluded no significant effects are anticipated. By ensuring the local community are informed about the works and all PROW diversions are clearly sign posted would help to alleviate any adverse effects. These measures are outlined in the REAC (PH1) in Appendix C and would be incorporated into the CMP to be adhered to and implemented by the Principal Contractor.

Operation: The PROW AE639 would be temporarily diverted during the operation of the scheme as shown in the General Arrangement Plan (drawing ref: 419419-MMD-01-MO-SK-C-0028). This is not anticipated to significantly increase the distance WCH have to travel. In addition, the diversion would be upgraded to a bridleway throughout the duration of the diversion which would be of benefit to equestrians and cyclists. In addition, PROWs A337A and A338 would be extinguished, however part of these routes has already been extinguished due to the construction of the M20 Junction 10a. As such, these routes do not provide connections to other PROW routes. As a result, no significant adverse effects are anticipated on WCH during the operation of the scheme especially due to the temporary nature of the scheme and diversion (maximum of five years). It is not expected that any long-term employment opportunities would be generated as the scheme would only be operational for five years. However, during the operation, substantial employment opportunities are expected through the employment of site security and marshalling personnel which would result in some beneficial effects for the local population. Since these benefits are only expected for the five-year period of operation, they are not considered to be significant, it is assumed that there would be a temporary impact to the designated employment development land coming forward for up to five years. However, the reinstatement for the site allows for the retention of the development plot areas and as such allows future development to be brough forward in those plot areas in future to fulfil Ashford Borough Council's employment development allocation (see below). There is not anticipated to be any impacts upon businesses, private property, or severance of land, community land, or agricultural land holdings during the operation of the scheme. The effects on human heath have been considered within the air quality and noise which are summarised in Sections 0 and 3.8 and have concluded that no significant long-term effects are anticipated. Therefore, due to the duration of the scheme (maximum operation of five years), there are not anticipated to be any significant effects on population and human health.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially different effects than the construction of the scheme. No further PROW closures would be anticipated during reinstatement of the scheme, and no direct or indirect impacts, through access restrictions, are anticipated on private property, community facilities, businesses or agricultural land holdings. There may be some slight disturbance for the community from the presence of the reinstatement works to remove the infrastructure no site. However, as the hardstanding of the plot areas would remain, effects from the removal of buildings and associated infrastructure are anticipated to be minimal. Best practice measures to reduce effects on the community, such as ensuring the local community are informed of the works and the PROW diversions are appropriately signposted are outlined within the REAC (PH1) (Appendix C). This would be integrated within the Reinstatement Plan, which would be adhered to and implemented by the Reinstatement Contractor.

Upon reinstatement of the scheme, PROW AE639 is anticipated to be reinstated across the central section of the site from west to east to re-join PROW AE363. Additionally, in order to ensure a positive long-term legacy for the local community, further enhancements to the site would also be implemented at this stage. Outline proposals are documented in the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032). which would be further developed and detailed within the Reinstatement Plan for the scheme. The proposed enhancement measures within the Long-Term Enhancement Plan (419419-MMD-01-MMD-01-MO-DR-L-3032)comprise of the creation of footpaths and walkways for public use, creation of informal open space and the addition of information boards highlighting the heritage assets and biodiversity value around the site. They are included in the REAC (LVE6) in Appendix C to be implemented by the Reinstatement Contractor. This is likely to lead to long-term beneficial effects on the community. The reinstatement proposals for the site also allow for the plots where the hardstanding would remain, to be brought forward for commercial development to ensure

the Employment Land Allocation within Ashford Borough Council's Local Plan can still be achieved.

3.10 Road Drainage and the Water Environment

DMRB LA 113[27] has provided the assessment framework for road drainage and the water environment. A Flood Risk Assessment (FRA) and Drainage Strategy has been produced which supports this assessment (Appendix K).

The study area for this environmental discipline is dependent on connected downstream waterbodies and therefore, there is no set distance.

There are no surface watercourses within the scheme boundary. A main river (Old Mill Stream) is located approximately 100m north of the scheme. Kent Greensand Eastern Water Framework Directive (WFD) groundwater bodies underlies the whole of the site. The scheme is located approximately 100m north of East Stour WFD surface water body (GB107040019640), approximately 200m south of Aylesford Stream WFD surface water body (GB107040019650), and approximately 5km south of Great Stour between Ashford and Wye WFD surface water body (GB107040019741).

The scheme is not located within a Source Protection Zone (SPZ) or any Drinking Water Protected Area or Safeguard Zone for surface water or groundwater. The nearest SPZ is located approximately 1.5km north-west of the site. The entire scheme is located within a surface water Nitrate Vulnerable Zone (NVZ) (ID: 515 – R. Great Stour) and a groundwater NVZ (ID: 64 – Maidstone). There are no underlying superficial aquifers, however, there is a bedrock aquifer in the Hythe Formation, which is designated as a principal aquifer. This is listed as high for groundwater vulnerability.

The proposed site is located within Flood Zone 1 and is approximately 200m south of an area of Flood Zones 2 and 3. There are two ponds within approximately 500m of the scheme.

Construction: There is potential for adverse effects upon the water environment within the vicinity of the scheme the potential for polluted run-off from construction works. Careful management is required to prevent contaminated materials or pollutants from entering the sensitive and vulnerable groundwater beneath the site. Soils sourced from the site have been analysed and found not to contain elevated concentrations of contaminants therefore risks from this material are very low. Refer to the Geotechnical Desk Study in Appendix G for further details on contamination risk. The risks to the water environment during construction would be managed through the use of CIRIA (2001) *Control of water pollution from construction-sites. Guidance for consultants and contractors* which includes measures to brief construction workers on the use of spill kits, stockpiled materials to be stored within enclosed areas, plant and machinery to be maintained in a good condition and to undertake any required maintenance in a safe area, produce pollution prevention and spill response procedures, and dust suppression measures as described in Section 3.2. These measures are outlined in the REAC (RDWE1) in Appendix C, which would be incorporated into the CMP to be adhered to by the Principal Contractor. With these measures in place and due to the short duration of construction (maximum of six months), it is anticipated that there would not be any significant effects on the road drainage and the water environment during construction.

Operation: There is potential for adverse effects to the water environment through routine run-off from vehicles using the scheme (for example, petrochemicals or contaminated sediments)

[27] Highways England (2020) *DMRB Sustainability and Environment Appraisal LA 113 Road drainage and the water environment.* Available at: https://standardsforhighways.co.uk/dmrb/search/d6388f5f-2694-4986-ac46-b17b62c21727

and from any accidental spillages from HGVs. The proposed surface water run-off is proposed to discharge to Old Mill (Aylesford) Stream in the north and to two culverts that run beneath the HS1 railway line in the south which are tributaries to the East Stour River. The discharge would be controlled to a greenfield run-off rate of 4 l/s/ha, as specified in the Ashford Borough Council Sustainable Drainage Supplementary Planning Document (SPD). The whole drainage system is designed to attenuate and impede discharge. The SuDS features would provide sufficient treatment to the run-off and several penstock values are integrated within the drainage design at key locations to be used in the event of a spillage onsite. In addition, refuelling of HGVs would be prohibited on-site to reduce the risk of spillage incidents and spill kits would be provided through the site. The OMP would include procedures to deal with pollution incidents through the incorporation of a pollution prevention plan, de-icing and fire management which would be produced in collaboration with the Environment Agency. Spill kits would also be located across the site to be used in the event of a spill. The inclusion of these mitigation measures would reduce the risk of contamination or pollution of the water environment during the operation of the scheme. These measures are included in the REAC (RDWE2) in Appendix C to be incorporated into the OMP which would be adhered to and implemented on-site by the Principal Operator. Overall, with these measures in place alongside the drainage system for the site, it is not anticipated that there would be any significant effects on surface water quality during operation. In addition, no impacts are anticipated to groundwater bodies during operation as the scheme has been designed to allow no infiltration and the SuDS does not allow soakaways. As such, the water would be managed through the surface water drainage system and therefore no significant effects are anticipated on groundwater bodies.

The Environment Agency surface water flood maps show that the site is at very low risk of surface water flooding (0.1% to 1% AEP (Annual Exceedance Probability). The Environment Agency flood maps also indicate that the site is not in an area that would be affected by reservoir flooding. As such, the risk of flooding from artificial sources is negligible and can therefore be discounted. In addition, the historical flooding maps do not indicate that there has been any groundwater flooding in the vicinity, and as such the risk from groundwater flooding is very low and therefore can be discounted. The FRA and Drainage Strategy concluded that there is a low risk of flooding during the lifetime of the scheme. It also concluded that the scheme would not increase the risk of flooding to a person or property in adjacent sites. Further details are presented in Appendix K.

The foul water is proposed to outfall to a Southern Water pumping station to the north-east of the site. Foul water in excess of the pumping stations capacity shall be attenuated on-site and discharged during off-peak times to the pumping station or tankered away where required. This is outlined in the Drainage Strategy in Appendix K. These proposals have been subject to ongoing conversations with Southern Water.

From Day 200 Defra BCP would be present on the site. As such, inspections of HGVs containing plant produce and animals would be undertaken on-site. As outlined in the Drainage Strategy in Appendix K, the foul water from areas used by animals, plant and produce, shall be drained by an isolated system to tanks and disposed of with tankers. These proposals have been subject to ongoing conversations with Southern Water. Provided appropriate measures are incorporated in the drainage strategy and agreed with Southern Water there are no anticipated to be any significant effects on the water environment during the Post-Day 200 Operation. The potential effects from an increase in nutrient loading on the downstream Stodmarsh SAC, SPA and Ramsar have been considered in the HRA (document ref: 419419-MMD-SV-RP-BD-0001). As a result of nutrient rich run-off produced from activities within the scheme having the potential to result in significant effects on the Stodmarsh SPA, SAC and Ramsar, a Stage 2 Appropriate Assessment was completed. The Appropriate Assessment

concluded that as a result of measures included within the drainage design for the scheme, there would be no significant effect, alone or in-combination, on the integrity of Stodmarsh SAC, SPA or Ramsar or any dependent features during operation.

Overall, there is not anticipated to be any significant effects on the water environment during operation of the scheme.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially different effects than the construction of the scheme, especially given the drainage system would remain in situ. As such, this would provide treatment for any polluted run-off during the reinstatement activities. Nonetheless, the manage any potential risk to the water environment during these works, best practice guidance such as briefs on the use of spill kits, plant and machinery to be maintained in a good condition, pollution prevention and spill response procedures to be development by the Reinstatement Contractor and spill kits and clean-up equipment maintained on-site. These measures are outlined in the REAC (RDWE1) in Appendix C, which would be incorporated into the Reinstatement Plan to be adhered to by the Reinstatement Contractor. Therefore, no significant effects are anticipated on road drainage and the water environment during reinstatement. All building and facilities would be removed from the site, and as such there would no longer be any foul waste produced and requiring treatment off-site. Upon reinstatement, the SuDS ponds and drainage system would remain in situ. As such, this is likely to result in some longer-term beneficial effects to the water environment through the continuation of attenuation and treatment of surface water run-off from the site.

3.11 Climate

DMRB LA 114[28] has provided the assessment framework for climate alongside *WebTAG Unit A3*[29] for the operational assessment.

In line with *LA114* the study area differs between the two assessed perspectives as well as construction and operation for the effects of the scheme on climate change. The study area for resilience of the scheme to climate change is the site boundary. For the effects of the scheme upon climate change there is not a defined study area. Instead the assessment for construction considers the emissions associated with the products and materials used in construction and the transport of materials to site, and for operation the study area is the ARN as defined within *LA114* and the operational energy use for lighting on the site.

Climate is assessed from two perspectives:

- The effects of the scheme upon climate change – the impact from releasing additional greenhouse gas (GHG) emissions as a result of the scheme on climate change, and
- The resilience of the scheme to climate change impacts.

Construction: The construction of the scheme would increase GHG emissions through the emissions from plant used, transport of materials to site and the embodied carbon in the materials used. The scheme design considered principles of sustainable design which resulted in a number of the elements being modular with the intention of be reused following decommission. Further details on the carbon assessment and the approach to reducing carbon emissions are contained within the Carbon Assessment and Reduction Report (Appendix L).

[28] DMRB (2019) *LA 114 Climate.* Available at: https://standardsforhighways.co.uk/dmrb/search/87f12e4f-70f8-4eed-8aed-9e9a42e24183

[29] DfT (2018) TAG UNIT A3 Environmental Impact Appraisal. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/825064/tag-unit-a3-environmental-impact-appraisal.pdf

An assessment of the estimated carbon emissions associated with the construction materials was completed based upon the available design information and the use of the Mott MacDonald Moata Carbon Portal. Due to the modular nature of much of the design, the timescales associated with the scheme and in the absence of a completed detailed design the materials and quantities were estimated from the General Arrangement Drawing, design drawings, the Defra EUX Sites HMRC Buildings Performance Specification[30] and the Defra EUX Inland Sites DfT Performance Specification[31] with assumptions from relevant discipline professionals. Further details are within the Carbon Assessment and Reduction Report (Appendix L). This assessment estimated emissions of 33,094 tonnes of carbon dioxide equivalent (tCO_2e) for lifecycle stages A1-3 (products and materials), A4 (transport of materials to works site) and A5 (construction plant). Through the implementation of the carbon reduction principles, such as designing for reuse and recycling of the buildings, detailed in Appendix L, the emissions have been minimised as far as possible. In addition, the carbon sequestration of the planting as detailed within the landscape design has been estimated to reduced emission by 8 tCO_2e. The quantity of emissions is relatively small equating to 0.0013% of the UK 3rd Carbon Budget. Due to the quantity of emissions and the carbon reduction measures through design, it is not considered that the carbon emissions would have a significant effect. Nonetheless, best practice measures such as transporting materials to site via low carbon-modes, the use of low-carbon construction materials, plant and materials, effective segregation of waste to enable them to be effectively managed using the waste hierarchy, within the REAC (C1) in Appendix C would be implemented to further reduce the impact upon climate change.

The scheme may be vulnerable to extreme weather as a result of climate change during construction, however, due to the short construction period this is not anticipated to be significant.

Operation: There is the potential for effects on the climate, due to the change in GHG emissions due to the increased number of HGVs travelling to site during operation of the scheme and the impacts of this upon regional traffic flows. In line with *LA 114* the Affected Road Network (ARN) was determined and the assessment was completed in line with the *WebTAG* methodology of the road links within the ARN. Further details on the carbon assessment and the approach to reducing carbon emissions are contained within the Carbon Assessment and Reduction Report (Appendix L).

The impact on traffic flows (lifecycle stage B9 user utilisation of the scheme) due to the use of the facility would result in an estimated increase of 3,069tCO_2e over the five years of operation. In addition, the lighting (lifecycle stage B6 operational energy use) through the operation of the scheme is estimated to result in 239tCO_2e over the five years. The quantity of emissions is relatively small equating to approximately 0.00017% of the UK 4th Carbon Budget[32] and through the implementation of the carbon reduction principles, detailed in Appendix L, the emissions have been minimised as far as possible. Therefore, it is not considered that the carbon emissions would have a significant effect. Nonetheless, best practice measures such as enabling waste to be effectively segregated during operation to enable materials to be managed using the waste hierarchy, where possible, measures would be put in place to limit profligate energy use by unintended user behaviours, within the REAC (C2) in Appendix C would be implemented to further reduce the impact upon climate change.

[30] Mott MacDonald (2020) Defra EUX Sites HMRC Buildings Performance Specification 420236-MM-SP-001 A. September 2020

[31] Mott MacDonald (2020) Defra EUX Sites HMRC Buildings Performance Specification 420236-MM-SP-002 B. September 2020

[32] A negligible amount of negative emissions are reported for the 3rd Carbon Budget so total operation emissions are compared to the 4th Carbon Budget (2023-2027).

The scheme may be vulnerable to extreme weather as a result of climate change during operation. In addition, as the drainage infrastructure would remain in situ following the 5 year consent, the drainage has been designed in accordance with the *Design and Construction Guidance (2020)* for the 1 in 100-year storm event plus a 40% allowance for climate change (refer to Appendix L for further details). As such, no significant effects on the scheme as a result of climate change are anticipated.

Reinstatement: The reinstatement of the scheme is not anticipated to result in any new or materially different effects than the construction. The design of the buildings has been undertaken with re-use in mind as such, these elements of the design would be deconstructed to allow for reuse or recycling elsewhere. These principles of carbon reduction would be carried forward into reinstatement further reducing the impact upon climate change. These measures include exploring the potential to maximise resource efficiency through the reuse of assets following the end of operation. Where reuse is not possible, then recycling would be the next priority. These are outlined in the REAC (C1 and C3) in Appendix C and would be included within the Reinstatement Plan and adhered to by the Reinstatement Contractor. Therefore, no significant effects are anticipated upon climate during reinstatement. Upon reinstatement carbon emissions would likely revert back to baseline conditions as HGVs would no longer use the site and the buildings and lighting would be removed. However, the blue-green infrastructure would remain on-site and as such is likely to provide some longer-term benefits with regards to carbon sequestration.

3.12 Cumulative Effects

In addition to *DMRB LA 104*[33], the assessment of cumulative effects has also been guided by the *Planning Inspectorate Advice note seventeen (Cumulative effects assessment)*[34] and the *EIA Regulations 2017* in relation to determining the types of developments to be considered as part of the cumulative effects assessment.

A maximum Zone of Influence (ZOI) has been established to provide a study area for the scheme, drawing on the study areas identified for each environmental discipline described in Section 3.2 and 3.10 above. The largest study area identified is for biodiversity. Although a study area of 30km for European sites designated for bats is included within biodiversity assessment, as this is not relevant for this scheme, the largest relevant study area is 2km. This therefore represents the greatest ZOI for identifying the baseline. Additionally, cumulative effects must also consider the ZOI from other developments within the vicinity of the scheme. Therefore, assuming that the maximum study area of other developments within the vicinity of the scheme is also 2km, the scheme considers a maximum study area of 4km. This would account for the potential 2km overlap from other developments.

Cumulative effects would be considered alongside other developments within the vicinity that are also likely to result in cumulative effects and are confirmed for delivery over a similar time frame. This would include road projects and developments listed in Schedule 1 and those deemed as 'EIA Development' in Schedule 2 of the *EIA Regulations*.

In addition, although not deemed to be EIA development, the Waterbrook Ashford IBF has also been included within the assessment in Table 3.3. This is due to the similar nature of the

[33] Highways England (2020) *DMRB Sustainability and Environment Appraisal LA 104 Environmental assessment and monitoring.* Available at: https://standardsforhighways.co.uk/dmrb/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a

[34] The Planning Inspectorate (2019) *Advice note seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects.* Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf

developments, close proximity and as both the scheme and the Waterbrook Ashford IBF would encompass the same government organisations (DfT and HMRC) operations within the site.

Developments within the vicinity of the scheme are shown in Cumulative Effects Development Plan (Appendix M).

Where possible, the dates for the construction and operation start and finish dates of these developments were obtained from publicly available documents submitted to the relevant local authority. However, not all dates were available. In this instance, a review of aerial imagery was undertaken to indicate whether construction of the development had begun.

Table 3.2 below outlines the relevant ZOI for each environmental discipline assessed within this report.

Table 3.2: ZOI for each environmental discipline assessed in relation to cumulative effects

Environmental discipline	DMRB topic	ZOI
Population and human health	Air Quality LA 105	**Construction and Operation:** 200m
	Noise and Vibration LA 111	**Construction and Operation:** 600m
	Population and human health LA 112	**Construction and Operation:** 500m
Biodiversity	Biodiversity LA 108	**Construction and Operation:** 2km
Land, soil, water, air and climate	Geology and soils LA 109	**Construction and Operation**: 250m
	Climate LA 114	**Construction and Operation:** Site boundary and affected road network
	Road drainage and the water environment LA 113	**Construction and Operation:** 500m
Material assets and waste, cultural heritage, and landscape and visual effects	Cultural Heritage LA 106	**Construction and Operation:** 300m
	Landscape and visual effects LA 107	**Construction and Operation:** 2km
	Materials assets and waste LA 110	**Construction and Operation:** N/A
Heat and radiation and Major accidents and disasters	Environmental assessment and monitoring LA 104	**Construction and operation:** N/A

3.12.1 Relevant Developments

There are 10 developments that meet the criteria outlined above and that are located within 4km of the scheme, as detailed in Table 3.3 and shown in the Cumulative Effects Plan (Appendix M). The developments that were identified following the criteria within the study area have been confirmed with Ashford Borough Council. Although the criteria specify that EIA development are included within the cumulative assessment, Waterbrook Inland Border Facility has also been included in this list. Despite not being an EIA development, it was considered within the assessment due to the similar uses of the site and its use by the same Government organisations.

Table 3.3 EIA developments within 4km of the scheme

Name	Planning Reference	Address	Distance from scheme	Description	Status	Construction / Operation Dates
Waterbrook Development	18/00098/AS	Zone A, Waterbrook Park, Waterbrook Avenue, Sevington, Kent	Approximately 180m east of the scheme.	Construction and operation of a 600-space truck stop, a service building providing ancillary truck stop service facilities and offices. Provision of buildings for small and medium enterprises; associated access, parking and landscaping, including highway infrastructure works to Waterbrook Avenue, and for 8.9 hectares ha of employment uses comprising uses falling within offices, industrial and storage or distribution, a superstore, drive-through restaurants, a petrol filling station and ancillary convenience store, and car showrooms. Construction of up to 400 residential dwellings, with neighbourhood retail uses, associated drainage, parking, landscaping and infrastructure.	Permission granted	The construction period is anticipated to be approximately 10 years to complete the development in its entirety. Construction started in 2018.
Waterbrook Ashford Inland Border Facility (not EIA development. Refer to Section 3.12 above)	N/A	Waterbrook Avenue, Sevington, Kent	Approximately 180m east of the scheme.	Development and use of the site as an inland border facility.	No planning permission currently. Consent to be granted under a Special Development Order in Autumn 2020.	Construction commenced on this site under Waterbrook Development (18/00098/AS) consent (see above). Construction would then continue once SDO consent in place. Aspirations to be operational from 1st January 2021.
Cheeseman's Green	16/00125/AS	Land south of Captains Wood, Land at Cheeseman's Green, Cheeseman's Green Lane, Kingsnorth, Kent	Approximately 900m south west of the scheme.	Construction of 326 new dwellings with associated access, parking, landscaped areas including a neighbourhood play area, internal roads for the development, and surface water drainage measures.	Permission granted	Although information is not available relating to the duration of the construction period, a review of aerial imagery captured in July 2018, indicates that the development is still under construction and is not fully operational.
Newtown Works	19/01476/AS	Newtown Railway Works, Newtown Road, Ashford, Kent, TN24 0PN	Approximately 1.5km north west of the scheme.	Mixed-use development comprising of film / TV Studios with associated post-production offices and associated workshop and media village. Construction of a 120-bedroom hotel,	Pending decision	The construction period is anticipated to be approximately two years to complete the development in its entirety.

Name	Planning Reference	Address	Distance from scheme	Description	Status	Construction / Operation Dates
				including reception/ancillary space and food and beverage space, restaurant, leisure facilities and event / conference space. Construction of 62 serviced apartments, 303 dwellings, and a 336-space multi-storey carpark. Change of use, internal and external alterations of the Paint Shop building, Acetylene Store and Clock Tower listed buildings to provide ancillary uses to the film/TV studios; plus associated infrastructure including open space, landscape and public realm provision, external parking, servicing, pedestrian and vehicular access and associated engineering, utilities and infrastructure works.		Construction was programmed to begin mid-2020, however this is likely to be delayed due to the decision still pending.
Park Farm	18/00625/AS	Land south of Park Farm East, Hamstreet Bypass, Kingsnorth, Kent	Approximately 2.6km south west.	Construction of 353 dwellings. On-site highway works together with associated parking, infrastructure, drainage, open space, landscaping and earthworks.	Permission granted	The construction period is anticipated to be approximately 30 months, to complete the development in its entirety. Construction has been delayed due to the Covid-19 outbreak but is anticipated to be finished in January 2023.
Beaver Road	19/01597/AS	Home Plus, Beaver Road, Ashford Kent	Approximately 2.7km north west of the scheme.	Demolition of the existing buildings on the site and the erection of 223 dwellings and commercial floorspace comprising three commercial units and roof top restaurant, with associated access and landscaping.	Pending decision	Information for construction is not available. The development was assessed with an opening year of 2024.
Conningbrook Park	19/00025/AS	Land between railway line and Willesborough Road, Kennington, Kent	Approximately 3.15km north of the scheme.	Construction of 437 dwellings, formal and informal space incorporating SuDS and associated services, infrastructure and groundworks. Construction of 288 dwellings, the creation of service plot of land to facilitate the delivery of a two-form entry primary school with associated outdoor space and vehicle parking, a new bowls centre including a club house, ancillary building and a bowling green, a local centre to provide retail and leisure space,	Pending decision	The construction period is anticipated to be approximately 10 years to complete the development in its entirety.

Name	Planning Reference	Address	Distance from scheme	Description	Status	Construction / Operation Dates
				open space incorporating SuDS, vehicle parking, and associated services, structural landscaping, infrastructure and groundworks.		
Pentland Homes and Jarvis Homes	15/00856/AS	Land at Pound Lane, Magpie Hall Road, Bond Lane and, Ashford Road, Kingsnorth, Kent	Approximately 3.4km south west of the scheme.	Construction of 550 dwellings. Provision of local recycling facilities. Provision of areas of formal and informal open space. Installation of utilities and infrastructure to serve the development. Transport infrastructure including highway improvements in the vicinity and an internal network of roads and junctions, footpaths and cycle routes. New planting and landscaping both within the proposed development and on its boundaries as well as ecological enhancement works. Associated groundworks also required.	Pending decision	The construction period is anticipated to be approximately five years, to complete the development in its entirety. Construction start dates are unknown.
Court Lodge	18/01822/AS	Land at Court Lodge, Pound Lane, Kingsnorth	Approximately 3.7km west of the scheme.	Construction of up to 1000 dwellings, local centre comprising retail uses, office, and community facilities including a primary school, a combined community hall and site management suite. Highway works and new pedestrian and cycle routes, including allotment gardens and areas if ecological habitats. Drainage infrastructure, earthworks and ancillary infrastructure.	Pending decision	The construction period is anticipated to be approximately 10 years to complete the development in its entirety. Construction is anticipated to commence 2020/2021.
Stour Park Development	14/0906/AS	Land north of Highfield Lane, Sevington	Within site boundary	Development to provide an employment led mixed use scheme, to include site clearance, the alteration of highways, engineering works and construction of new buildings and structures of up to 15.7 hectares, together with ancillary and associated development including utilities and transport infrastructure, car parking and landscaping.	Permission granted	This development would not come forward whilst the scheme is constructed and operational, and the scheme is located on the same land as this development. As such, the development may come forward after the consent for the scheme has expired.

An assessment has been undertaken to determine whether there would be any likely significant environmental effects that would arise from the scheme in combination with the other relevant developments. The assessment is present in Table 3.4 below.

The assessment concludes that there would not be any likely significant cumulative environment effects as a result of the scheme in combination with those developments identified in Table 3.3 above. Therefore, no mitigation, further to that outlined within the environmental discipline sections in this report and captured within the REAC (Appendix C), is required.

The small scope of decommission and reinstatement is anticipated to result in no new or materially different effects than the construction stage. As such, it is not considered likely that there would be any cumulative effects with other developments during this phase of development, and this has subsequently been excluded from Table 3.4 below.

Table 3.4 Assessment of Likely Significant Cumulative Effects

Development	Phase	
	Construction	Operation
Waterbrook Development (18/00098/AS)	The construction of the scheme is likely to overlap with the remaining construction of the truck stop element of the Waterbrook Development, which is currently near complete. As such there is likely to be cumulative effects for nearby residential receptors in particular as a result of construction noise and the presence of construction machinery for both sites. However, the truck stop has mostly been built out already, ion with few remaining elements left to construct, including the acoustic barriers. No other phases of this development are anticipated to be constructed within the timeframe, as detailed permission has not been granted consent yet. the remaining works are small in scale and would be short in duration for the truck stop, with only a small element overlapping with the six-month construction duration for the scheme. Additionally, construction works for the truck stop are being managed in accordance with a CMP, as indeed the construction works for the scheme would be, thus ensuring that construction impacts are reduced to acceptable levels for both sites. As such, due to the small-scale of the remaining works for the construction of the truck stop element of , and with the implementation of the respective CMPs, the cumulative effect as a result of the construction of the remaining elements of the truck stop with the construction of the scheme would not result in any additional effects greater than those reported in the preceding sections of this report where there would be overlapping ZOIs (Sections 3.2 to 3.11). Cumulative effects would therefore not be significant.	The operation of the truck stop element of the part of the Waterbrook Development is considered within the Waterbrook Ashford Inland Border Facility (see below), whereby consent has been granted for the site to be used as an Inland Border Facility. However, there is potential for the construction of the remaining elements of the Waterbrook Development to overlap with the operation of the scheme due the length of the construction period being 10 years. Due to the distance from the scheme, the ZOI overlaps for air quality, noise and vibration, population and human health, landscape and visual effects, biodiversity, cultural heritage, geology and soils, and the road drainage and the water environment, as such there is the potential for cumulative effects. However, the Environmental Statement that supported the development concluded that it would not result in any significant effects during construction given the implementation of an appropriate CMP. As such, given that the respective CMP is adhered to by the Principal Contractor for the Waterbrook Development and the environmental design is implemented and the OMP adhered to by the Principal Operator for this scheme, any cumulative effects are unlikely to be significant.
Waterbrook Ashford Inland Border Facility	The construction phase of the scheme and this development would overlap. Whilst cumulative effects may occur during this period as a result of construction noise and the presence of construction machinery for both sites, both of these schemes would be constructed in accordance with a CMP which would ensure that construction impacts	The Waterbrook IBF and the Sevington IBF would not operate at the same time (fully or partially). It is the intention of the Government agencies that only one of these facilities would be required to be operational at one time. Waterbrook IBF provides a backup facility for the Sevington IBF should the scheme not be ready to operate in time or should the

Development	Phase	
	Construction	Operation
	are reduced to acceptable levels for both sites. Additionally, construction activities would only be for a maximum duration of 3 months for the Waterbrook Ashford Inland Border Facility, with the same construction start dates as for the scheme. Therefore, no significant cumulative effects are anticipated due to the small-scale and duration (maximum 3 months) where cumulative effects could arise, and with the implementation of construction mitigation as detailed within the respective CMPs.	scheme experience a major accident (such as a fire or spill) which would require closure. The presence of the lighting on the Waterbrook Ashford Inland Border Facility would however remain present on-site even if the site was not in use, although these would not be used during hours of darkness when the scheme is not operational. The presence of these lighting columns could impact the same visual receptors along Church Road which would be affected by the scheme, thus resulting in cumulative effects. However, due to the intervening infrastructure, such as HS1 and the railway sidings, the effect on these receptors is anticipated to be no worse than those reported in Section 3.4. As such, no significant cumulative effects are anticipated.
Cheeseman's Green (16/00125/AS)	The construction phase of the scheme and this development would overlap. However, the overlapping construction periods would be for a maximum length of six months due to the small-scale construction works required for the scheme. Whilst cumulative effects may occur during this period, permitting that the respective CMPs are adhered to by the Principal Contractors working on the development and the scheme, such effects are not anticipated to be significant.	Operation of the scheme has the potential to overlap with the construction period of Cheeseman's Green. Due to the distance between the scheme and Cheeseman's Green (930m) only landscape and visual effects, noise and vibration, and biodiversity environmental disciplines have an overlapping ZOI and the potential for cumulative effects. The Cheeseman's Green Environment Statement considered that the increase in road traffic noise would not result in significant effects, with measures such as vehicle rerouting and the timing of works deemed appropriate to mitigate noise impacts. Whilst the Environment Statement did outline that there would be a detrimental impact on landscape quality as a result of the development, it is not anticipated that the scheme would exacerbate this, due to the intervening infrastructure between the sites, and consequently there would not be significant cumulative effects. Furthermore, the scheme would not result in any significant effects on biodiversity, and there is minimal habitat connectivity between the scheme and the development, due to the presence of intervening infrastructure. Therefore, no significant cumulative effects are anticipated to occur in relation to biodiversity.

Development	Phase	
	Construction	Operation
Newtown Works (19/01476/AS)	The development has not yet been granted consent. The construction period for the scheme would be for a maximum period of six months, with operation commencing in January 2021, and therefore, it is considered unlikely that the construction periods would overlap. Therefore, no significant cumulative effects are anticipated.	Operation of the scheme has the potential to overlap with the construction and operation period of Newtown Works. Due to the distance between the scheme and Newtown Works (1.5km) only landscape and biodiversity environmental disciplines have an overlapping ZOI and the potential for cumulative effects. Due to the presence of existing and proposed infrastructure, most notably the urban area of Ashford, it is unlikely that significant landscape effects would occur. Furthermore, the scheme would not result in any significant effects on biodiversity, and there is no habitat connectivity between the scheme and the development, therefore no significant cumulative effects are anticipated to occur in relation to biodiversity.
Park Farm (18/00652/AS)	The construction phase of the scheme and this development would overlap. Due to the distance between the scheme and Park Farm (2.6km) only landscape and biodiversity environmental disciplines have an overlapping ZOI and therefore the potential for cumulative effects. Significant adverse effects are reported for Park Farm due to the loss of habitats, severance of a site of natural conservation importance, and visual impacts. However, due to the distance from this scheme, the lack of connecting habitat as a result of HS1 and the A2070 in between the two sites, and the loss of habitat widely available in the local area, this scheme would not result in any significant effects on habitats. As such no cumulative significant effects worse than those reported for Park Farm are anticipated. In addition, the same visual receptors would not be affected for Park Farm and the scheme due to the distance between the scheme and the presence of existing and proposed infrastructure. Therefore, no significant cumulative effects are anticipated.	Operation of the scheme has the potential to overlap with the construction period of Park Farm. Due to the distance between the scheme and Park Farm (2.6km) only landscape and biodiversity environmental disciplines have an overlapping ZOI and therefore the potential for cumulative effects. However, once the scheme is operational, it is expected that there would be some slight beneficial effects to habitats during operation following the implementation of the environmental design. As such, combined with the distance between the development and the scheme, and the implementation of the environmental design, then no significant cumulative effects would be anticipated for biodiversity. Due to the presence of existing and proposed infrastructure, most notably the Waterbrook Development, Ashford Waterbrook Inland Border Facility, and transport infrastructure, it is unlikely that cumulative landscape effects would occur. Overall, no significant cumulative effects are anticipated during operation.
Beaver Road (19/01597/AS)	The development has not yet been granted consent. The construction period for the scheme would be for a maximum period of six months with operation commencing in January	Operation of the scheme has the potential to overlap with the construction period for the Beaver Road. Due to the distance between the development and the scheme (2.7km)

Development	Phase	
	Construction	Operation
	2021, and therefore, it is considered unlikely that the construction periods would overlap. Therefore, no significant cumulative effects are anticipated.	only landscape and biodiversity environmental disciplines have an overlapping ZOI and therefore the potential for cumulative effects. However, due to the presence of existing and proposed infrastructure, most notably the urban area of Ashford, it is unlikely that cumulative landscape effects would occur. Furthermore, there is no habitat connectivity between the scheme and the development, therefore no significant cumulative effects are anticipated to occur in relation to biodiversity.
Conningbrook Park (19/00025/AS)	The development has not yet been granted consent. The construction period for the scheme would be for a maximum period of six months with operation commencing in January 2021, and therefore, it is considered unlikely that the construction periods would overlap. Therefore, no significant cumulative effects are anticipated.	Operation of the scheme has the potential to overlap with the construction period of Conningbrook Park. Due to the distance between the development and the scheme (3.15km) only landscape and biodiversity environmental disciplines have an overlapping ZOI and therefore potential for cumulative effects. Due to the presence of existing and proposed infrastructure, most notably the suburb of Willesborough, it is unlikely that cumulative landscape effects would occur. Furthermore, there is no habitat connectivity between the scheme and the development, therefore no cumulative effects are anticipated to occur in relation to biodiversity.
Petland Homes and Jarvis Homes (15/00856/AS)	The development has not yet been granted consent. The construction period for the scheme would be for a maximum period of six months with operation commencing in January 2021, and therefore, it is considered unlikely that the construction periods would overlap.	Operation of the scheme has the potential to overlap with the construction period of Pentland Homes and Jarvis Homes Kingsnorth Green. Due to the distance (3.4km) between the scheme and Pentland Homes and Jarvis Homes Kingsnorth Green only landscape and biodiversity cumulative effects are considered, as the other environmental disciplines are outside of the ZOI. However, due to the presence of existing and proposed infrastructure, most notably residential properties, it is unlikely that cumulative landscape effects would occur. Furthermore, there is no habitat connectivity between the scheme and the development, therefore no cumulative effects are anticipated to occur in relation to biodiversity.

Development	Phase	
	Construction	Operation
Court Lodge (18/01822/AS)	The development has not yet been granted consent. The construction period for the scheme would be for a maximum period of six months with operation commencing in January 2021, and therefore, it is considered unlikely that the construction periods would overlap. Therefore, no significant cumulative effects are anticipated.	Operation of the scheme has the potential to overlap with the construction period of Court Lodge. Due to the distance of the development from the scheme (3.7km) only landscape and biodiversity environmental disciplines have an overlapping ZOI and therefore the potential for cumulative effects. Due to the presence of existing and proposed infrastructure, most notably residential properties, it is unlikely that cumulative landscape effects would occur. Furthermore, there is no habitat connectivity between the scheme and the development, therefore no significant cumulative effects are anticipated to occur in relation to biodiversity.
Stour Park Development (14/0906/AS)	As outlined in Section 2.2 the construction of Phase 1A of this development has commenced on the site. However, the construction for the scheme would continue following the construction works which have commenced for Phase 1A, and as such the construction works for Stour Park Development and the scheme would not overlap. As outlined in Section 3.1.1, although the construction for Phase 1A has commenced on site, the assessment under taken within this report has assumed the baseline prior to the implementation of the Phase 1A works to enable the worse-case scenario with regards to the amount of change, and captures all of the environmental effects associated with all elements of the scheme. As such, the construction assessment presented within this report, essentially considers the cumulative effects of construction of the Phase 1A works of the Stour Park Development with the construction of the remaining elements for the scheme as a whole.	This development would not come forward whilst the scheme is operational, as the scheme is located on the same land as this development. The development may come forward after the consent for the scheme has expired. As such, no cumulative operational effects are anticipated.

3.13 Heat and Radiation

The scheme would not result in any increases in heat and radiation due to the type of development as an IBF. Therefore, no significant effects are anticipated during construction, operation or reinstatement of the scheme. As such, no residual effects are anticipated.

3.14 Major Accidents and Disasters

The scheme would not likely be affected by natural hazards due to its location. However, there is potential for anthropogenic hazards to occur on-site, either deliberately or accidentally, for instance a fire or terrorist attack. Due to the scope of the scheme as a temporary IBF, it is not considered that the site would be highly vulnerable to a major accident during construction, operation or reinstatement. Likely potential environmental receptors that could be directly affected as a result of a major accident or disaster occurring at this site would be population and human health (specifically the staff or HGV drivers), soil on and surrounding the site, and watercourses downstream of the site.

Measures would be incorporated through the design and OMP to manage health and safety risks on-site. This includes the presence of security on-site, fire extinguisher points, and the inclusion of a Fire Risk Management Plan within the OMP. The risk of pollution to soils and watercourses has been addressed within Sections 3.5 and 3.10. Therefore, it is not considered that the scheme would result in significant effects due to the risk of major accidents or disasters.

3.15 Odour

The Institute of Air Quality Management (IAQM) guidance[35] is regarded as a practical tool for assessing the possible impact of potentially odorous processes. Adverse odour impact can develop because of intermittent but regular exposure to odours at a level that the receiving environment considers offensive. The factors that contribute to odour are generally summarised as:

- Frequency of exposure
- Intensity or strength of exposure (odour concentration)
- Duration of exposure
- Offensiveness of the odour
- Location sensitivity

The study area for an odour assessment is the surrounding area which is at risk of odour impact as a result of odour emissions for the scheme. Receptors are the users of the adjacent land, which may vary in their sensitivity to odour. Table 2 within the IAQM guidance lists high, medium and low sensitivity receptors. The site and surrounding land are considered to be a low sensitivity receptor where:

- '*the enjoyment of amenity would not reasonably be expected; or*
- *There is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.*

Examples may include industrial use, farms, footpaths and roads.'

As there are no odorous activities involved in the construction of the scheme, there is not likely to be any significant releases of odour and therefore construction odour has been scoped out of this assessment. The potential odour impacts of the scheme during operation were assessed by

[35] IAQM (2018) *Guidance on the assessment of odour for planning.* Available at: http://iaqm.co.uk/text/guidance/odour-guidance-2014.pdf

identifying the elements of the scheme that have the potential to generate odorous emissions. During the Post-Day 200 phase of operation, the addition of the Defra buildings containing live animals has been considered as a source of odour during operation. As the site would serve Eurotunnel trains (as outlined in Section 2.3.2.1), the animals expected on-site are in line with Eurotunnel guidance from their website[36] that summarises the animals accepted on passenger shuttles:

- Dogs, cats and ferrets (pets or for commercial purposes)
- Rodents, rabbits, birds, invertebrates, amphibians and reptiles
- Domestic equidae (horses, ponies, donkeys and mules)

The daily check numbers for live animals on-site within the Defra BCP is anticipated to be less than 10 HGVs per day carrying live animals from the list above during operation. Due to the scope of the scheme as a temporary IBF, the fact that no animals would be livestock i.e. odorous animals considered to be highly or moderately offensive in line with the H4 benchmark criteria in the IAQM guidance, and small numbers of HGVs carrying live animals are expected per day, it is not considered that the site would be highly vulnerable to significant odour effects during operation. Additionally, the Defra BCP would have a ventilation system designed to efficiently control and when required remove humidity from within the buildings. In addition, waste and wastewater from the Defra BCP would be captured within a contained tank. It is generally considered that a low sensitivity receptor subject to a small odour exposure will experience a negligible effect as stated within Section 3.2 and within Table 3 of the IAQM guidance.

Therefore, considering the above measures and the relatively low odour emissions associated with the animals expected on-site, the risk of odour impact during operation is considered to be not significant, especially given the temporary nature of operation (maximum of five years).

[36] Eurotunnel (2020) *Carriage of animals*. Available at: https://www.eurotunnel.com/uk/legal/carriage-of-animals/

4 Summary

This analysis of likely environmental effects report has been prepared for the proposed temporary use of land and associated works, for a maximum of five years, for an Inland Border facility (IBF) at Sevington in Kent.

This report sets out the potential for likely significant environmental effects (adverse or beneficial) as a result of the scheme, and where relevant, outlines the measures incorporated in the scheme design and delivery method to avoid, eliminate or reduce what might otherwise have been significant adverse effects on the environment. The objective is to determine if the temporary use of land and associated works is considered to be EIA development or otherwise in accordance with Schedule 3 of the EIA Regulations. The overall conclusions on whether the development constitutes EIA are set out below.

The scheme, as described in Chapter 2 of this report, is likely to comprise development listed under Schedule 2 of the EIA Regulations, in view of the extent of land to be used for the IBF and associated buildings and works. As such, screening for EIA is required to determine if there would be any likely significant effects on the environment in line with the selection criteria for screening Schedule 2 development outlined within Schedule 3 of the EIA Regulations.

Chapter 2 of this report describes the characteristics of the development and location of the scheme. Chapter 3 of this report describes the types and characteristics of potential impact as a result of the scheme, as informed by the identification of the environmental baseline, environmental constraints, sensitivity of environmental receptors and an analysis of the potential environmental effects. The analysis has considered the wider criteria outlined in Schedule 3 of the EIA Regulations and as detailed in Table 1.1 in Chapter 1.

The assessment presented in the preceding chapters is summarised in Table 4.1 below. These conclusions are informed by the duration and design of the scheme as a temporary IBF on a site that already has consent for the Stour Park Development (14/00906). Development on-site has already commenced under the Stour Park consent, and as such, the former land use of this site as an arable field has already been changed to that of a partially built out development. However, this analysis of likely environmental effects has assumed a baseline of prior to the implementation of the Stour Park Development planning permission. This enables the assessment presented within this report to consider the worst-case scenario with regards to the amount of change, and captures all environmental effects associated with all elements of the Scheme.

No part of the scheme would be carried out in a sensitive environmental area, as defined under Part 1 of the EIA Regulations. The assessment presented within this report considers the temporary nature of the development, and the reversibility of effects for the site, factoring in its subsequent reinstatement after the five-year use as an IBF. The intensity of the use would also substantially reduce at or before Day 200, when the parking areas in the north-west and the south of the site would be suspended, along with the removal of the parking areas in the viewing corridor, thus limiting the use of the IBF from a capacity of 1,272 HGV spaces to 651 after six months. This strategy has principally been implemented to ensure that there would not be any significant effects for the Grade 1 Listed Church of St Mary, since the most harmful activities would be for a maximum period of six months.

An Environmental Masterplan has been developed for the scheme for both Day 1 and Day 200 (drawing ref: 419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031), which

encompasses specific mitigation measures to prevent and reduce significant adverse environmental effects, principally for the Church of St Mary and for visual receptors adjacent to the site, as well as to provide replacement and new habitats. It has been developed to broadly complement the landscaping strategy that has been submitted and approved for the Stour Park Development. For Day 200, the Environmental Masterplan builds upon the bunding and planting included in the Day 1 Environmental Masterplan, with the addition of soft landscaping within the viewing corridor in the centre of the site where the parking infrastructure would be removed at Day 200. The landscape works would be carried out at the earliest possible opportunity so as to deliver the mitigation in the early phases of operation and allow the maximum time for establishment of soft landscaping over the lifetime of the development.

After five years, all of the infrastructure associated with the scheme would be removed from site, leaving only areas of hardstanding in the once operational plots of the site, along with the drainage infrastructure, the SuDS ponds and the permanent site access. The retention of these plots areas, which closely mirror those of the Stour Park Development, do provide the opportunity to bring forward a mixed-use employment development following the ceasing of the scheme, and therefore, the scheme would not impede on the potential future use of the land for employment. Additionally, the green-blue infrastructure and all landscape bunds would be retained and managed on-site following the five-year consent. In time, it is expected that the retention of this green-blue infrastructure would provide long-term benefits for landscape character and visual receptors within close proximity of the site and secure a net gain for biodiversity. In addition, further enhancements would also be implemented, such as the provision of footpaths and information boards. The retention of the green-blue infrastructure and potential further enhancement measures are not required to prevent or reduce significant effects, but would ensure a positive long-term legacy for the local community. Indicative proposals are outlined on the Long-Term Enhancement Plan (drawing ref: 419419-MMD-01-MO-DR-L-3032), which would be further developed and detailed through engagement with key stakeholders, and would be captured within the Reinstatement Plan required under Schedule 2 (Conditions) (Part 4 Reinstatement) of the SDO.

Table 4.1 Summary of impacts, mitigation measures and significance of effect for each environmental discipline

Environmental discipline	Summary of impacts	Mitigation measures*	Overall significance of effect
Air quality	• Construction traffic movements would not meet the assessment threshold, emission associated with construction traffic are not anticipated to cause a significant air quality effect. • Potential for construction dust cause to cause nuisance to nearby residential properties. • At all modelled human health receptors, the resultant concentrations during operation would be either below the relevant air quality objective or the difference in concentration is less than 1% of the relevant air quality objective. • No new exceedances of the critical level or a change in nitrogen deposition greater than 1% of the relevant minimum critical load for ecological receptors during operation.	• Best practice measures to limit and control dust emissions.	No likely significant effects

Environmental discipline	Summary of impacts	Mitigation measures*	Overall significance of effect
Cultural heritage	• There would be no direct impacts on any heritage assets. • Likely that there would be visual changes caused by construction plant, machinery and construction activities on the site resulting in temporary changes to the setting of nearby heritage assets, including the Grade I listed Church of St Mary adjacent to the site. • Temporary change in setting to heritage assets, including the Grade I listed Church of St Mary through the introduction of the built infrastructure. • The context of the existing M20 and the commercial and light industrial units on the edge of Ashford, HS1 and the A2070 Bad Munstereifel road reduces the magnitude of impact during both construction and operation. • Construction would result in the removal or truncation of buried archaeology within the footprint of the scheme.	• Archaeological investigations in accordance with an agreed Written Scheme of Investigation. • Implementation of the environmental design included in the Environmental Masterplan (419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) and Long-Term Enhancement Plan (419419-MMD-01-MO-DR-L-3032).	No likely significant effects
Landscape and visual effects	• The immediate area of the LCA2 Mersham Farmlands affected by the works is likely to see substantial alteration in the localised area during both construction and operation. The presence of detracting features in the north west corner of the LCA and limited impacts on the wider context of the LCA reduces the severity of the impact to minor in both instances. • Long term, there would be some benefits to LCA2 as a result of the retention of the planting included in the landscape design following the 5-year consent along with the incorporation of environmental enhancements in line with proposals included in the Long-Term Enhancement Plan. • Slight visual disruption for a number of nearby receptors including near distance views for properties neighbouring the scheme during construction. During operation, visual disruption would be moderate for five out of 18 visual receptors, but for the majority of receptors, the presence of existing intervening vegetation, and early implementation of the landscape mitigation, would screen views to the operational aspects of the scheme. The more adverse impacts would be progressively softened during operation as landscape planting matures and with the reduction in capacity at Day 200. The removal of infrastructure at Year 5 would see a further reduction in	• Best practice measures to reduce visual effects of stockpiling such as seeding and keeping height to 2m. • Phase implementation of landscape design in accordance with the Environmental Masterplan (419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) to enable screening. • Implementation of long-term measures as indicated in the Long-Term Enhancement Plan (419419-MMD-01-MO-DR-L-3032).	No likely significant effects

Environmental discipline	Summary of impacts	Mitigation measures*	Overall significance of effect
	impact, and there would be no adverse impact in the long-term.		
Geology and soils	• Site investigation and laboratory analysis of soils on-site has not identified any elevated levels of contaminants above generic screening criteria, indicating that the soils are clean, natural material. No impacts with regard to deterioration of the quality of soils as a result of leaching, nor any risks to construction workers from contact with contaminated soils, leachates or ground gases. • Loss of Grade 2, Grade 3a and Grade 3b agricultural soils.	• Valuable topsoils and subsoils would be stripped, segregated and stockpiled appropriately for re-use across the site within the landscaping bunds. • Best practice measures to manage soil and groundwater contamination risks.	No likely significant effects
Biodiversity	• Temporary minor indirect effects Ashford Green Corridor LNR from dust deposition and noise pollution. • Loss of a hedgerow and hedgerow, scrub and scattered trees. • Closure of one badger sett and removal of dormouse ad reptile habitat. • No new exceedances of the critical level or a change in nitrogen deposition greater than 1% of the relevant minimum critical load for ecological receptors during operation. • Stage 2 Appropriate Assessment completed and concluded there would be no adverse effect, alone or in-combination, on the integrity of Stodmarsh SAC, SPA or Ramsar or its dependant features during construction and operation. • Long term positive biodiversity net gain of 9.7 units which has been calculated using the Biodiversity Metric 2.0	• Best practice measures to reduce dust, noise and pollution to biodiversity features. • Specific measures for reptiles, dormouse and badgers on-site, including Natural England licences. • Vegetation clearance to be undertaken outside of the bird nesting season. • Implementation of the environmental design included in the Environmental Masterplan (419419-MMD-01-MO-DR-L-3030 and 419419-MMD-01-MO-DR-L-3031) and Long-Term Enhancement Plan (419419-MMD-01-MO-DR-L-3032). • Drainage design for the scheme	No likely significant effects
Material assets and waste	• Material resources to be used in construction, thus resulting in a reduction in the availability of material resources and the potential depletion of natural resources. • Waste from construction activities generated - surplus site-won materials, vegetation clearance, surplus construction materials. • Small quantities of concrete, aggregate, bitumen and other materials, may be required for the maintenance of the proposed scheme during operation.	• Best practice measures to ensure appropriate waste management and that the principals of the waste hierarchy are adhered to.	No likely significant effects
Noise and vibration	• Increase in noise level for noise sensitive receptors during both construction and operation, from both site activities and changes to traffic flows.	• Best practice measures to limit noise emissions, including limiting vehicle idling where possible and preventing noisy works from occurring during unsociable hours.	No likely significant effects

Environmental discipline	Summary of impacts	Mitigation measures*	Overall significance of effect
		• Implementation of the noise barriers included in the General Arrangement Plan (419419-MMD-01-MO-SK-C-0028).	
Population and human health	• Temporary closure of PROWs A337A, AE338, AE363 and AE639. • Some limited, temporary employment opportunities are expected through the employment of site security and marshalling personnel. • Long term benefits for the local community to be explored through the implementation of the Reinstatement Plan.	• Best practice measures to reduce effects on the local community, such as ensuring that the community is kept informed on the proposals. • Temporary diversions of PROW are put in place. • Implementation of long-term measures as indicated in the Long-Term Enhancement Plan (419419-MMD-01-MO-DR-L-3032) to ensure a long-term legacy for the local community.	No likely significant effects
Road drainage and the water environment	• Potential for polluted run-off from construction works and from routine run-off from vehicles using the scheme (for example, petrochemicals or contaminated sediments) and from any accidental spillages from HGVs.	• Best practice measures to reduce potential adverse effects on the water environment, such as pollution prevention and spill response procedures. Implementation of the drainage design.	No likely significant effects
Climate	• GHG emissions through the emissions from plant used, transport of materials to site and the embodied carbon in the materials used, as well as HGV emissions	• Best practice measures for carbon reduction.	No likely significant effects
Cumulative effects	• Some overlap of construction and operational activities with other developments that meet the threshold for consideration in combination with the scheme.	• No specific mitigation measures beyond those already identified within this report.	No likely significant effects
Heat and radiation	• The scheme would not result in any increases in heat and radiation due to the type of development as an Inland Border Facility.	• No specific mitigation measures	No likely significant effects
Major accidents and disasters	• Potential for anthropogenic hazards to occur on-site, either deliberately or accidentally, for instance a fire or terrorist attack.	• Measures would be incorporated through the design and OMP to manage health and safety risks on-site.	No likely significant effects
Odour	• No impacts anticipated	• Non required	No likely significant effects

*Best practice mitigation is not required to prevent what would otherwise have been a significant effect, but is required to ensure legislative compliance and that the scheme is developed in an environmentally sustainable manner

The assessment considers the cumulation of the impact with other existing and/or approved development, for which no likely significant effects have been identified. Potentially significant effects have been avoided, eliminated or reduced through the provision of a robust environmental design and mitigation measures. The full extent of these measures is captured and identified within the REAC within Appendix C. All of these measures have either been

embedded in the scheme design or would be secured through the CMP, OMP and Reinstatement Plan for the scheme, as required under Schedule 2 of the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020*.

The overall conclusions give consideration to the full range of environmental factors considered within the analysis of likely environmental effects. During construction, some slight impacts are expected as a result of the presence of construction plant, construction traffic, the removal of some vegetation and temporary closure of PRoW. Due to the temporary nature of the works and magnitude of the impact, overall effects are not considered to be significant during this period. During operation, 5 out of 18 visual receptors would experience a moderate impact for the five years of operation only. These moderate impacts would reduce in line with the establishment and maturity of the landscape mitigation works, proposed to be in place by then end of the first planting season. For the remaining receptors across all environmental factors, operational impacts are expected to be slight at worst, with some beneficial impacts also anticipated for the local population through the creation of employment opportunities. This means that as a whole, effects are not considered to be significant during operation. Furthermore, it is expected that in time, the scheme would result in environmental benefits as a result of the retention of the green-blue infrastructure and the implementation of enhancement measures on the site as proposed in the Long-Term Enhancement Plan (drawing ref: 419419-MMD-01-MO-DR-L-3032).

Overall, with the measures identified as part of this assessment secured through the consent for the scheme, this analysis of environmental effects concludes that there would not be an overall significant adverse effect on the environment during construction, operation or reinstatement. This is due to:

- The temporary nature of the scheme being limited in duration to five years
- The reduction in intensity of use of the scheme after Day 200, including the limitation and suspension of parking areas for HGVs
- The reversibility of the development
- The extent, quality and early delivery of landscape mitigation measures
- The proposed parameters limiting the amount and extent of buildings and hardstanding
- The extensive embedded mitigation into the design of the scheme and through the measures identified in the REAC within Appendix C

Therefore, this assessment considers that the scheme would not comprise EIA development in accordance with Schedule 3 of the EIA Regulations.

A. Environmental Constraints Plan

B. Transport Assessment

C. Record of Environmental Actions and Commitments

C.1 Purpose of the Record of Environmental Actions and Commitments

This REAC has been produced to support an Analysis of the Likely Environmental Effects of the Development Report for the scheme.

The REAC contained in Table C.4.2 identified the environmental commitments included within the Analysis of the Likely Environmental Effects of the Development Report to address the potential environmental effects of the scheme. This is the main vehicle for passing essential environmental information to the Client and crucially to the body responsible for construction, future maintenance and operation, and reinstatement of the asset.

Table C.4.2 Record of Environmental Actions and Commitments

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			Traffic and Transport (TT)			
TT1	Support the operation of the site and minimise disruption on the road network	Operation	The following plans would be produced with relevant mitigation measures implemented to minimise the impacts on traffic in the local area: • Traffic Management Plan • Signage Strategy and Staff Travel Plan	No	Incorporation within the OMP	Principal Operator
			Air Quality (AQ)			
AQ1	To limit and control dust emissions	Construction and Reinstatement	Works would be carried out in accordance with Best Practicable Means, as described in Section 79 (9) of the Environmental Protection Act 1990, to reduce the creation of dust on-site. This would include: • Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locate stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Enforce a maximum speed limit of 15mph on surfaced roads and a 10mph speed limit on unsurfaced haul roads and work areas, to prevent the generation of dust by fast moving vehicles. • Damp down surfaces in dry conditions. • All vehicle engines and plant motors shall be switched off when not in use.	No	To be included in the CMP	Principal Contractor Reinstatement Contractor
			Cultural Heritage (CH)			
CH1	To reduce impacts on the	Construction	• Archaeological investigation in line with the Stour Park Development Written Schemes of Investigation, including:	Yes	To be included in the CMP and	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
	historic environment		– Strip, map and sample of areas west of Highfield Lane which were identified by the previous development application. – Trial trenching of the area south of Highfield Lane.		adherence to the Written Scheme of Investigation	
CH2	To reduce the impacts on the heritage assets during operation	Construction and Operation	• Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031	Yes	Incorporated in the environmental design	Principal Contractor
CH3	To provide longer-term benefits to heritage assets	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Addition of information boards, with potential interactive elements, regarding the Church of St Mary and the Royal Observer Corps Post	No	Incorporated in Restatement Plan	Reinstatement Contractor
			Landscape and Visual Effects (LVE)			
LVE1	To aid visual screening and limit visual impacts	Construction	• Prioritise their creation early in the construction period to aid screening of lower level activity • Seeded as priority to 'green up' earthworks. • Implementation of planting in the first planting season to aid the integration of the scheme with the surrounding landscape.	Yes	To be incorporated in the CMP	Principal Contractor
LVE2	To aid visual screening and limit visual impacts of the temporary stockpiles	Construction	• Kept to a maximum 2m in height. • Located as far away as possible from properties on Kingsford Street. • The 'active' side of the stockpile should be restricted to the western edge, adjacent to Highfield Lane which would aid screening of any soil and plant movements.	Yes	To be incorporated in the CMP	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• Stockpile should be seeded as a priority. The remaining faces of the stockpiles should be left inactive to limit visual intrusion upon neighbouring residential receptors.			
LVE3	To limit visual impacts from site lighting	Construction and Reinstatement	• Site task lighting should be kept to a minimum, be directional and use for the minimum time required. • Explore the use of infrared initiated security lighting to minimise night-time lighting.	No	To be included in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
LVE4	To limit visual intrusion and impacts upon landscape character	Construction and Reinstatement	• Keep a well-managed and tidy site, with construction materials delivered on an as and when needed basis to reduce material stockpiles on-site	No	To be included in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
LVE5	To limit visual intrusion and impacts upon landscape character during operation and reinstatement	Construction and Operation	• Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031)	Yes	Incorporated in the environmental design	Principal Contractor
LVE6	To provide longer-term enhancements and create a long-term positive legacy on the site	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Creation of informal open space – Addition of information boards highlighting the heritage assets and biodiversity value around the site	No	To be incorporated in Restatement Plan	Reinstatement Contractor
			Geology and Soils (GS)			
GS1	To ensure quality of	Construction	• The stockpile should be managed in line with the Defra *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites.*	Yes	To be incorporated in CMP	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
	stockpiled soil is maintained		• The stockpile must be removed after 12 months. • The stockpile should be seeded to maintain quality of soil.			
GS2	The management of soil contamination risks	Construction and Reinstatement	• Should any hazardous materials be encountered during construction, all materials would be dealt with in accordance with appropriate guidance. • Any fuels, oils or hazardous materials used during the works would be appropriately stored and kept in bunded areas to prevent pollution of surface and ground waters. Spill kits shall be provided on-site for the duration of the works and construction staff trained in their correct application.	No	To be incorporated in CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
			Biodiversity (B)			
B1	To limit disturbance to habitats and protected species	Construction	• Best practice measures would be employed on-site to minimise impacts due to construction noise, dust and water pollution as far as possible in line with AQ1, NV2 and RDWE1 • Ensure lighting is minimised to avoid light spill on habitats for dormice in the habitat surrounding the construction area • Careful siting of haul routes, materials storage areas, compounds, lighting and generators away from sensitive habitats • Night-time working would not be allowed during the months when bats are actively foraging (April to October inclusive) to prevent lighting disturbance to foraging bats	No	To be incorporated in the CMP	Principal Contractor / Ecological Clerk of Works
B2	To reduce habitat loss and degradation	Construction and Reinstatement	• Existing trees and vegetation to be retained (including hedgerows) would be protected during the construction phase with protective fencing. • Protective barriers should be installed in accordance with BS5837:2012 around all of the trees and groups that are due to be retained, at the distances dictated by the RPA dimensions stated in Table 3.4 of the Stour Park Pre-Development Arboricultural Survey (Report No: RT-MME-120243-08) to protect these trees.	No	To be incorporated in the CMP	Principal Contractor/Ecological Clerk of Works

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• An Arboriculturalist should attend site prior to commencement of the works to confirm the final positioning of the protective barrier. • For the location and alignment of the temporary protective barriers required for the additional trees and groups that have been removed or retained as part of the Sevington IBF works, refer to the Tree Protection Plans (418703-MMD-XX-SV-VS-YB-0001-04). For the location and alignment of the temporary protective barriers required for trees and groups that have not changed, refer to the Stour Park West AIA. • The area within the protective barriers i.e. tree side, would be a 'Construction Exclusion Zone' (CEZ) for the duration of the works. • All weather notices should be erected on the barrier with words such as: "Tree Protection Area — Keep out". • The following prohibitions shall also apply within the area enclosed by the temporary protective barriers: – No mechanical digging or scraping – No storage of plant, equipment or materials – No vehicular or plant access – No fire lighting within 10m of tree canopies – No handling, discharge or spillage of any chemical substance, including cement washings and vehicle washings within 10m – No action likely to cause localised waterlogging – No alteration of ground levels – No construction of hard surfaces – No attachment of boards, hoarding, cables or notices or fencing to trees – No storage of excavated materials • Special care is to be taken on sloping ground where spillages could run towards the trees. A collecting channel dug along the outer line of the protective fencing would be one method of avoiding such damage.			

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• If excavators are to be used during construction, at no time is the excavating arm to encroach over the position of the tree protection barriers. • All construction compounds, storage facilities and deliveries must aim to make use of existing hard surfaces to avoid unnecessary compaction within RPAs. If compounds require siting within RPAs, appropriate footings or ground cover must be used to avoid root damage or compaction of the soil and siting must ensure that any damage to aerial parts of retained trees is avoided.			
B3	To protect reptile populations on-site	Construction	• A Reptile Mitigation Strategy would be implemented in order to protect the reptile populations during construction. The following methodologies and techniques would be used prior to construction commencing: – Receptor site review; – Habitat manipulation; – Trapping and translocation; – Supervised soil strip; – Sensitive timing of works; – Worker awareness and sympathetic working practice.	Yes	To be incorporated in the CMP	Principal Contractor / Ecological Clerk of Works
B4	To protect badger populations	Construction	• Closure of badger outlier sett under a Natural England Licence	Yes	Natural England Licence compliance	Principal Contractor/Ecological Clerk of Works
B5	To protected dormice populations	Construction	• Removal of dormouse habitat under a Natural England licence and ensure sensitive method of vegetation clearance, in accordance with best practice	Yes	Natural England Licence compliance	Principal Contractor/Ecological Clerk of Works
B6	To prevent disturbance to breeding and wintering birds	Construction	• Vegetation clearance would be programmed to avoid the nesting bird season (March – August inclusive) if possible • Where this is not possible a breeding bird survey would be carried out by an ecologist 48 hours in advance of proposed clearance works to check for bird nesting activity.	Yes	Incorporated in the CMP	Principal Contractor / Ecological Clerk of Works

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• If active nests are found a buffer of vegetation shall be retained until all young have fledged and the nest is deemed inactive by an ecologist.			
B7	To provide new habitats on-site	Construction and Operation	Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031), including the erection of 10 bird, 10 bat and 6 dormouse boxes.	Yes	Incorporated in the environmental design	Principal Contractor
B8	Management of newly created habitats	Construction, Operation and Reinstatement	A five-year aftercare to follow completion of the works. Maintenance activities to be undertaken to ensure the successful establishment of planting and provision of new function habitats. This would include the replacement of defective plants.	Yes	Incorporated in the LEMP	Principal Operator
B9	To provide longer-term enhancements and ensuring biodiversity net gain	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Creation of informal open space – Addition of information boards highlighting the biodiversity value around the site	No	To be incorporated in Restatement Plan	Reinstatement Contractor
B10	Monitoring programme during operation	Operation	• Dormouse: Monitoring as part of the Natural England dormouse licence requirements – twice a year up to three years (May and September), with a visit each winter (December – February) to clean out boxes. • Reptiles: Monitoring of the translocation receptor site to be undertaken every two years up to four years after completion of the scheme, carrying out surveys to assess the status of the reptile population. This would be carried out during the active season May-October following standard reptile guidelines set out in Froglife Advice Sheet 10. • Habitats: Habitat surveys to be combined with landscape monitoring and associated recommendations, in order to prevent the loss of proposed and retained habitats on-site. • Bats: Monitoring would be undertaken to determine if the level of bat activity at the site has been maintained once the scheme is operational. Monitoring would be composed of spring, summer and autumn activity	Yes	Incorporated in the LEMP	Principal Operator

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			transects which would be undertaken in years 3 and 5 in accordance with Collins (2016). • Breeding Birds: Monitoring would be undertaken to determine if the level of breeding bird activity at the site has been maintained once the scheme is operational. Monitoring would be undertaken in years 3 and 5 in accordance with the Common Bird Census methodology (Gilbert et al, 1998).			
			Materials (M)			
M1	To reduce impact on material resources	Construction	• Re-use site won materials where possible • Use locally sources materials • Ensure materials are delivered on an as and when basis to avoid damage or contamination • Use pre-cast elements where possible	No	To be incorporated in CMP	Principal Contractor
M2	To reduce waste generation	Construction and Reinstatement	• Where possible, ensure that the waste hierarchy is followed when dealing with waste on-site: prevention, reuse and preparation for re-use, recycle, recovery, and disposal. Opportunities include: – Re-use of excavated soils on-site – Chipping green waste for use in the landscaping – Re-use of surplus excavated materials on other nearby schemes or for uses with benefits to the environment, such as in the restoration of nearby quarries or other excavation-sites.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor and Reinstatement Contractor
M3	Re-use of material in landscaping bunds	Construction	Production of a Materials Management Plan for the re-use of excavated material on-site	No	To be incorporated in CMP	Principal Contractor
M4	Ensure appropriate waste management	Operation	• Ensure waste bins are appropriately sized and placed throughout the operational area. • Ensure principles of waste hierarchy are adhered.	No	To be incorporated in OMP.	Principal Operator
			Noise and Vibration (NV)			

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
NV1	Hours of working	Construction and Reinstatement	All noisy operations would be completed between 08:00 and 18:00 on weekdays, and 08:00 to 13:00 hours on Saturdays, switching off noise-emitting equipment when not in use and the use of temporary noise barriers where appropriate. Where out of hours working is required, prior agreement would be sought with Ashford Borough Council.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor Reinstatement Contractor
NV2	Limit noise emissions	Construction and Reinstatement	Implement the following noise mitigation measures during construction: • Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions. • Fit equipment with silencers or mufflers. • Manage deliveries to prevent queuing of site traffic. • Do not leave plant running unnecessarily. • Careful orientation of plant with directional features. • Materials to be lowered instead of dropped from height. • Use of adjustable or directional audible vehicle-reversing alarms or use of alternative warning systems (for example, white noise alarms). • Train and advise members of the construction team during toolbox talk briefings on quiet working methods. • Erect temporary barriers to fully obscure the construction works from nearby receptors.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor Reinstatement Contractor
NV3	Mitigate effects of stockpiling activity	Construction	• Position stockpiled material closest to the residential receptors first to ensure a bund between the works and the receptors is formed.	No	To be incorporated in the CMP	Principal Contractor
NV4	Reduce noise effects at nearby residential receptors	Operation	• Ensure that vehicle idling does not occur during operation. • Any refrigerated HGVs that are not able to hook-up to an electricity supply to power their generators should be located within the northern most plot on the site away from the closest residential receptors	Yes	To be incorporated in the OMP	Principal Operator

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
NV5	To help alleviate potential noise complaints	Operation	• Engagement with the local authority. • A straightforward complaints handling procedure. • Noise monitoring on the site boundary.	No	To be incorporated in OMP	Principal Operator
NV6	Reduce noise effects at nearby residential receptors	Operation	• Implementation of noise barriers in line with the Environmental Masterplan	Yes	Incorporated in design	Principal Contractor
			Population and Health (PH)			
PH1	To reduce effects on local community	Construction and Reinstatement	• Ensure local community are informed of the proposals. • Ensure PROW diversions are appropriately posted	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
			Road Drainage and the Water Environment (RDWE)			
RDWE1	To mitigate potential adverse effects upon RDWE	Construction and Reinstatement	Activities must be managed in accordance with CIRIA Guidelines. Guidance on best practice in relation to pollution prevention and water management is set out in the following documents: • *CIRIA's Environmental good practice on-site*[37]. • *Environment Agency's Protect groundwater and prevent groundwater pollution*[38]. Measures to be implemented to limit the impact of construction activities on the water environment include: • All construction workers to be briefed on the use of spill kits as part of the site induction.	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor Reinstatement Contractor

[37] CIRIA (2015) *Environmental good practice on-site guide*. ISBN: 978-0-86017-746-3.

[38] Environment Agency (2017) *Protect groundwater and prevent groundwater pollution*. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• Any stockpiled materials to be stored within enclosed areas to enable the runoff to be stored and treated where required. • All plant and machinery to be maintained in a good condition and any maintenance required would be undertaken within safe areas. • Pollution prevention and spill response procedures to be developed by the contractor and a spill kit and clean up equipment maintained on-site. • Dust suppression measures as described in AQ1 of this REAC.			
RDWE2	To mitigate potential adverse effects upon RDWE	Operation	• Inclusion of a pollution prevention plan in the Operational Management Plan. • Spill kits to be located across the site to be used in the event of a spill.	No	To be incorporated in the OMP	Principal Operator
			Climate (C)			
C1	To reduce carbon emissions associated with the scheme	Construction and Reinstatement	The carbon reduction principles as detailed within Section 3 of the Carbon Assessment and Reduction Report, Appendix L, would be considered including the following: • Transportation of materials to site would prioritise low-carbon modes where possible • Where possible, low-carbon construction materials and products would be preferred • Where possible low-carbon construction plant and equipment would be used • Provision would be made to enable waste to be effectively segregated during construction, enabling materials to be effectively managed using the waste hierarchy, prioritising re-used and recycling over disposal. Circular economy principles, such as Modern Methods of Construction, would be implemented, where possible.	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor Reinstatement Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
C2	To reduce carbon emissions associated with the scheme	Operation	The carbon reduction principles as detailed within Section 3 of the Carbon Assessment and Reduction Report, Appendix L, would be considered including the following: • Provision would be made to enable waste to be effectively segregated during operation, enabling materials to be effectively managed using the waste hierarchy, prioritising re-used and recycled over disposal. • Where possible, measures would be put in place to limit profligate energy use by unintended user behaviours e.g. using motion sensors to control lights Where possible, measures would be put in place to limit profligate water use by unintended user behaviours e.g. using aerated taps.	No	To be incorporated in the OMP	Principal Operator
C3	To reduce carbon emissions associated with the scheme	Reinstatement	Resource efficiency would be maximised through decommission and reinstatement. Opportunities for the reuse of assets following the end of operation would be explored as a priority. If reuse is not possible then recycling would be maximised.	No	To be incorporated in the Reinstatement Plan	Reinstatement Contractor

D. Air Quality Impact Assessment

E. Cultural Heritage Assessment

F. Landscape and Visual Impact Assessment

G. Geotechnical Desk Study

H. Biodiversity Assessment

I. Arboricultural Report

J. Noise Impact Assessment

K. Drainage Strategy and Flood Risk Assessment

L. Carbon Assessment

M. Cumulative Effects Plan

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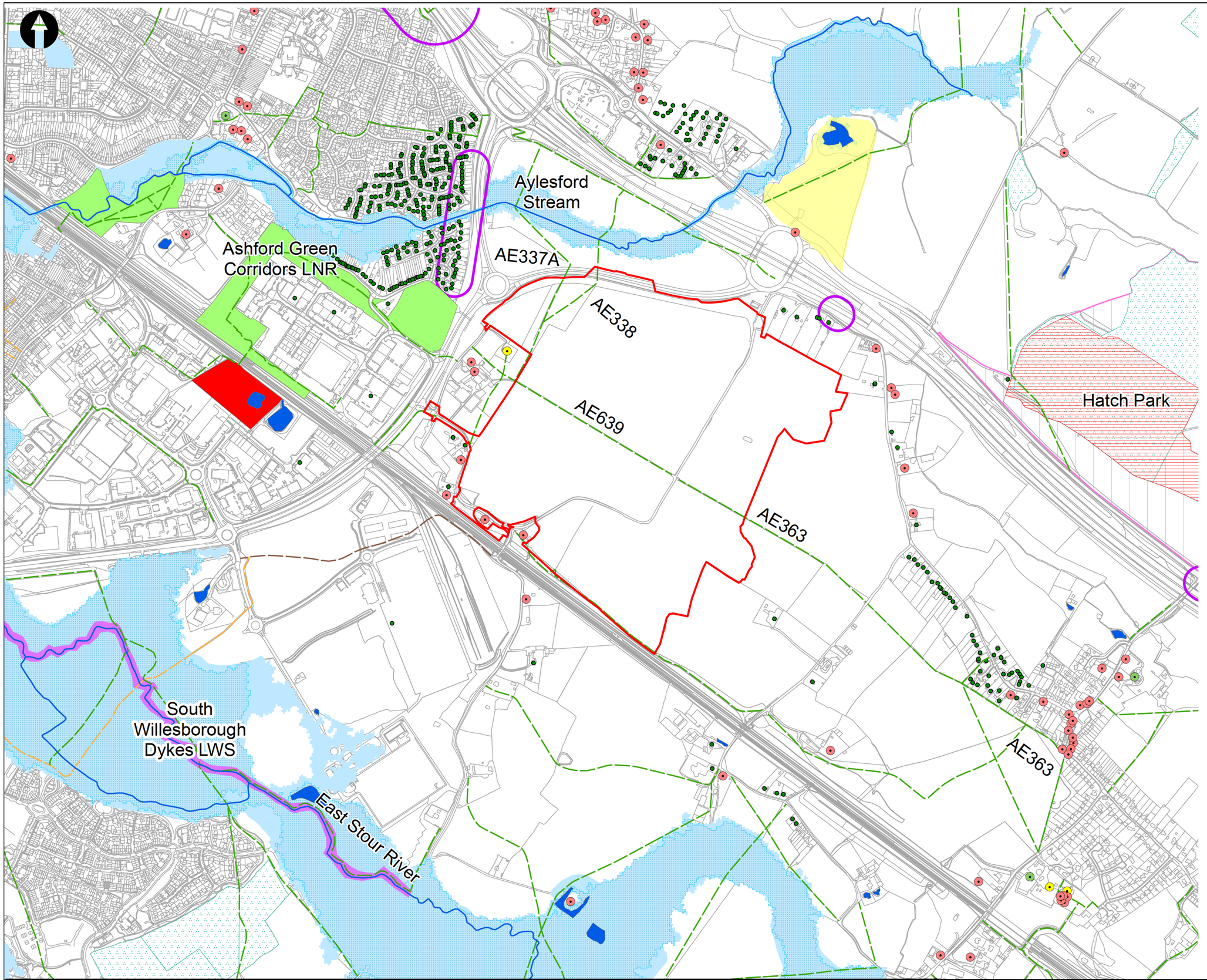

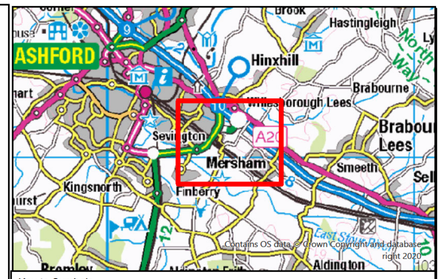

Key to Symbols

- Article 4 Red Line Boundary
- Residential Properties within 500m
- Listed Building Grade I
- Listed Building Grade II
- Listed Building Grade II*
- Public Bridleway
- Public Footpath
- Restricted Byway
- Main River
- Waterbodies
- Local Wildlife Site (LWS)
- Local Nature Reserve (LNR)
- Sites of Special Scientific Interest (SSSI)
- Ancient Woodland
- Noise Important Areas
- Registered Park and Garden
- Historic Landfill Site
- Scheduled Monument
- Flood Zone 2
- Flood Zone 3

This site is completely within a Surface Water Nitrate Vulnerable Zone (ID: 515 – R. Great Stour) and Groundwater Nitrate Vulnerable Zone (ID: 64 – Maidstone)

Document References

Rev	Date	Drawn	Description	Ch'k'd	App'd
P01	08/10/20	EP	First Draft	LD	JB

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Client

HM Government

Drawing Status	Suitable for Stage Approval
Suitability	S4
Project Title	Sevington Inland Border Facility
Drawing Title	Environmental Constraints Plan

Designed			Eng Check		
Drawn			Coordination		
GIS Check			Approved		

Scale at A3	Status	Rev	Security
1:5,000	PRE	P01	STD

Drawing No. 419419-MMD-00-MO-DR-L-0001

Metres 0 95 190 380 570

C. Record of Environmental Actions and Commitments

C.1 Purpose of the Record of Environmental Actions and Commitments

This REAC has been produced to support an Analysis of the Likely Environmental Effects of the Development Report for the scheme.

The REAC contained in Table C.4.2 identified the environmental commitments included within the Analysis of the Likely Environmental Effects of the Development Report to address the potential environmental effects of the scheme. This is the main vehicle for passing essential environmental information to the Client and crucially to the body responsible for construction, future maintenance and operation, and reinstatement of the asset.

Table C.4.2 Record of Environmental Actions and Commitments

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			Traffic and Transport (TT)			
TT1	Support the operation of the site and minimise disruption on the road network	Operation	The following plans would be produced with relevant mitigation measures implemented to minimise the impacts on traffic in the local area: • Traffic Management Plan • Signage Strategy and Staff Travel Plan	No	Incorporation within the OMP	Principal Operator
			Air Quality (AQ)			
AQ1	To limit and control dust emissions	Construction and Reinstatement	Works would be carried out in accordance with Best Practicable Means, as described in Section 79 (9) of the Environmental Protection Act 1990, to reduce the creation of dust on-site. This would include: • Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locate stockpiles out of the wind (or cover, seed or fence) to minimise the potential for dust generation. • Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. • Enforce a maximum speed limit of 15mph on surfaced roads and a 10mph speed limit on unsurfaced haul roads and work areas, to prevent the generation of dust by fast moving vehicles. • Damp down surfaces in dry conditions. • All vehicle engines and plant motors shall be switched off when not in use.	No	To be included in the CMP	Principal Contractor Reinstatement Contractor
			Cultural Heritage (CH)			
CH1	To reduce impacts on the	Construction	• Archaeological investigation in line with the Stour Park Development Written Schemes of Investigation, including:	Yes	To be included in the CMP and	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
	historic environment		– Strip, map and sample of areas west of Highfield Lane which were identified by the previous development application. – Trial trenching of the area south of Highfield Lane.		adherence to the Written Scheme of Investigation	
CH2	To reduce the impacts on the heritage assets during operation	Construction and Operation	• Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031	Yes	Incorporated in the environmental design	Principal Contractor
CH3	To provide longer-term benefits to heritage assets	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Addition of information boards, with potential interactive elements, regarding the Church of St Mary and the Royal Observer Corps Post	No	Incorporated in Restatement Plan	Reinstatement Contractor
			Landscape and Visual Effects (LVE)			
LVE1	To aid visual screening and limit visual impacts	Construction	• Prioritise their creation early in the construction period to aid screening of lower level activity • Seeded as priority to 'green up' earthworks. • Implementation of planting in the first planting season to aid the integration of the scheme with the surrounding landscape.	Yes	To be incorporated in the CMP	Principal Contractor
LVE2	To aid visual screening and limit visual impacts of the temporary stockpiles	Construction	• Kept to a maximum 2m in height. • Located as far away as possible from properties on Kingsford Street. • The 'active' side of the stockpile should be restricted to the western edge, adjacent to Highfield Lane which would aid screening of any soil and plant movements.	Yes	To be incorporated in the CMP	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• Stockpile should be seeded as a priority. The remaining faces of the stockpiles should be left inactive to limit visual intrusion upon neighbouring residential receptors.			
LVE3	To limit visual impacts from site lighting	Construction and Reinstatement	• Site task lighting should be kept to a minimum, be directional and use for the minimum time required. • Explore the use of infrared initiated security lighting to minimise night-time lighting.	No	To be included in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
LVE4	To limit visual intrusion and impacts upon landscape character	Construction and Reinstatement	• Keep a well-managed and tidy site, with construction materials delivered on an as and when needed basis to reduce material stockpiles on-site	No	To be included in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
LVE5	To limit visual intrusion and impacts upon landscape character during operation and reinstatement	Construction and Operation	• Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031)	Yes	Incorporated in the environmental design	Principal Contractor
LVE6	To provide longer-term enhancements and create a long-term positive legacy on the site	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Creation of informal open space – Addition of information boards highlighting the heritage assets and biodiversity value around the site	No	To be incorporated in Restatement Plan	Reinstatement Contractor
			Geology and Soils (GS)			
GS1	To ensure quality of	Construction	• The stockpile should be managed in line with the Defra *Construction Code of Practice for the Sustainable Use of Soils on Construction-sites.*	Yes	To be incorporated in CMP	Principal Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
	stockpiled soil is maintained		• The stockpile must be removed after 12 months. • The stockpile should be seeded to maintain quality of soil.			
GS2	The management of soil contamination risks	Construction and Reinstatement	• Should any hazardous materials be encountered during construction, all materials would be dealt with in accordance with appropriate guidance. • Any fuels, oils or hazardous materials used during the works would be appropriately stored and kept in bunded areas to prevent pollution of surface and ground waters. Spill kits shall be provided on-site for the duration of the works and construction staff trained in their correct application.	No	To be incorporated in CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
			Biodiversity (B)			
B1	To limit disturbance to habitats and protected species	Construction	• Best practice measures would be employed on-site to minimise impacts due to construction noise, dust and water pollution as far as possible in line with AQ1, NV2 and RDWE1 • Ensure lighting is minimised to avoid light spill on habitats for dormice in the habitat surrounding the construction area • Careful siting of haul routes, materials storage areas, compounds, lighting and generators away from sensitive habitats • Night-time working would not be allowed during the months when bats are actively foraging (April to October inclusive) to prevent lighting disturbance to foraging bats	No	To be incorporated in the CMP	Principal Contractor / Ecological Clerk of Works
B2	To reduce habitat loss and degradation	Construction and Reinstatement	• Existing trees and vegetation to be retained (including hedgerows) would be protected during the construction phase with protective fencing. • Protective barriers should be installed in accordance with BS5837:2012 around all of the trees and groups that are due to be retained, at the distances dictated by the RPA dimensions stated in Table 3.4 of the Stour Park Pre-Development Arboricultural Survey (Report No: RT-MME-120243-08) to protect these trees.	No	To be incorporated in the CMP	Principal Contractor/Ecological Clerk of Works

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• An Arboriculturalist should attend site prior to commencement of the works to confirm the final positioning of the protective barrier. • For the location and alignment of the temporary protective barriers required for the additional trees and groups that have been removed or retained as part of the Sevington IBF works, refer to the Tree Protection Plans (418703-MMD-XX-SV-VS-YB-0001-04). For the location and alignment of the temporary protective barriers required for trees and groups that have not changed, refer to the Stour Park West AIA. • The area within the protective barriers i.e. tree side, would be a 'Construction Exclusion Zone' (CEZ) for the duration of the works. • All weather notices should be erected on the barrier with words such as: "Tree Protection Area — Keep out". • The following prohibitions shall also apply within the area enclosed by the temporary protective barriers: – No mechanical digging or scraping – No storage of plant, equipment or materials – No vehicular or plant access – No fire lighting within 10m of tree canopies – No handling, discharge or spillage of any chemical substance, including cement washings and vehicle washings within 10m – No action likely to cause localised waterlogging – No alteration of ground levels – No construction of hard surfaces – No attachment of boards, hoarding, cables or notices or fencing to trees – No storage of excavated materials • Special care is to be taken on sloping ground where spillages could run towards the trees. A collecting channel dug along the outer line of the protective fencing would be one method of avoiding such damage.			

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• If excavators are to be used during construction, at no time is the excavating arm to encroach over the position of the tree protection barriers. • All construction compounds, storage facilities and deliveries must aim to make use of existing hard surfaces to avoid unnecessary compaction within RPAs. If compounds require siting within RPAs, appropriate footings or ground cover must be used to avoid root damage or compaction of the soil and siting must ensure that any damage to aerial parts of retained trees is avoided.			
B3	To protect reptile populations on-site	Construction	• A Reptile Mitigation Strategy would be implemented in order to protect the reptile populations during construction. The following methodologies and techniques would be used prior to construction commencing: – Receptor site review; – Habitat manipulation; – Trapping and translocation; – Supervised soil strip; – Sensitive timing of works; – Worker awareness and sympathetic working practice.	Yes	To be incorporated in the CMP	Principal Contractor / Ecological Clerk of Works
B4	To protect badger populations	Construction	• Closure of badger outlier sett under a Natural England Licence	Yes	Natural England Licence compliance	Principal Contractor/Ecological Clerk of Works
B5	To protected dormice populations	Construction	• Removal of dormouse habitat under a Natural England licence and ensure sensitive method of vegetation clearance, in accordance with best practice	Yes	Natural England Licence compliance	Principal Contractor/Ecological Clerk of Works
B6	To prevent disturbance to breeding and wintering birds	Construction	• Vegetation clearance would be programmed to avoid the nesting bird season (March – August inclusive) if possible • Where this is not possible a breeding bird survey would be carried out by an ecologist 48 hours in advance of proposed clearance works to check for bird nesting activity.	Yes	Incorporated in the CMP	Principal Contractor / Ecological Clerk of Works

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• If active nests are found a buffer of vegetation shall be retained until all young have fledged and the nest is deemed inactive by an ecologist.			
B7	To provide new habitats on-site	Construction and Operation	Implementation of the design measures and landscaping planting included in the Environmental Masterplan Day 1 (drawing ref: 419491-MMD-01-MO-DR-L-3030) and Environmental Masterplan Day 200 (drawing ref: 419491-MMD-01-MO-DR-L-3031), including the erection of 10 bird, 10 bat and 6 dormouse boxes.	Yes	Incorporated in the environmental design	Principal Contractor
B8	Management of newly created habitats	Construction, Operation and Reinstatement	A five-year aftercare to follow completion of the works. Maintenance activities to be undertaken to ensure the successful establishment of planting and provision of new function habitats. This would include the replacement of defective plants.	Yes	Incorporated in the LEMP	Principal Operator
B9	To provide longer-term enhancements and ensuring biodiversity net gain	Reinstatement	• Integration of enhancements measures in line with the Long-Term Enhancement Strategy (419419-MMD-01-MO-DR-L-3032), including measures such as: – Creation of footpaths and walkways for public use – Creation of informal open space – Addition of information boards highlighting the biodiversity value around the site	No	To be incorporated in Restatement Plan	Reinstatement Contractor
B10	Monitoring programme during operation	Operation	• Dormouse: Monitoring as part of the Natural England dormouse licence requirements – twice a year up to three years (May and September), with a visit each winter (December – February) to clean out boxes. • Reptiles: Monitoring of the translocation receptor site to be undertaken every two years up to four years after completion of the scheme, carrying out surveys to assess the status of the reptile population. This would be carried out during the active season May-October following standard reptile guidelines set out in Froglife Advice Sheet 10. • Habitats: Habitat surveys to be combined with landscape monitoring and associated recommendations, in order to prevent the loss of proposed and retained habitats on-site. • Bats: Monitoring would be undertaken to determine if the level of bat activity at the site has been maintained once the scheme is operational. Monitoring would be composed of spring, summer and autumn activity	Yes	Incorporated in the LEMP	Principal Operator

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			transects which would be undertaken in years 3 and 5 in accordance with Collins (2016). • Breeding Birds: Monitoring would be undertaken to determine if the level of breeding bird activity at the site has been maintained once the scheme is operational. Monitoring would be undertaken in years 3 and 5 in accordance with the Common Bird Census methodology (Gilbert et al, 1998).			
			Materials (M)			
M1	To reduce impact on material resources	Construction	• Re-use site won materials where possible • Use locally sources materials • Ensure materials are delivered on an as and when basis to avoid damage or contamination • Use pre-cast elements where possible	No	To be incorporated in CMP	Principal Contractor
M2	To reduce waste generation	Construction and Reinstatement	• Where possible, ensure that the waste hierarchy is followed when dealing with waste on-site: prevention, reuse and preparation for re-use, recycle, recovery, and disposal. Opportunities include: – Re-use of excavated soils on-site – Chipping green waste for use in the landscaping – Re-use of surplus excavated materials on other nearby schemes or for uses with benefits to the environment, such as in the restoration of nearby quarries or other excavation-sites.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor and Reinstatement Contractor
M3	Re-use of material in landscaping bunds	Construction	Production of a Materials Management Plan for the re-use of excavated material on-site	No	To be incorporated in CMP	Principal Contractor
M4	Ensure appropriate waste management	Operation	• Ensure waste bins are appropriately sized and placed throughout the operational area. • Ensure principles of waste hierarchy are adhered.	No	To be incorporated in OMP.	Principal Operator
			Noise and Vibration (NV)			

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
NV1	Hours of working	Construction and Reinstatement	All noisy operations would be completed between 08:00 and 18:00 on weekdays, and 08:00 to 13:00 hours on Saturdays, switching off noise-emitting equipment when not in use and the use of temporary noise barriers where appropriate. Where out of hours working is required, prior agreement would be sought with Ashford Borough Council.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor Reinstatement Contractor
NV2	Limit noise emissions	Construction and Reinstatement	Implement the following noise mitigation measures during construction: • Ensure equipment is maintained, in good working order, and is used in accordance with the manufacturer's instructions. • Fit equipment with silencers or mufflers. • Manage deliveries to prevent queuing of site traffic. • Do not leave plant running unnecessarily. • Careful orientation of plant with directional features. • Materials to be lowered instead of dropped from height. • Use of adjustable or directional audible vehicle-reversing alarms or use of alternative warning systems (for example, white noise alarms). • Train and advise members of the construction team during toolbox talk briefings on quiet working methods. • Erect temporary barriers to fully obscure the construction works from nearby receptors.	No	To be incorporated in CMP and Restatement Plan	Principal Contractor Reinstatement Contractor
NV3	Mitigate effects of stockpiling activity	Construction	• Position stockpiled material closest to the residential receptors first to ensure a bund between the works and the receptors is formed.	No	To be incorporated in the CMP	Principal Contractor
NV4	Reduce noise effects at nearby residential receptors	Operation	• Ensure that vehicle idling does not occur during operation. • Any refrigerated HGVs that are not able to hook-up to an electricity supply to power their generators should be located within the northern most plot on the site away from the closest residential receptors	Yes	To be incorporated in the OMP	Principal Operator

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
NV5	To help alleviate potential noise complaints	Operation	• Engagement with the local authority. • A straightforward complaints handling procedure. • Noise monitoring on the site boundary.	No	To be incorporated in OMP	Principal Operator
NV6	Reduce noise effects at nearby residential receptors	Operation	• Implementation of noise barriers in line with the Environmental Masterplan	Yes	Incorporated in design	Principal Contractor
			Population and Health (PH)			
PH1	To reduce effects on local community	Construction and Reinstatement	• Ensure local community are informed of the proposals. • Ensure PROW diversions are appropriately posted	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor and Reinstatement Contractor
			Road Drainage and the Water Environment (RDWE)			
RDWE1	To mitigate potential adverse effects upon RDWE	Construction and Reinstatement	Activities must be managed in accordance with CIRIA Guidelines. Guidance on best practice in relation to pollution prevention and water management is set out in the following documents: • *CIRIA's Environmental good practice on-site*[37]. • *Environment Agency's Protect groundwater and prevent groundwater pollution*[38]. Measures to be implemented to limit the impact of construction activities on the water environment include: • All construction workers to be briefed on the use of spill kits as part of the site induction.	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor Reinstatement Contractor

[37] CIRIA (2015) *Environmental good practice on-site guide*. ISBN: 978-0-86017-746-3.

[38] Environment Agency (2017) *Protect groundwater and prevent groundwater pollution*. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
			• Any stockpiled materials to be stored within enclosed areas to enable the runoff to be stored and treated where required. • All plant and machinery to be maintained in a good condition and any maintenance required would be undertaken within safe areas. • Pollution prevention and spill response procedures to be developed by the contractor and a spill kit and clean up equipment maintained on-site. • Dust suppression measures as described in AQ1 of this REAC.			
RDWE2	To mitigate potential adverse effects upon RDWE	Operation	• Inclusion of a pollution prevention plan in the Operational Management Plan. • Spill kits to be located across the site to be used in the event of a spill.	No	To be incorporated in the OMP	Principal Operator
			Climate (C)			
C1	To reduce carbon emissions associated with the scheme	Construction and Reinstatement	The carbon reduction principles as detailed within Section 3 of the Carbon Assessment and Reduction Report, Appendix L, would be considered including the following: • Transportation of materials to site would prioritise low-carbon modes where possible • Where possible, low-carbon construction materials and products would be preferred • Where possible low-carbon construction plant and equipment would be used • Provision would be made to enable waste to be effectively segregated during construction, enabling materials to be effectively managed using the waste hierarchy, prioritising re-used and recycling over disposal. Circular economy principles, such as Modern Methods of Construction, would be implemented, where possible.	No	To be incorporated in the CMP and Reinstatement Plan	Principal Contractor Reinstatement Contractor

Ref.	Objective	Phase of Development	Action (including specific location and any monitoring required)	Required to mitigation what would otherwise be a significant effect (Y/N)	Achievement criteria and reporting requirements (if applicable)	Responsible person(s)
C2	To reduce carbon emissions associated with the scheme	Operation	The carbon reduction principles as detailed within Section 3 of the Carbon Assessment and Reduction Report, Appendix L, would be considered including the following: • Provision would be made to enable waste to be effectively segregated during operation, enabling materials to be effectively managed using the waste hierarchy, prioritising re-used and recycled over disposal. • Where possible, measures would be put in place to limit profligate energy use by unintended user behaviours e.g. using motion sensors to control lights Where possible, measures would be put in place to limit profligate water use by unintended user behaviours e.g. using aerated taps.	No	To be incorporated in the OMP	Principal Operator
C3	To reduce carbon emissions associated with the scheme	Reinstatement	Resource efficiency would be maximised through decommission and reinstatement. Opportunities for the reuse of assets following the end of operation would be explored as a priority. If reuse is not possible then recycling would be maximised.	No	To be incorporated in the Reinstatement Plan	Reinstatement Contractor

MOTT MACDONALD

Transport Assessment

DfT Sevington Inland Border Facility

November 2020

Confidential

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1 Introduction

Mott MacDonald has been commissioned by the Department for Transport (DfT) to prepare a Transport Assessment for the proposed use of land and associated works at the Sevington Inland Border Facility (IBF) site in Ashford, Kent for a temporary Heavy Goods Vehicle (HGV) customs and border control checking and parking facility.

The site will be used by the DfT, Her Majesty's Revenue & Customs (HMRC), Border Force, the Department for Environment, Food & Rural Affairs (Defra) and the Department for Business, Energy and Industrial Strategy (BEIS) to enable required checks to take place inland on traffic entering and exiting the United Kingdom (UK), serving selected trade ports as part of the transitional arrangements arising from the UK's departure from the European Union (EU). Temporary planning permission is being sought for the site to be in operation for five years, with a capacity for a maximum of 1,272 HGVs when HMRC, DfT Border Force, Defra and BEIS will be on-site, reducing to 651 after six months when HMRC will replace DfT as Site Operator.

1.1 Background

The United Kingdom (UK) has left the European Union (EU) and a transition period is now in place until 31 December 2020. The transition period is a timeframe in which the UK and EU negotiate additional Brexit arrangements until the end of 2020. The current rules on trade, travel, and businesses for the EU and UK continue to apply during the transition period until new rules are brought into effect as of 1 January 2021.

With the new rules in place, there will be greater requirements for inland border infrastructure. This includes providing facilities to provide checks on goods moving under a Common Transit Convention (CTC) and providing customs checks on non-transit imports and exports (including sanitary / phytosanitary (SPS) checks where required).

Given the national importance of the timely delivery of border infrastructure, a Special Development Order (SDO) has been made under the provisions of S.59 of the Town and Country Planning Act 1990. The SDO specifically is the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020.*

The SDO grants temporary planning permission for development consisting of the use of land in specified parts of England for border processing and the associated stationing of vehicles entering or leaving the UK, and the provision of facilities and infrastructure associated with this use.

The SDO requires a further site-specific "Relevant Approval" from the Secretary of State for Housing, Communities and Local Government (MHCLG) for the use of the land and operations comprised in the development.

Relevant approvals granted under SDO would grant temporary planning permission until 31 December 2025 (unless a shorter duration is specified) for the use of the sites for customs management and would require decommissioning by 31 December 2026 (unless a nearer date is specified).

This Transport Assessment, although not a requirement of the SDO, has been prepared to assess the impact on the local transport network of the proposed site at Sevington IBF in Ashford and forms part of a Prior Approval application, seeking consent for the use of the land as a HGV transit area on a temporary basis until 31 December 2025.

1.2 Waterbrook Inland Border Facility, Ashford

In Ashford, separate proposals for the use of the Sevington site and the Waterbrook site (as inland border facilities) are to be submitted for approval. The current intention is that the Sevington site should be operational from 1 January 2021. In that scenario, the Waterbrook site would therefore not be required as an inland border facility under normal circumstances.

However, approval for the use of Waterbrook (as well as preparations to ready the site) is also being pursued so that the site can be operated from 1 January 2021, should there be a delay to the Sevington site opening. In those circumstances, operations would then be transferred from the Waterbrook site to the Sevington site once the latter becomes operational.

In addition, the Waterbrook site would be maintained so it could be put into use purely in an emergency if the Sevington site had to close.

1.3 National Site Strategy

In order to identify potential sites for Inland Border Facilities, a national site sifting process was undertaken by Mott MacDonald[1]. Sites were identified within two hours' drive time of each key strategic port within England and Wales. This drive time was used to provide a balance between selecting sites that are within close proximity to the port they may serve as well as covering a substantial area to enable a robust search for appropriate sites. Sites were also identified in the Midlands close to the Strategic Road Network (SRN) to provide national contingency and accommodate HGV freight trips across the country.

Given that the vast majority of HGV freight traffic arrives and departs from the UK via Dover and Eurotunnel, it was considered that several sites were to be required in the south-east of England to serve these two nationally significant ports. The remainder of the country's ports serve a much smaller volume of HGV freight traffic but each require at least one suitable inland site to enable checks to occur away from the port itself, minimising the risk of congestion both at the site and on the Local Road Network (LRN) and SRN.

1.4 Methodology

To undertake a robust assessment of the impact of the proposed temporary development this Transport Assessment has considered a Maximum Operating Capacity Scenario for the first six months of the site operation whereby the number of HGVs using HMRCs facilities are equal in each hour of the day. The total daily number of HGVs assumed to be using HMRCs facilities provided was an initial estimate and results in a higher volume than now expected. For Sevington, Ashford where there is capacity to park 1,272 HGVs on-site for the first six months of operation, the assessment considers 240 HMRC-related HGVs accessing and egressing the site every hour. As the Maximum Operating Capacity Scenario potentially over-estimates the daily HMRC HGV demand, a Realistic Case Scenario has also been considered based on more recent data provided by HMRC relating to the volume and hourly profile of freight traffic arriving and departing from Eurotunnel and the Port of Dover. This varies the HMRC HGV demand across the day.

Strategic traffic modelling has been undertaken for both scenarios to forecast the impact of the site on the SRN based on normal traffic conditions (known as 'non-disruption days') and days in which there is border-readiness disruption associated with cross-Channel movement which require the implementation of Operation Brock on the M20 between junction 8 and 9 (known as 'disruption days'). Local junction modelling has been undertaken for the Maximum Operating

[1] A418703-MMD-XX-ZZ-RP-Z-0001 - Proposed EU Exit Cross Governmental HGV Processing Site Sifting Report (July 2020)

Capacity Scenario for both non-disruption and disruption days for the six junctions between the M20 and the site (including M20 junction 10 and M20 junction 10a as well as the main access junctions for HGVs and staff). Microsimulation modelling has also been undertaken of the site entry and 'entry lane' system used within the site for disruption days as a worst-case.

1.5 Document Structure

The contents of this Transport Assessment are as follows:

- Chapter 2 'Policy Review' outlines the policy framework for this Transport Assessment and the project's compliance with the policy objectives.
- Chapter 3 'Site Location' outlines the location of the site.
- Chapter 4 'Baseline Conditions' provides a review of the existing transport conditions within the vicinity of the site.
- Chapter 5 'Development Proposals' outlines the development proposals, site usage and access.
- Chapter 6 'Development Impact' provides an assessment of the transport network from the development proposals.
- Chapter 7: 'Mitigation' outlines strategies to minimise the impact on the local transport network.
- Chapter 8 'Conclusions' provides a summary of this assessment.

2 Policy Review

This section sets out the policy framework for this Transport Assessment and the project's compliance with the policy objectives.

2.1 Planning Policy

Table 2.1 provides an overview of relevant planning policy. The policies included in the National Planning Policy Framework (NPPF) and Local Plan are statutory, but the policies included in the Local Transport Plan are not.

Table 2.1 Overview of Planning Policy

Town & Country Planning (Border Facilities and Infrastructure) Special Development Order (2020)
Grant temporary planning permission 3(1)(a)(i) Border department activity 'in connection with vehicles (in particular goods vehicles) and goods entering or exiting , or that are about to enter or exit, Great Britain' including recording vehicles entering or exiting the site, storage and checking, 'the associated stationing of vehicles' and repair of defective vehicles. 3(1)(b) Buildings to include 'facilities for drivers of vehicles' and 'facilities for persons engaged in border processing' with provision of 'roads and other means of access'.
Relevant approvals 4(2)(k) No development on any site may commence unless the submission includes 'an assessment of the traffic impacts of the development'. 4(2)(o) Possibility of providing 'other information or documents' for the Secretary of State. 4(4) Any further conditions need to be approved.
Schedule 2 Conditions; Part 1 General B. No dangerous goods or nuclear material is to enter a site. C. Stationing of vehicles – Hard standing only, goods vehicles must not have engines idling without the express authority of the site operator.
Schedule 2 Conditions; Part 2 Construction (1) Construction management plan required.
Schedule 2 Conditions; Part 3 Operation (1) Approved operational management plan required. (1)(e) OMP to include 'managing traffic associated with the operation of the development, including (i) the management of vehicles moving between the site and the strategic road network (being the highways for which Highways England is the highway authority, by virtue of article 2 of the Appointment of a Strategic Highways Company Order 2015(b)) and the provision of signage for their drivers'. (1)(g) Prescribe limits on levels of noise and emissions during operation and monitoring 'and management measures to secure adherence to those levels'.

National Planning Policy Framework (NPPF) (2019)

Para 108 - In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

Para 109 - Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

Para 111 - All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

Kent County Council Local Transport Plan 4 (2016-2031)

This Local Transport Plan (LTP) sets out Kent County Council's (KCC) policies to deliver strategic outcomes for transport and is accompanied by implementation plans and a methodology for prioritising funding. It details KCC's key transport priorities and longer-term transport objectives, ultimately providing a clear, evidenced basis from which to bid for funding and deliver infrastructure to support economic and housing growth 'without gridlock'.

Outcome 1: Economic Growth and Minimised Congestion: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population.

Outcome 2: Affordable and accessible door-to-door journeys: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services.

Outcome 3: Safer Travel: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties and encourage other transport providers to improve safety on their networks.

Outcome 5: Better Health and Wellbeing: Provide and promote active travel choices for all members of the community to encourage good health and wellbeing and implement measures to improve local air quality.

Strategic Priority: A Solution to Operation Stack. Issue: Significant and prolonged disruption to the county when Operation Stack closes sections of the M20.

Strategic Priority: Provision for Overnight Lorry Parking. Issue: There is a significant amount of unofficial and often inappropriate overnight lorry parking that causes distress for the communities affected and potential safety issues on Kent's roads.

Freight Action Plan for Kent (2017)

Action 1: To tackle the problem of overnight lorry parking in Kent

Action 2: To find a long-term solution to Operation Stack

Action 3: To effectively manage the routeing of HGV traffic to ensure that such movements remain on the strategic road network for as much of its journey as possible

Action 4: To take steps to address problems caused by freight traffic to communities

Ashford Local Plan 2030

The Local Plan sets out the development proposals for Ashford for the period between 2011 to 2030. Ashford town is the main focus for development in addition to regeneration in areas with existing environmental and social issues.

Policy TRA4 - Promoting the Local Bus Network: The potential for bus patronage should be considered as part of any proposal for new residential or commercial development. Applications should demonstrate whether modal shift in favour of public transport can be achieved through existing bus services or improvements to the network as a key determinant of the scheme's sustainability… Enhancements could include the delivery of bus priority measures, the provision of a new service or the alteration/expansion of an

National Planning Policy Framework (NPPF) (2019)
existing service, contributions towards bus related infrastructure and operational subsidy for the service in the early years of occupation of the development.
Policy TRA5 - Planning for Pedestrians: Development proposals shall demonstrate how safe and accessible pedestrian access and movement routes will be delivered and how they will connect to the wider movement network. Opportunities should be proactively taken to connect with and enhance Public Rights of Way whenever possible, encouraging journeys on foot.
Policy TRA6 - Provision for Cycling: The Council will seek to improve conditions for cyclists through the following measures… [including] requiring new development to provide cycle parking facilities in agreement with the Council
Policy TRA7 - The Road Network and Development: Developments that would generate significant traffic movements must be well related to the primary and secondary road network. New accesses and intensified use of existing accesses onto the road network will not be permitted if a clear risk of road traffic accidents or significant traffic delays would be likely to result. Proposals which would generate levels and types of traffic movements, including heavy goods vehicle traffic, beyond that which local roads could reasonably accommodate in terms of capacity and road safety will not be permitted. Applicants must demonstrate that traffic movements to and from the development can be accommodated, resolved, or mitigated to avoid severe cumulative residual impacts. In some cases, this may require exploring the delivery of mitigation measures prior to the occupation of a development.
Policy TRA8 - Travel Plans, Assessments and Statements: Planning applications will be supported by either a Transport Statement, or a Transport Assessment depending on the nature and scale of the proposal and the level of significant transport movements generated.
Policy TRA9 - Planning for HGV Movement: Proposals which generate significant heavy goods vehicle (HGV) movements will only be supported where the use is acceptable in planning terms, and:- a) The size and layout of the site is sufficient to accommodate HGV manoeuvring and parking in a way that does not lead to the public highway being used for either purpose; b) HGV movements are limited to appropriate times of operation given the context of the site; and, c) Sufficient HGV parking spaces are provided at a level commensurate with use, at not less than the following levels, unless exceptional circumstances dictate a departure from these standards… - A3 (Transport Café), 1 space per 5m^2 - B1 Business (high tech/research/light ind), 1 space per 200m^2 - B2 General Industrial, 1 space per 200m^2 - B8 Storage and Distribution or Wholesale, 1 space per 300m^2

2.2 Policy Response

An assessment of the impact of the development will be provided in this Transport Assessment to demonstrate there will not be a severe impact on the local transport network in terms of congestion and safety in line with NPPF paragraph 108c and 109 and *Outcome 1* and *Outcome 3* in the Kent County Council (KCC) Local Transport Plan 4 (2016-2031) and Policy TRA8 and TRA9 of the Ashford Local Plan.

A Traffic Management Plan including a Site Signage Strategy will be in place to ensure that HGVs are directed along the most suitable routes to access the Strategic Road Network (SRN) to comply with NPPF paragraphs 108b and 109 and *Action 3* and *Action 4* in the Freight Action Plan for Kent (2017). Furthermore, the impact on the transport network will be captured within the Traffic Management Plan (TMP), which will set out mitigation measures agreed through engagement with relevant stakeholder thus complying with NPPF paragraph 108c.

A Staff Travel Plan (STP) will be implemented, which will aim to promote the use of sustainable travel modes throughout the lifetime of the site thus complying with NPPF paragraphs 108a and 111 and Policy TRA4, TRA5 and TRA8 of the Ashford Local Plan. Cycle parking is also being provided on-site which satisfies Policy TRA9 of the Ashford Local Plan. The STP for this site proposes the provision of a shuttle bus for access to Ashford town centre / Ashford International rail station to provide a travel option for staff and meeting *Outcome 2* of the KCC Local

Transport Plan 4 (2016-2031) and Ashford Local Plan Policy TRA4. As such, the proposed development is considered to comply with the sustainable policy objectives outlined above.

This Transport Assessment aims to demonstrate that the site can be delivered to meet the relevant policies which are presented in Table 2.1.

3 Site Location

This chapter describes the site location.

3.1 Site Location

The Sevington Inland Border Facility (IBF) site is located to the south-east of Ashford in Kent which is approximately 50 miles south-east of London, 13 miles west of Folkestone and 20 miles west of Dover.

The M20 motorway runs to the east of the site from Folkestone towards London. The M20 junction 10 is located approximately 0.3 miles to the north of the site and the new M20 junction 10a, completed in August 2020, is located approximately 0.3 miles to the east. A new dual carriageway, the A2070 Link Road, is located to the north of the site and connects the existing section of the A2070 Bad Munstereifel Road to M20 junction 10a.

The site is also bounded by Church Road and the rail link for the Channel Tunnel to the south and by Highfield Lane to the east which has been closed to through traffic. Immediately to the west of the site is St Mary's Church which is a Grade I Listed building and the Milbourn Equine Centre. A Public Right of Way (PRoW) runs west to east across the site. Within the immediate surrounding area there are residential properties along Church Road and further east along Kingsford Street.

Figure 3.1 presents the site location, access / egress point and the key routes to the site using the Strategic Road Network (SRN) and Local Road Network (LRN). Access and egress for HGVs will be wholly via the SRN on the M20 and A2070 Link Road.

Figure 3.1 Site Location

4 Baseline Conditions

This chapter provides a review of the existing transport conditions within the vicinity of the site.

4.1 Highway Network

The key routes on the highway network providing access to the site via the Strategic Road Network (SRN) are the M20 and A2070 Link Road / Bad Munstereifel Road.

The M20 is a National Speed Limit (70mph) three-lane dual carriageway in each direction, with two-lane off-slips and a three-lane circulatory at the M20 / A20 / A292 / A2070 (junction 10) roundabout. The newly constructed M20 junction 10a slip roads are single-lane, with the new M20 / A20 / A2070 roundabout (junction 10a) having a two-lane circulatory carriageway. Both the M20 junction 10 and junction 10a are signalised junctions and located approximately 0.3 miles from of the site.

The A2070 Link Road / Bad Munstereifel Road is a 40 mph dual carriageway which provides connectivity to the south towards the Sussex coast and to the M20 via junction 10 and junction 10a, which provides wider connectivity in the region from Dover, Folkestone and the Eurotunnel terminal towards London and the rest of the country. The key junctions on the A2070 include:

- The new A2070 Bad Munstereifel Road / A2070 Link Road roundabout (A2070 Bad Munstereifel roundabout) close to the M20 has multiple lane approaches and a two-lane circulatory carriageway.
- The A2070 Bad Munstereifel Road / Barrey Road signalised junction which has a dedicated right turn to Barrey Road but no right turn from Barrey Road to the A2070 Bad Munstereifel Road.
- The A2070 Bad Munstereifel Road / Church Road priority junction which has left turns into and out of Church Road but no right turn out of Church Road onto the A2070 Bad Munstereifel Road.
- The A2070 / Waterbrook Avenue / The Boulevard roundabout (A2070 Orbital Park roundabout) which has a two-lane approach with flare on the A2070 (west) and The Boulevard approaches, a two-lane approach on the A2070 (east) approach and a single-lane with flare approach on Waterbrook Avenue with a two lane circulatory carriageway. This roundabout is proposed to be upgraded to a signalised junction (see Section 4.1.4).

4.1.1 Traffic Data

The availability of accurate traffic data has been constrained during the development of this Transport Assessment because of the combined effect of the COVID-19 pandemic and holiday periods which has prevented the collection of new ‘representative’ traffic data. Accordingly, historical traffic data representing ‘normal’ and pre-COVID 19 traffic conditions has been sourced where available.

Manual classified turning count data has been obtained for the A2070 Orbital Park Roundabout and three manual classified link count (MCLC) link counts were conducted on the A2070 just south of the M20 junction 10a for this project.

The turning count data for the A2070 Orbital Park roundabout was collected on Wednesday 17 October 2018 over a 12-hour period from 07:00-19:00. The data collected can be summarised as follows:

- During the AM peak hour (08:00-09:00), there were a total of 4,475 vehicle movements, including 271 HGVs, 42 vehicles turned from the A2070 to Waterbrook Avenue with 54 vehicles exiting
- During the PM peak hour (16:45-17:45), there were a total of 4,328 vehicle movements, including 165 HGVs, 77 vehicles turned from the A2070 to Waterbrook Avenue with 128 vehicles exiting

Furthermore, three link counts were undertaken in September and October 2020 on the A2070 Link Road and A2070 Bad Munstereifel Road for a 12-hour period from 07:00-19:00. A link count between the A2070 Bad Munstereifel Roundabout and M20 junction 10 was undertaken on Monday 5 October 2020. The data collected indicates that:

- During the AM peak hour (08:00-09:00) 1,085 vehicles were travelling northbound and 852 vehicles were travelling southbound.
- During the Inter-peak hour (12:00-13:00) 815 vehicles were travelling northbound and 720 vehicles were travelling southbound.
- During the PM peak hour (17:00-18:00) 1,096 vehicles were travelling northbound and 849 vehicles were travelling southbound.

A link count between on the A2070 between the A2070 Bad Munstereifel roundabout and the A2070 Bad Munstereifel Road / Church Road junction was undertaken on Monday 5 October 2020. The data collected indicates that:

- During the AM peak hour (08:00-09:00) 1,572 vehicles were travelling northbound and 1,688 vehicles were travelling southbound.
- During the Inter-peak hour (12:00-13:00) 1,263 vehicles were travelling northbound and 1,310 vehicles were travelling southbound.
- During the PM peak hour (17:00-18:00) 1,618 vehicles were travelling northbound and 1,473 vehicles were travelling southbound.

A link count between the A2070 Bad Munstereifel roundabout and M20 junction 10a was undertaken on Thursday 17 September 2020. The data collected indicates that:

- During the AM peak hour (08:00-09:00) 615 vehicles were travelling eastbound and 1,026 vehicles were travelling westbound.
- During the Inter peak hour (12:00-13:00) 569 vehicles were travelling eastbound and 677 vehicles were travelling westbound.
- During the PM peak hour (17:00-18:00) 728 vehicles were travelling eastbound and 906 vehicles were travelling westbound.

Flows from the supplied Highways England junction 10 and 10a scheme LinSigs were factored to match the observed link counts referenced above for flows towards the A2070 and Bad Munstereifel Road. Turning proportions for the Bad Munstereifel roundabout were taken from the Operation Stack Permanent Solution (OSPS) model strategic traffic model used and matched against the same link counts. Historical count data was then used for the Church Road and Orbital Park junctions and similarly matched to the link counts.

4.1.2 Collision Data

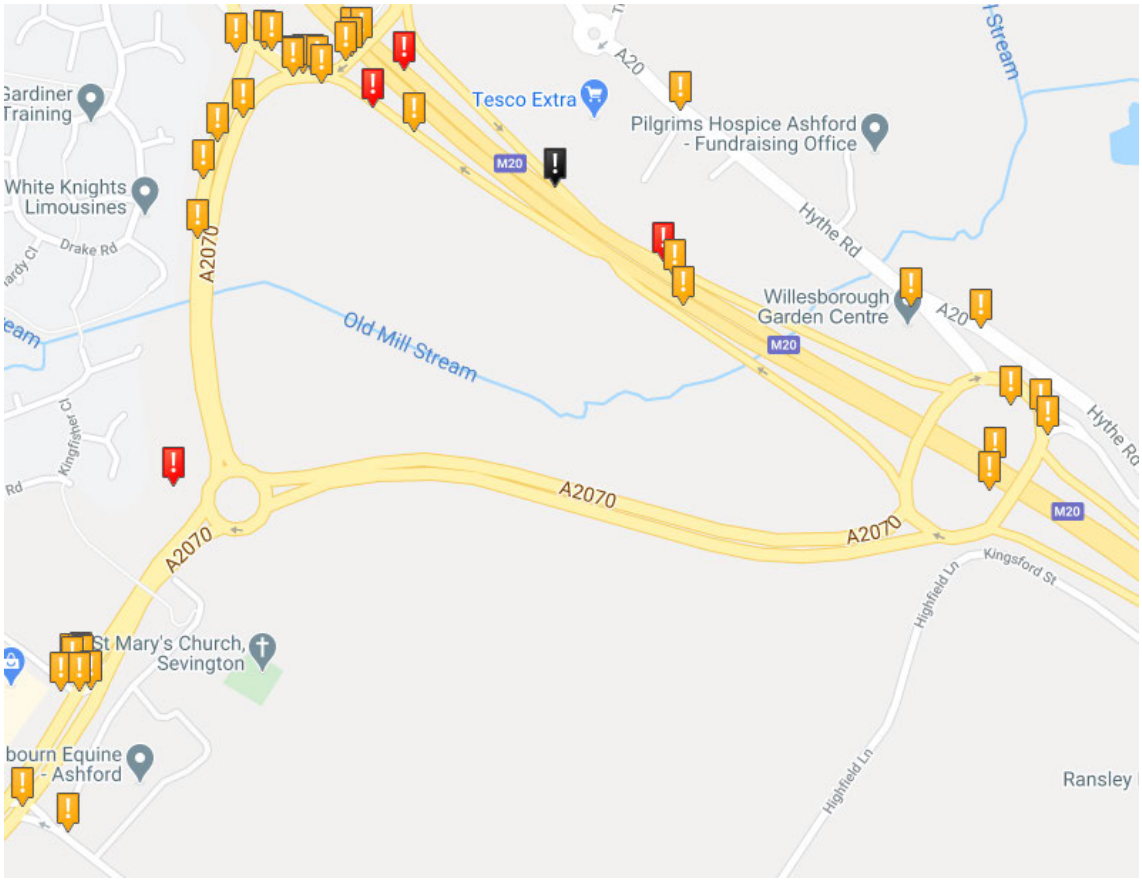
To obtain collision records in the area around the site, the Crashmap website (crashmap.co.uk) has been interrogated which provides police reported injury collision data for the previous five years (2015 to 2019 inclusive). This is prior to the opening of the new M20 junction 10a. Two

key search areas were explored, the area around the main site access on the A2070 Link Road and the area around the A2070 Orbital Park roundabout further to the south-west.

4.1.2.1 Main Site Access

The first search area included a radius of approximately 500m radius around the main site access and egress on the A2070 Link Road as shown in Figure 4.1. In this Study Area, there were 37 slight (orange marker), four serious accidents (red marker) and one fatal accident (black marker) totalling 42 incidents. Of these, thirteen slight, one serious and a fatal accident are associated with the M20 junction 10 which HGVs generated by the site are not expected to pass through. There were no collision records returned for the recently opened section of the A2070 Link Road or junction 10a since the records examined predated August 2020.

Figure 4.1 Accidents in the Vicinity of the Main Site Access (2015-2019)



Source: Crashmap (Accessed 28 August 2020)

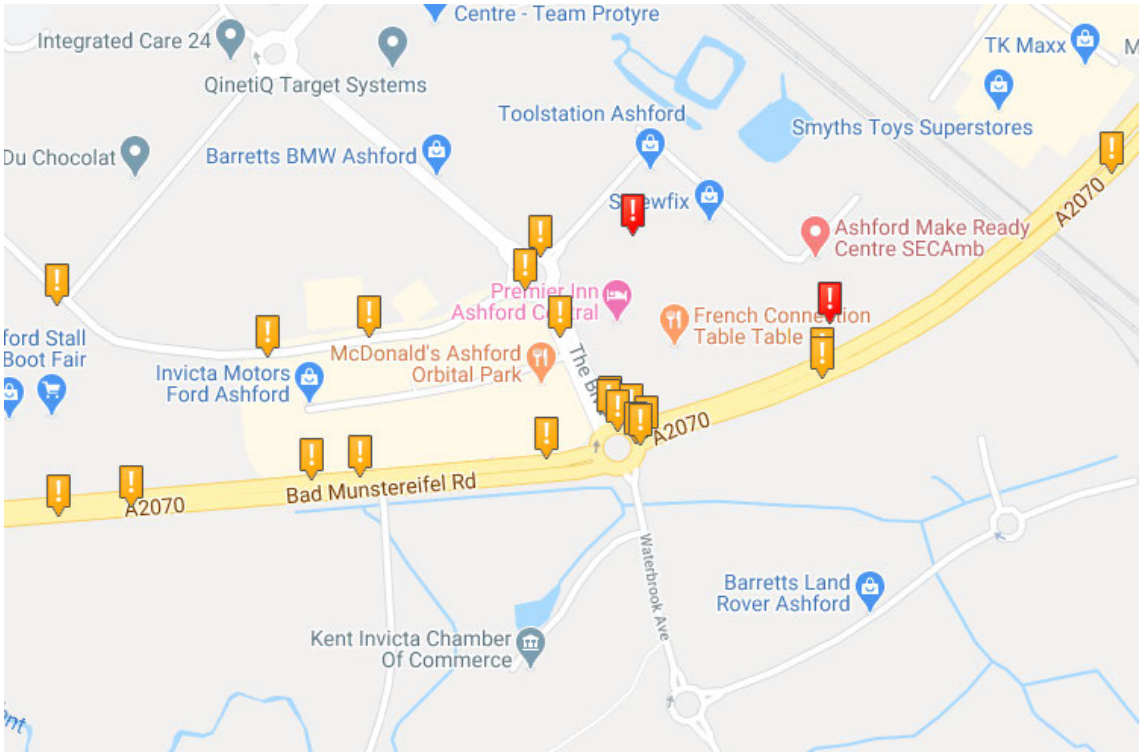
4.1.2.2 A2070 Orbital Park Roundabout Area

The second search area includes a 500m radius around the A2070 Orbital Park roundabout as shown in Figure 4.2. In this Study Area there were 21 collisions of which two were classified as serious accidents (indicated by the red markers), 19 as slight accidents (orange markers) and no fatal accidents. Four collisions involved goods vehicles all of which were classified as slight. Two were located on the A2070 Bad Munstereifel Road and two on Monument Way.

The two serious accidents occurred within the Orbital Business Park to the north of the A2070 Orbital Park roundabout in an area which is not likely to attract significant additional traffic

generated by the site. Seven slight accidents were located at the A2070 Orbital Park roundabout which is not unexpected given that it is the key junction in the search area. A major improvements scheme is proposed to upgrade this roundabout to a signalised junction which will increase capacity and is expected to improve safety.

Figure 4.2: Accidents in the Vicinity of A2070 Orbital Park Roundabout (2015-2019)

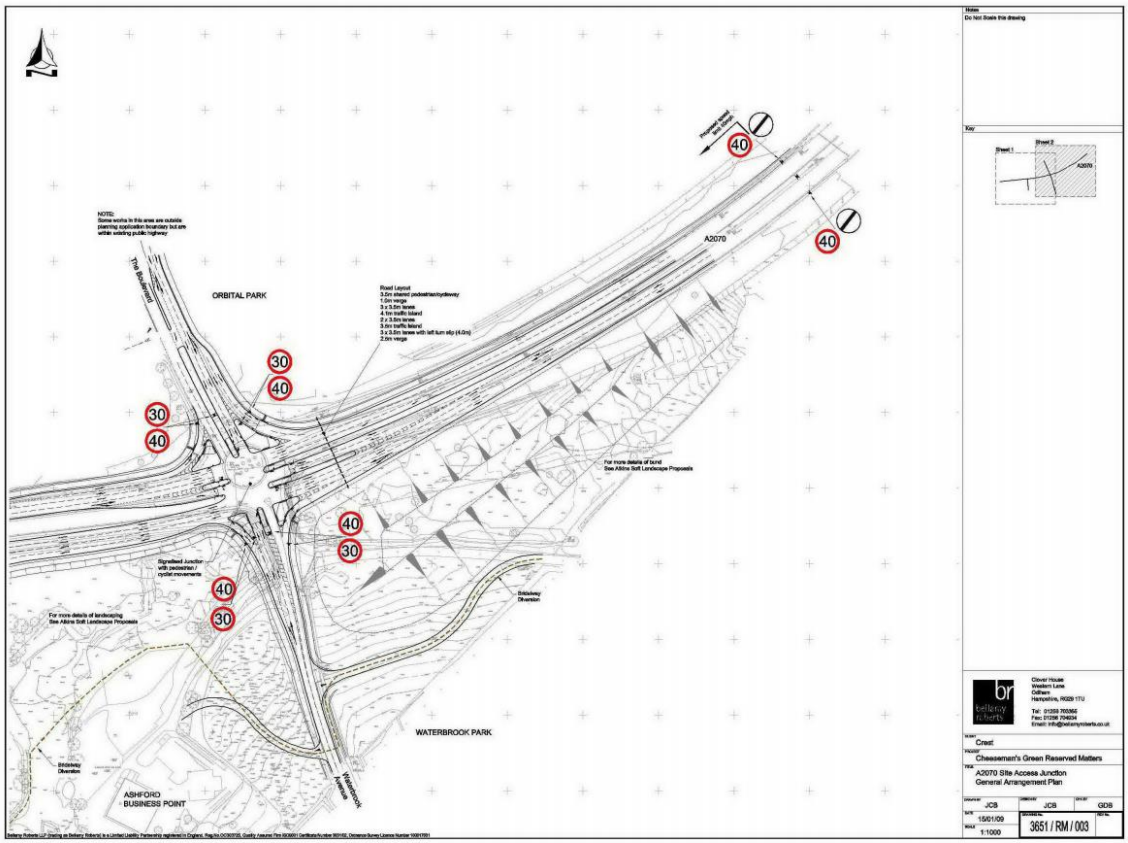


Source: Crashmap (Accessed 12 August 2020)

4.1.3 A2070 Orbital Park Roundabout Upgrade

A major highway improvement scheme to upgrade the A2070 Orbital Park roundabout to a traffic signal controlled junction is currently proposed. The proposals by Crest Nicholson Homes form part of planning conditions associated with the nearby Finberry residential development as shown in Figure 4.3. Discussions with Highways England indicated that Section 278 technical approval for the works is expected to be granted by end of 2020. It is understood Crest Nicholson propose to appoint a contractor to commence works in March 2021. The construction programme is expected to be 12 months. At the time of preparing this Transport Assessment, discussions are ongoing with Highways England to understand phasing of the works to identify impact on the operation of Sevington site and to ensure the construction does not adversely impact site operation.

Figure 4.3: A2070 Orbital Park Roundabout Upgrade



Source: Bellamy Roberts (on behalf of Crest Nicholson) (2009)

4.2 Pedestrian Access

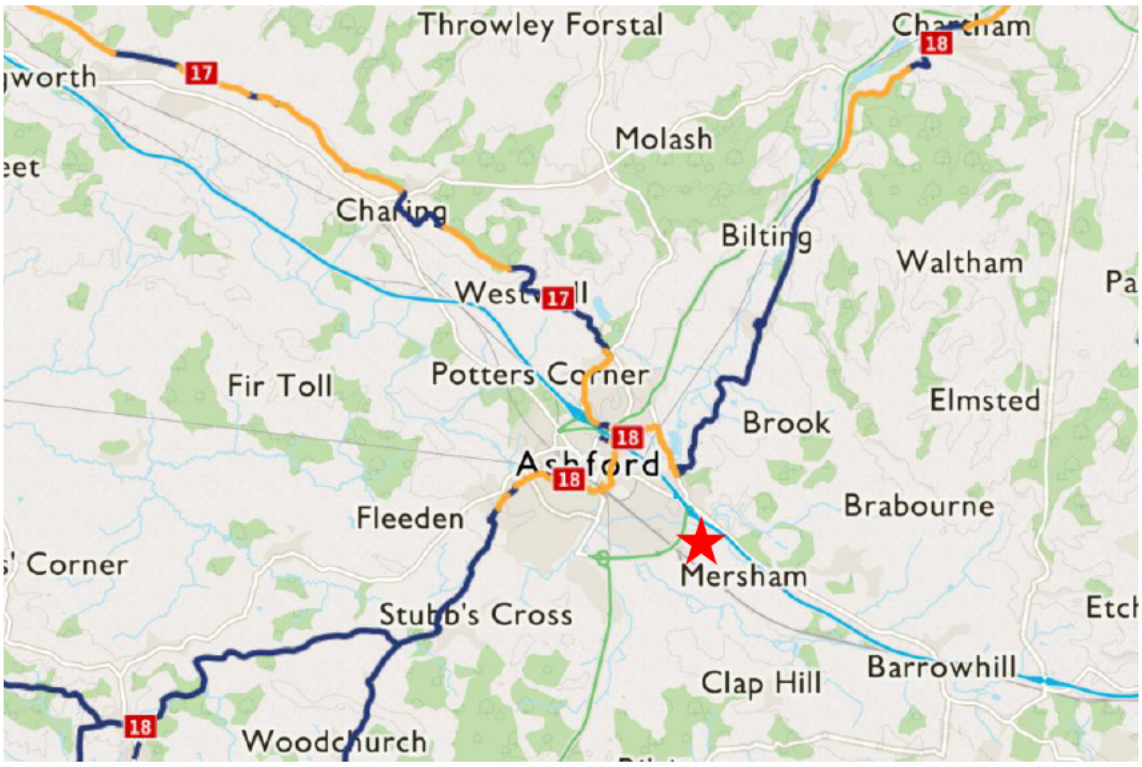
The A2070 Link Road includes segregated footways / cycleways with street lighting in each direction. To the east, the Kingsford Street shared footbridge (built during the Junction 10a construction works to replace the Highfield Lane bridge) provides a traffic free route to the A20 to the north of the M20. To the west, there is a newly constructed dedicated footbridge crossing the A2070 to the south of the Bad Munstereifel roundabout (replaced and improved on the previous footbridge in the same location during the Junction 10a construction works) providing connections to the Ashford Business Park, Willesborough residential area and Ashford beyond. Footways are also provided on the western side of the A2070 dual carriageway for connections towards the south-west and Orbital Park Roundabout.

4.3 Cycling

A connection to the A20 to the north of the M20 motorway is provided via the Kingsford Street footbridge which has been dedicated to use by non-motorised users. Cyclists are permitted on the newly built shared use footbridge to the south of A2070 Bad Munstereifel roundabout, providing access to Willesborough and Ashford beyond.

National Cycle Network (NCN) Route 18 passes through Ashford linking Canterbury to Royal Tunbridge Wells. This is approximately 1.5 miles north of the site, approximately a 7-minute cycle journey. Route 17 joins Route 18 to the north of Ashford and connects with Rochester. The extent of NCN Routes 18 and 17 is shown in Figure 4.4.

Figure 4.4: National Cycle Network, Routes 17 and 18



Source: Sustrans NB: Site shown as red star. Orange routes are off-road and blue routes are on-road, accessed 13 August 2020.

4.4 Public Transport

The public transport in the vicinity of the site is limited to one key bus route which provides wider connectivity to rail services at Ashford International rail station and three other routes available at the Tesco Superstore on the other side of the M20.

4.4.1 Bus

The closest bus stop is on Monument Way in the Orbital Business Park to the south-west of the site and on the opposite side of the A2070 Bad Munstereifel Road accessed via the shared foot / cycle bridge over the A2070 south of the A2070 Bad Munstereifel roundabout or via uncontrolled crossings at the A2070 Orbital Park roundabout. It is 0.6 miles or approximately 12.5 minutes' walk. Orbital Business Park is served by a single bus route serving Ashford International rail station, Ashford town centre and residential centres north-west of Ashford as shown in Table 4.1.

Table 4.1: Bus Service from Orbital Business Park

Service number	Route	First Bus	Last bus	Weekday daytime frequency
G	Godinton Park - South Willesborough	06:42	19:40	Every 30 minutes Monday – Saturday

Source: Stagecoach

Three bus routes are available at a bus stop on the A20 Hythe Road next to the Tesco Crooksfoot Superstore north of the M20. This is 1 mile / 1.6 km or 20 minutes' walk away via the existing Highfield Lane bridge. Bus services from this stop are shown in Table 4.2.

Table 4.2: Bus Services from Tesco Crooksfoot

Route (Operator)	Stops	Frequency (each direction)
10/10a (Stagecoach)	Ashford – Folkestone	Six per day every two to three hours Mon-Sat, five per day every two to three hours Sun
70 (Stagecoach)	Ashford – Folkestone	Six per day every two to three hours Mon-Sat, five per day every two to three hours Sun
111 (Stagecoach)	Ashford – Folkestone	One per day Thursday
125 (Kent Coach Tours)	Ashford – Mersham – Aldington – Bonnington – Ashford	Four per day every two to three hours Mon-Fri

Source: stagecoachbus.com and kentcoachtours.co.uk/bus-services, accessed 4 June 2020

4.4.2 Rail

The nearest railway station to the site is Ashford International tation approximately 2 miles away, or a 45-minute walk. Local rail services from Ashford International are shown in Table 4.3. Ashford International station previously offered direct Eurostar trains to France, Belgium and the Netherlands however these services will not be stopping at Ashford International until 2022 at the earliest meaning services are unlikely to resume in the short term.

Table 4.3: Rail Services from Ashford International Rail Station

Route	Stations	Frequency (each direction)
South Eastern route 1	Broadstairs, Bromley South, Canterbury West, Chartham, Chilham, Deal, Dover Priory, Dumpton Park, Ebbsfleet International, Folkestone Central, Folkestone West, Headcorn, Hildenborough, London Blackfriars, London Bridge, London Cannon Street, London Charing Cross, London Victoria, London Waterloo East, Maidstone East, Marden, Margate, Martin Mill, Minster, Orpington, Paddock Wood, Pluckley, Ramsgate, Sandling, Sandwich, Sevenoaks, St Pancras International, Staplehurst, Stratford International, Sturry, Tonbridge, Walmer, Westenhanger, Wye	Four trains per hour
South Eastern route 3	Barming, Bearsted, Borough Green & Wrotham, Bromley South, Canterbury West, Charing, Chartham, Chilham, Denmark Hill, East Malling, Elephant & Castle, Gravesend, Harrietsham, Herne Hill, Hollingbourne, Kemsing, Lenham, London Blackfriars, London Victoria, Maidstone East, Otford, St Mary Cray, Swanley, Tonbridge, West Malling, Wye	Two trains per hour
South Eastern route 8 (high speed service)	Ebbsfleet International, St Pancras International, Stratford International	Two to three trains per hour
Southern route 21	Rye, Ore, Hastings, St Leonards Warrior Square, Bexhill, Collington, Cooden Beach, Normans Bay, Pevensey Bay, Pevensey & Westham, Hampden Park, Eastbourne	Two trains per hour (two departing at same time)
Southern route 23	London Victoria, Ashford International, London Charing Cross, London Waterloo (East), London Cannon Street, London Bridge, St Pancras International, Stratford International, Ebbsfleet International, Ham Street, Appledore (Kent), Rye, Winchelsea, Doleham, Three Oaks, Ore, Hastings, St Leonards Warrior Square, Bexhill, Eastbourne, Polegate, Lewes, Brighton	One to two trains per hour

Source: southeasternrailway.co.uk and southernrailway.com, accessed on 31 May 2020.

4.5 Summary

In summary, the site is strategically located in close proximity to the M20, a key HGV route between the Port of Dover, Eurotunnel and the rest of the country on the south-eastern edge of Ashford. Whilst this offers benefits in terms of keeping HGV traffic away from urban areas and local communities it does mean that opportunities to travel to and from the site via public

transport, walking and cycling are currently limited. Whilst it is possible to travel by bus to and from Ashford town centre and Ashford International railway station via the nearest bus stop which is 12.5 minutes' walk away this is located in the Orbital Business Park and a single half hourly service. Three other services are available at 20 minutes' walk away but on the other side of the M20.

Walking and cycling to and from the site is feasible via shared footway / cycleways introduced along the A2070 Link Road and M20 junction 10a with connections into Willesborough and South Ashford via a shared foot cycle bridge located south of the A2070 Bad Munstereifel roundabout. However, Ashford town centre and Ashford International railway station are beyond reasonable walking distance for most people.

5 Development Proposals

This chapter provides details of the development proposal, site usage and access.

5.1 Proposed Development

The proposed development is the Sevington Inland Border Facility (Sevington IBF), a temporary Heavy Goods Vehicle (HGV) customs and border control checking and parking facility to be operated for a period of five years from January 2021.

5.1.1 Extant Planning Permission

The proposed development site has an extant planning consent for significant employment led mixed use scheme. It should be noted that when assessing the impact of the proposed scheme no allowance has been made to “net-out” traffic associated with existing planning consent on the site. Therefore, the assessment presented in this Transport Assessment is robust.

5.2 Proposed Use

The site will be used by the Department for Transport (DfT), Her Majesty’s Revenue & Customs (HMRC), Border Force, the Department for Environment, Food and Rural Affairs (Defra), the Department for Business, Energy and Industrial Strategy (BEIS) and the Driver and Vehicle Standards Agency (DVSA) to enable required checks to take place inland on traffic ‘inbound’ and ‘outbound’ entering and exiting the United Kingdom (UK) respectively, serving selected trade ports as part of the transitional arrangements arising from the UK’s departure from the European Union (EU). Temporary planning permission is being sought for the site to be in operation for five years, with a capacity of 1,272 HGV parking spaces and 357 staff parking spaces.

The site will operate in two phases. Figure 5.1 presents the site location and design from the day the site will be operational (Day One) on 1 January 2021 with a capacity of 1,272 HGV spaces. Figure 5.2 shows the site design after six months (Day 200) with a reduced capacity of 651 HGV spaces. Both plans are correct at time of submission.

5.2.1 DfT, DEFRA and DVSA

DfT will be the initial site operator from Day One and intend to occupy the site from 1 January 2021 for a period of six months, after which their daily demand for using the site will reduce considerably, as the ‘border readiness’ facility for their HGVs customers is predicted to move to a digital platform. The DfT operation will be for outbound HGVs only (those vehicles leaving the UK for the EU) and will comprise an area of up to 80 acres for HGV parking spaces, offices, welfare areas for staff and drivers, and Driver and Vehicle Standards Agency (DVSA) inspection bays. The DVSA will operate as an executive agency of the DfT and will carry out tests in inspection bays adjacent to the DfT facilities.

The Defra operation will be for inbound HGVs only (those vehicles entering the UK from the European Union) and will comprise an area of up to 2.2 acres for HGVs parking, offices, welfare areas for staff and drivers and inspection bays and facilities. It is noted that the Defra presence and operations on the Sevington Site will be to service inbound traffic from Eurotunnel only. Defra demand for the site is expected to remain constant in terms of the number of HGVs each day from July 2021.

In the transition process, some of the initial HGV parking and infrastructure required for DfT operations for the first six months will be decommissioned (but retained for emergency use) from July 2021, as both Defra and HMRC will not require the same extent of HGV parking spaces as DfT. Some of the HGVs parking area will be replaced by temporary buildings required by Defra from July 2021.

5.2.2 HMRC

The role of site operator will transfer after approximately six months from DfT to HMRC who will fulfil this role until the end of the consented period. HMRC will start its operations on the site from 1 January 2021 and is considering operating the site for a maximum of five years from January 2021 to December 2025. The HMRC operation could be for both inbound and outbound HGVs and will comprise an area of up to 22.2 acres for HGV parking, offices, welfare areas for staff and drivers and inspection bays and facilities. Only a small percentage of HGVs will need to be physically inspected by HMRC and it will be unknown to the driver whether or not the HGV will be inspected until they enter the site. HMRC intend to make use of Automatic Number Plate Recognition (ANPR) to make entering and leaving the site more straightforward for consignments that do not need to be inspected.

The BEIS will start its operations in the site as a sub-set department of HMRC, operating for the same duration and sharing the same premises (buildings, staff car park and HGV parking spaces).

5.2.3 HGV Parking

HGV parking areas with clearly marked bays will be provided including designated areas for hazardous loads and electric hook up points for refrigerated vehicles. Access to the parking areas for HGVs will be managed through the use of ‘entry lanes’ (see Section 5.3).

5.2.4 Staff Parking and Facilities

Staff will have access to 366 on-site car parking spaces (with two electric vehicle charging points). Kent County Council’s (KCC) parking standards do not contain specific parking standards for this type of use. However, as a general rule, one space should be provided per car driving employee. Similarly to staff car parking, KCC’s parking standards do not contain specific cycle parking standards for this type of use. For other unique uses, cycle parking can be provided on individual merit. The site will provide cycle storage facilities for 30 bicycles and shower and changing facilities will also be provided. This level of cycle parking provision is predicted to meet the proposed demand, as detailed in the Staff Travel Plan summary in Section 7.4. Measures to encourage cycling and other sustainable modes are also detailed in Section 7.4. Should the provision of disabled parking bays be required on site, the site operator will ensure this is made available.

The site will be in operation and staffed 24-hours per day. For sustained periods of time there would be approximately 322 staff on-site from Day One for the first six months and 406 staff on-site after six months and thereafter. Staff welfare facilities include toilets, hot water, and food storage and making facilities. Staff at the site will include:

- Site contractors, comprising:
  - Site Managers
  - Site Office Front Personnel
  - Security Marshals
  - Traffic Management Marshals

  - Inspection Shed Staff
- Border Force staff

In addition to the HGV and staff parking areas on-site facilities will include temporary buildings for site contractors and Border Force staff to process paperwork as well as a driver welfare centre providing toilets and drinking water. Site facilities for HGV drivers are purposefully minimal in order to dissuade drivers from remaining on-site for an extended period. Staff welfare facilities include toilets, hot water, food storage and food preparation facilities.

Figure 5.1: Site Location and Design – Day One

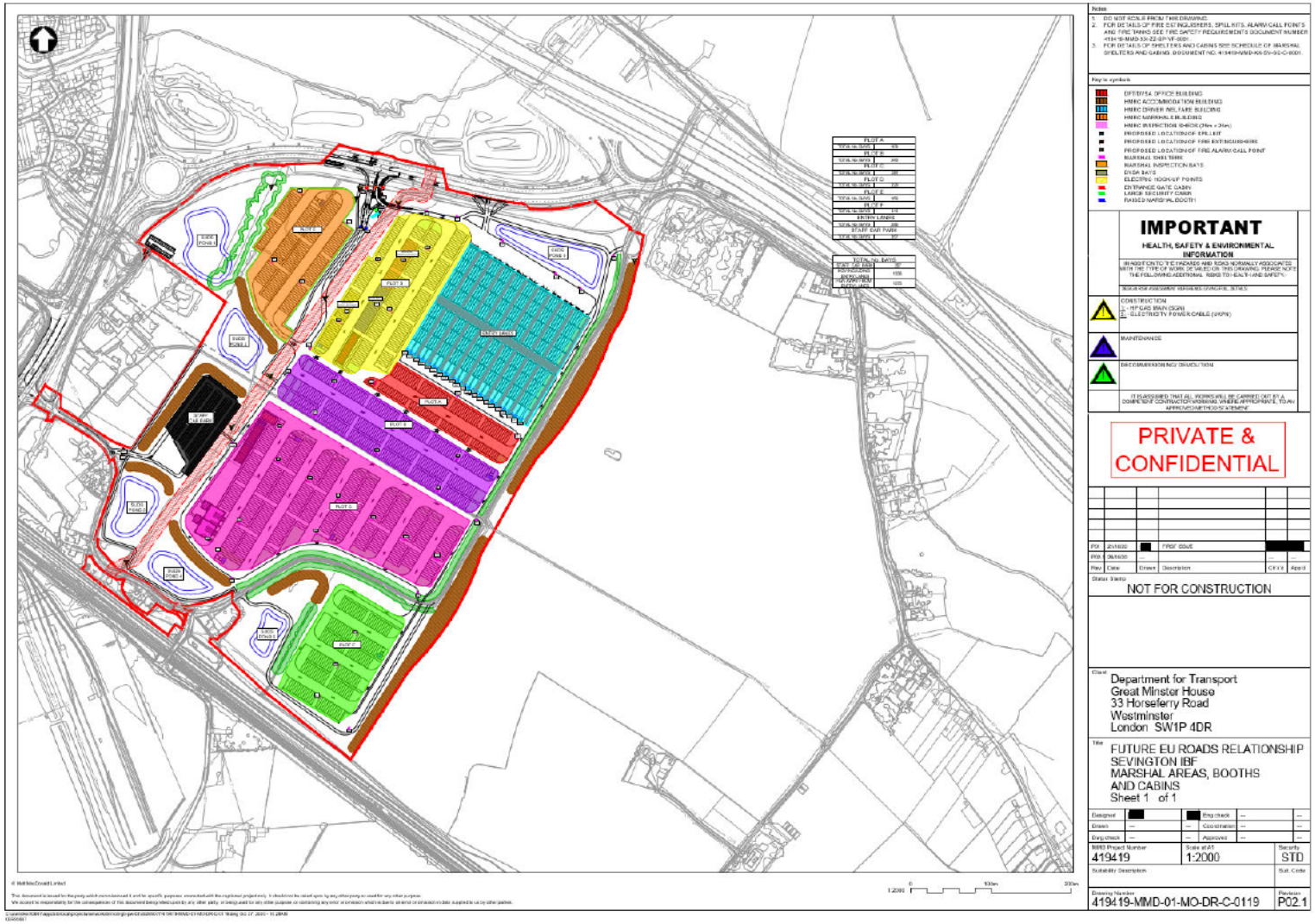
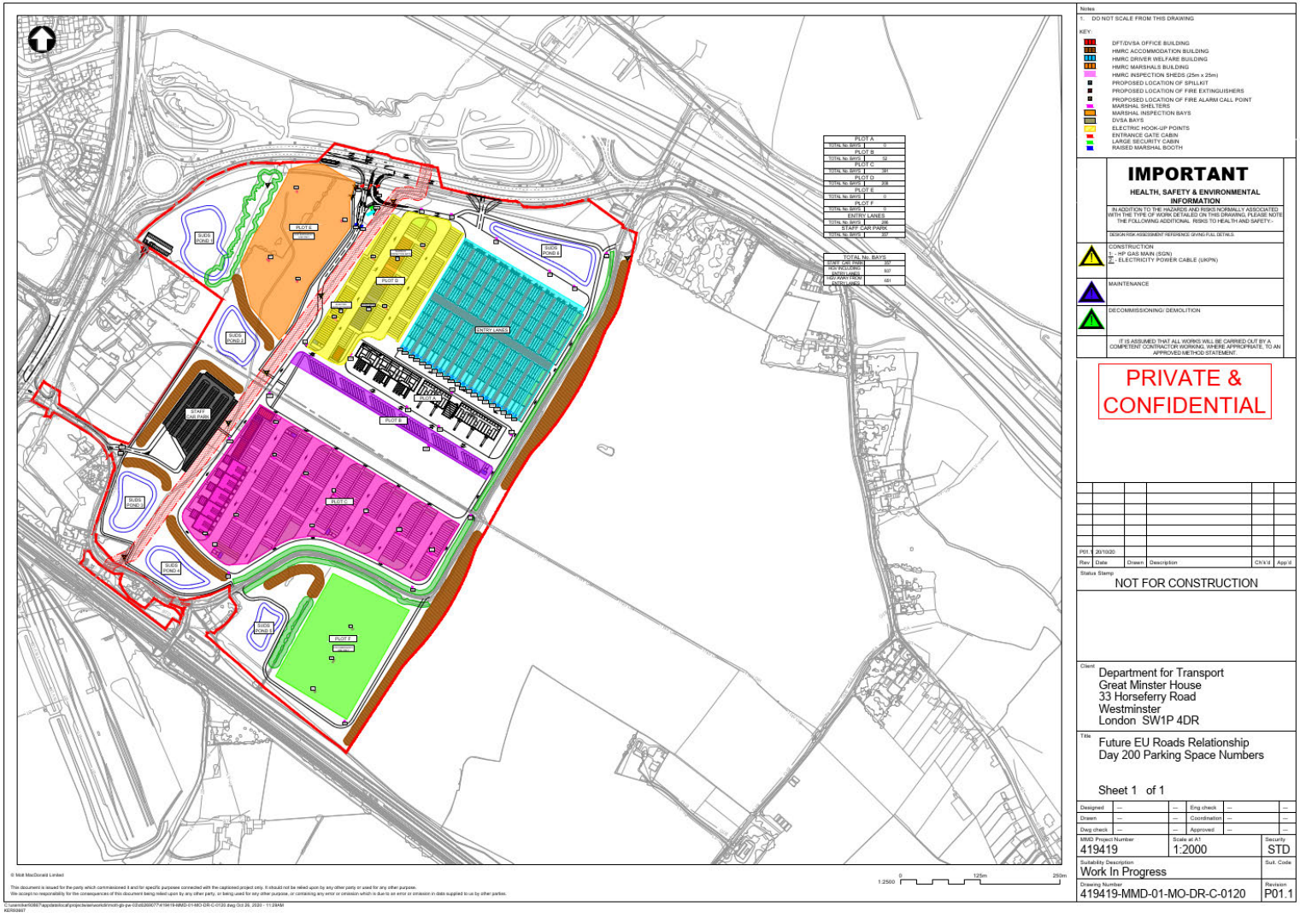


Figure 5.2: Site Location and Design – Day 200



5.3 Site Operations

In order to support the operation of the site, an Operational Management Plan (OMP) will be prepared. The aim of the OMP is to provide a comprehensive operational plan for the site and to deliver policies and procedures allowing for its safe operation. It outlines the running of the site through its process of accepting, allocating, parking and removal of heavy goods vehicles (HGVs) from the site under the following three conditions: normal operating conditions (i.e. business as usual), on approaching or reaching capacity and in a variety of emergency situations (i.e. security, fire, pollution, adverse weather etc.)

Further details can be found in the OMP and its supporting appendices submitted as part of the SDO application.

Monitoring of the number of vehicles accessing and exiting the site will be undertaken by the Automatic Number Plate Recognition (ANPR) cameras at the entrance and exit to each site. The Duty Manager and the on-site Incident Command Centre (ICC) are responsible for continuously monitoring site capacity and providing updates to the off-site Border Impact Centre (BIC). In the event that no update is provided to the BIC in line with the end of the shift, then the BIC will contact the Duty Manager for an update.

5.3.1 Site Turnaround

A maximum of 2-hours will be required for one HGV check (excluding physical inspection). It is anticipated that a very small percentage of goods will need a physical examination which will require unloading of goods to be undertaken. Physical examination may take up to 8-hours on average.

5.3.2 Site Contingencies

The OMP prepared to support the operation of the site will include, amongst other things, how vehicles will enter and exit the site, the process for dealing with drivers who arrive with incorrect paperwork and the strategy for vehicle breakdowns and other major incidents such as fire, power outage, diesel or chemical spillages, etc.

5.3.3 Staffing Requirements

The operations previously detailed will require an estimated 322 staff per shift on Day One, as shown in Table 5.1, and an estimated 406 staff per shift on Day 200 / after six months, as shown in Table 5.2. These numbers do not include BEIS staff, a small number of which are expected to attend site when intelligence requires them to do so.

Site staff will work a standard set of shift patterns. For the government agencies, staff work across three shifts, with each shift split into two to reduce the number of vehicle movements at shift changeover times. The shift changeover periods will happen outside of the traditional highway peak hours, thus reducing the impact of site operations on the highway network.

Table 5.1 Anticipated Staff Requirements per Shift, Day One

Type of Staff	Staff Required Per Shift
DfT Staff	**(Total 80)**
- Site staff	50
- Traffic Marshals	15
- Security Marshals	15
HMRC Staff	**(Total 242)**
- Border Force Staff (Back Office)	50
- Site Management	4
- Site Operator Front Office Personnel	80
- Site Operator Front Officer Manager	3
- Traffic Marshals	18
- Security Marshals	65
- Inspection Shed	Per inspection shed: 8 Site Operator Staff 3 Border Force Staff 2 sheds, 22 total staff
Total Staff	**322 staff**

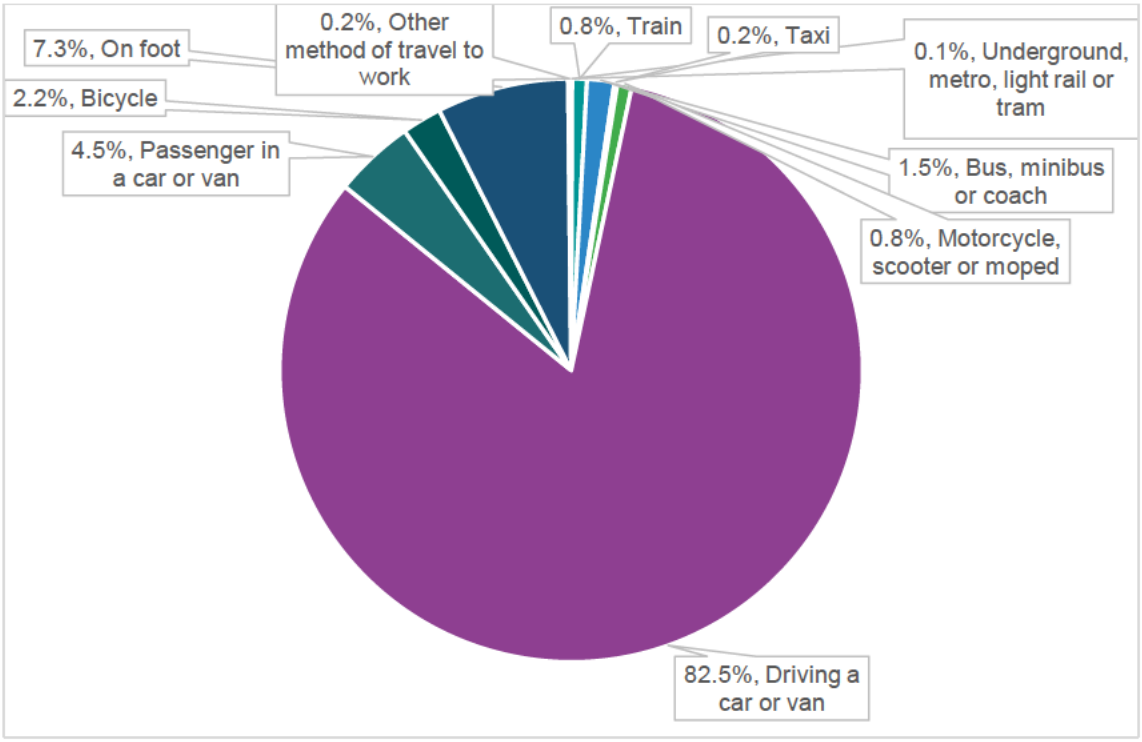
Table 5.2 Anticipated Staff Requirements per shift, Day 200 / after six months

Type of Staff	Staff Required per Shift
HMRC Staff	**(Total 275)**
- Border Force Staff (Back Office)	50
- Site Management	4
- Site Operator Front Office Personnel	80
- Site Operator Front Officer Manager	3
- Traffic Marshals	18
- Security Marshals	65
- Inspection Shed	Per inspection shed: 8 Site Operator Staff 3 Border Force Staff 5 sheds, 55 total staff
Defra Staff	**(Total 131)**
- Site staff	TBC
- Traffic Marshals	38
- Security Marshals	38
- Inspection Shed	Per inspection shed: 8 Site Operator Staff 3 Border Force Staff 5 sheds, 55 total staff
Total staff	**406**

To understand the likely modal split of staff travel, data has been obtained from the 2011 Census Data (the most recent available) for location of usual residence and place of work by method of travel. The data for Ashford 010 as place of work, in which the site is located, has been assessed to determine the likely mode of travel for employees of the proposed site.

Figure 5.3 demonstrates the forecast modal split of staff travel. The majority of staff are expected to travel to the site by car, especially considering the staff shift changeover times could occur outside daylight hours when public transport is a viable option.

Figure 5.3: Census Data Mode Splits



Source: NOMIS Census (2011) E02005005 Location of usual residence and place of work by method of travel to work MSOA Level

5.4 Proposed Access and Egress Routes

A new main access is proposed for HGVs from the A2070 Link Road as shown in Figure 5.5. This will be a new signalised junction. A dedicated right turn lane on the A2070 eastbound carriageway into the site is included in the junction design. However, it is intended that this will be temporarily blocked until Day 200 operations. This will discourage HGVs from using the M20 junction 10 as to do so would require them passing the site, using the M20 junction 10a roundabout to perform a u-turn and accessing the site using the left turn lane on the A2070 southbound carriageway. Even after Day 200 the right turn is not intended for use by HGVs as these will still be directed to enter and leave the site from the direction of M20 junction 10a, but it will be available for HGVs travelling from the Ashford International Truck Stop to the site.

Other vehicles required to be on site, such as maintenance / delivery vehicles or vehicles brought in by the DVSA, etc., shall also access the site through the main site entrance. However, a 'through lane' has been built for them to escape any queues at the entry lanes to the site. Only authorised vehicles are permitted to use the 'through lane' to enter the site.

Most HGVs visiting the site are expected to approach the Ashford area via the M20 exiting at junction 10a and using the A2070 Link Road to enter the site via the main access junction. HGVs will be encouraged to use junction 10a rather than junction 10 by the Site Signage Strategy described in Section 7 and also because the right turn into the main access junction from the eastbound A2070 Link Road (from the direction of junction 10) will not be available for the first six months, and therefore drivers will become familiar with using junction 10a.

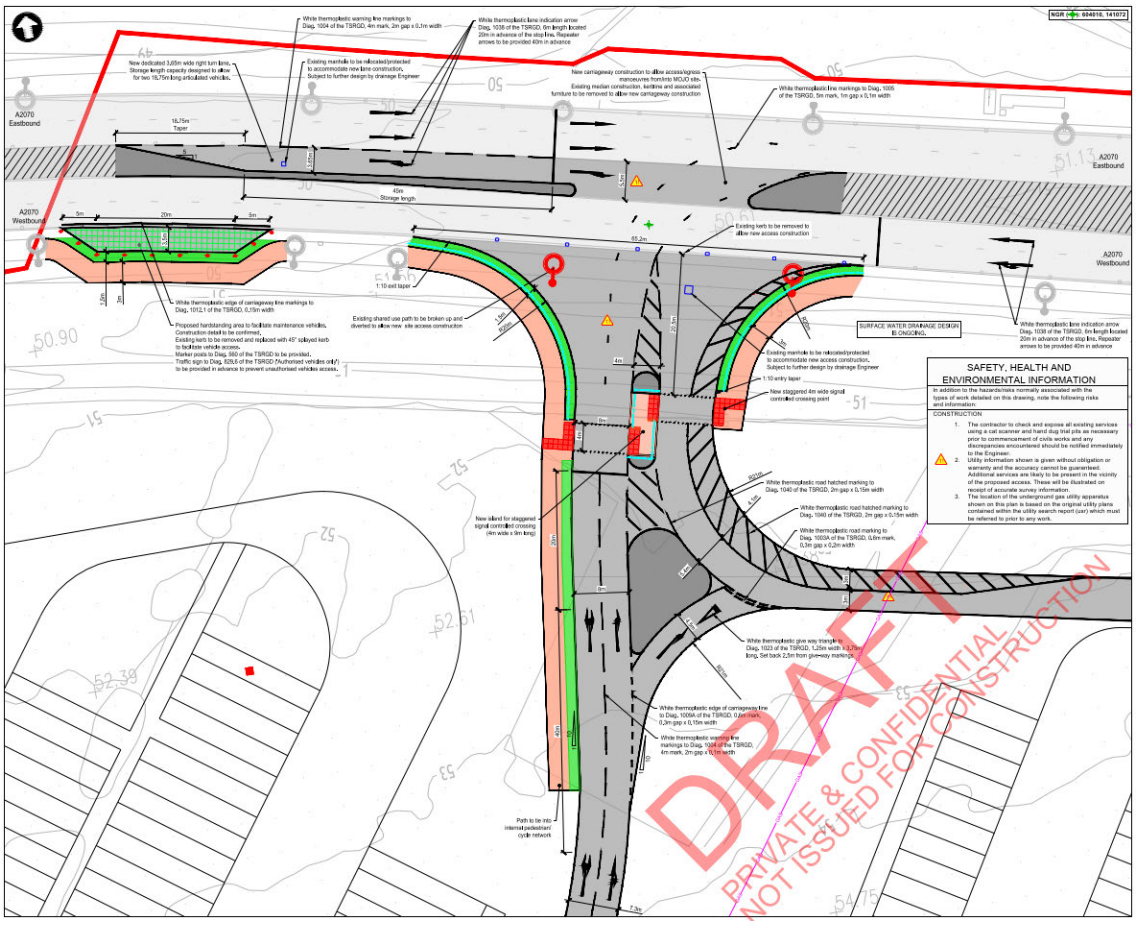
In small numbers HGVs travelling from other parts of Kent and the south coast may take the A259, the A28 and A2070 approaching the area via the A2070 Bad Munstereifel Road. HGVs leaving the site will turn right out of the main access junction onto the A2070 Link Road and then use M20 junction 10a.

If there is a requirement to limit the number of HGVs using Ashford at any one time as a result of capacity issues, Variable Message Signs (VMS) can be used on the Strategic Road Network (SRN) to direct HGVs to alternative sites. Further detail regarding the use of VMS on the SRN will be provided in the Site Signage Strategy.

Figure 5.4 Proposed Permanent Site Access Junction Location (A2070 Link Road)

Source: Mott MacDonald

Figure 5.5: Proposed Permanent Site Access General Arrangement

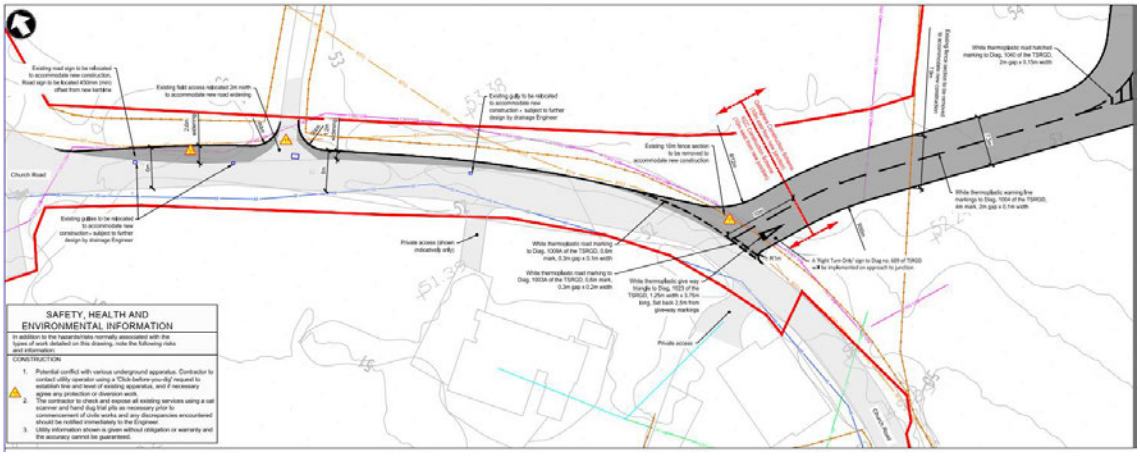


5.4.1 Staff Vehicular Access

Staff travelling to the site will use the A2070 Bad Munstereifel Road turning left or right into Church Road and then access the staff car park off Church Road via a new site access, as depicted in Figure 5.6. Staff will be informed that vehicular access to the site shall be via the A2070 and a right turn into site from Church Road will not be permitted.

For staff leaving the site, the junction design is for a right turn only onto Church Road, then a left turn only onto the A2070 Bad Munstereifel Road before passing through the A2070 Orbital Park roundabout, and then u-turning at this roundabout if they are heading towards the M20 motorway. The section of Church Road between the A2070 and the access to the staff car park will be widened and improved.

Figure 5.6 Church Road Staff Access Junction



5.5 Pedestrian and Cycle Access

Pedestrian and cycle access to site is to be provided via a segregated 3m wide shared use path which links to the existing path network running adjacent to the A2070 Link Road. New guardrail will be installed adjacent to the path at the main site access to provide definition and direct all users to the designated (signal controlled) crossing points. The main pedestrian / cycle link into the site itself is located on the west side of the vehicular access, meaning all users travelling to / from Ashford (i.e. from the west) do not need to cross the path of HGVs which are entering and exiting the site. For pedestrians and cyclists accessing the site from the east, a crossing point across the site access entrance will be provided approximately 20m into the site access (as indicated on Figure 5.5).

The pedestrian access into the Sevington IBF site will be provided for staff only. Therefore, no signage is being provided for pedestrians outside the site as there will be no public access. Staff will be informed of access points prior to beginning work on the site. Pedestrian and cycle access via the staff car park access on Church Road will be restricted.

5.6 Public Transport Access

While it is possible to travel by bus to and from the site, the public transport in the vicinity of the site is limited to one key bus route in the Orbital Business Park, approximately a 12.5 minute walk from Sevington IBF, which provides wider connectivity to Ashford town centre and Ashford International Railway Station and three other routes available at the Tesco Superstore on the other side of the M20, approximately a 20 minute walk.

However, the bus routes close to the site have limited frequency – a maximum of every 30-minutes in the Orbital Business Park – and all are limited to daytime hours. Buses are not considered a viable option for all employees due to the timings of shifts. Significant staff travel to the site via public transport is considered unlikely.

5.6.1 Public Right of Way

There is an existing Public Right of Way (PRoW) which runs across the southern end of the site along the existing alignment on Church Road and Highfield Road. For the duration of site operation the PRoW will be diverted around the southern boundary of the site.

5.6.2 Safety Review

A high-level road safety review of the access arrangements and routes to and from the site has been prepared, DfT-Multiple-EUX HGV Routes and Site Access Safety Review (ref 419419-MMD-XX-ZZ-RP-TP-0001). This review seeks to identify any significant concerns relating to the proposed highway arrangements and does not constitute a full Stage 1 Road Safety Audit.

Construction of the new junction 10a and A2070 Link Road was completed in summer 2020. The design of this new infrastructure will be to the current design standards and has been subject to the formal Road Safety Audit process where any road safety issues would be formally identified and reported to Highways England. The use of these parts of the SRN by HGVs is therefore considered appropriate.

HGVs will access and egress the site via a new signalised junction on the A2070 Link Road which has a speed limit of 40mph. The design of this junction is currently under discussion with Highways England but appropriate forward visibility to the proposed signals appears achievable at a design speed of 70kmh (40mph).

Staff will access and egress the site via the A2070 Bad Munstereifel Road / Church Road junction which will remain unchanged but includes a banned right turn out of Church Road which is to be maintained for safety reasons, given that the junction currently operates under priority control.

5.7 Emergency Access

It is expected that emergency services under blue light conditions will travel to the site using Business as Usual routes on the SRN and Local Road Network (LRN) following their standard operational procedures and will access the site either via the main access junction on the A2070 Link Road or the access to the staff car parking on Church Road via A2070 Bad Munstereifel Road. On arrival, they will be directed to the site Emergency Rendezvous Point (ERVP), which will be signed within the site. The emergency services will be met at the ERVP by a representative of the Site Operator, briefed on the incident, and directed to the relevant location.

The emergency access point to the site will be via the junction with has been built off the A2070 Link Road to allow the site to be constructed.

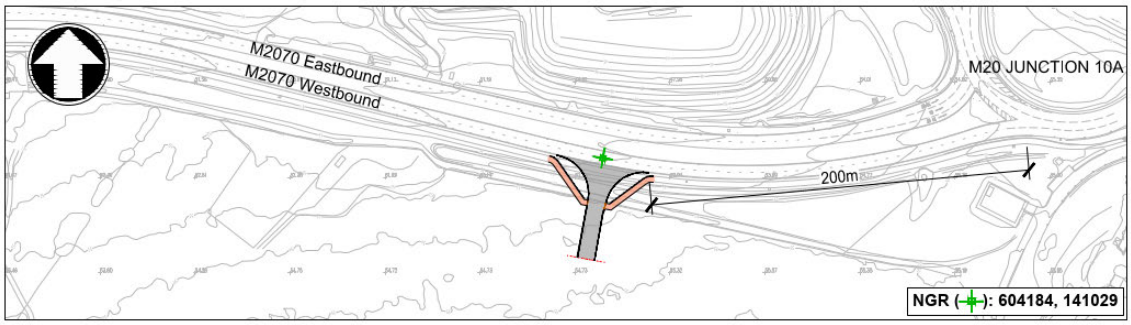
5.8 Construction

Construction of the site is currently underway and will continue for the remainder of 2020 based on an estimated total of twenty construction vehicles per hour (in each direction) which arrive at the site via M20 junction 10a and turn left into the site from the A2070 Link Road via the temporary access junction shown in Figure 5.6. Construction vehicles turn left out of the temporary access junction back onto the A2070 Link Road.

In July 2020, a report to assess the impact of the construction of S IBF site was prepared (see Appendix A) which assessed the impact of construction traffic on the A2070 Bad Munstereifel Road roundabout (linking the A2070 to junction 10 and the A2070 link road to junction 10a) and the temporary access junction on the A2070 Link Road (approximately 500m east of the proposed permanent access and 225m west of M20 junction 10a) shown in Figure 5.7.

Further information regarding how construction will be undertaken will be provided in the Construction Management Plan which will be issued separately.

Figure 5.7 Proposed Temporary Site Access



6 Development Impact

This chapter provides an assessment of the impact of the proposed development based on the provision of 1,272 HGV spaces on Day One and 651 HGV spaces on Day 200 / after six months onwards with the corresponding figures for staff being 322 staff per shift on Day One and 406 staff per shift on Day 200 / after six months.

From Day One for the first six months of operation, the site will be used by Department for Transport (DfT), Her Majesty's Revenue and Customs (HMRC) and BEIS (Business, Energy and Industrial Strategy). DfT will use the site to manage disruption caused by HGVs heading out of the UK via the Port of Dover or Eurotunnel which are not border ready. During this disruption period for the first six months of 2021 ('Disruption Days'), all HGVs heading out of the UK will be required to travel through the Quick Moveable Barrier phase of Operation Brock on the M20 between junctions 8 and 9 which allows storage of 2,100 HGVs. It has been assumed that two lanes per direction will remain open for northbound traffic and one lane for southbound traffic with a speed limit of 50mph. DfT anticipate that trader readiness will no longer be an issue beyond July 2021 and from that date it has been assumed that Operation Brock will no longer be used ('Non-disruption Days'). HMRC will use the site from Day One to process HGVs inbound to or outbound from the UK.

From Day 200 / after six months of site opening and therefore beyond July 2021 when disruption is no longer expected to occur, the site will continue to be used by HMRC to process HGVs inbound to or outbound from the UK. The Department for Environment Food and Rural Affairs (Defra) will also use the site to process HGVs inbound to the UK. Table 6.1 summarises the use of the site that has been assumed for the purposes of the assessment.

Table 6.1: Proposed Use of the Site

	January 2021 – end June 2021 'Disruption Days'	July 2021 - end December 2023 'Non-disruption days'
Agency	DfT – outbound HMRC – outbound HMRC – inbound	HMRC – outbound HMRC – inbound Defra – inbound

In addition to assessing both 'disruption days' and 'non-disruption days', two demand scenarios have been considered; a Maximum Operating Capacity scenario and a Realistic Case scenario, as detailed in the rest of this section.

6.1 Assessment Methodology

The impact of the temporary operation of the site has been assessed based on the scenarios described above using Strategic Traffic Modelling, Local Junction Modelling and VISSIM Microsimulation Modelling, the latter for the operation of the site only, as follows:

- For the Maximum Operating Capacity scenario:
  - Strategic Traffic Modelling (Day One Disruption Days and Day 200 / After six months Non-Disruption Days)
  - Local Junction Modelling (Day One Disruption Days and Day 200 / After six months Non-Disruption Days)
  - VISSIM modelling of the site operation only (Day One Disruption Days)

- For the More Realistic Case scenario:
  - Strategic Traffic Modelling (Day One Disruption Days and Day 200 / After Six months Non-Disruption Days)
  - Qualitative assessment of the likely impacts

For the Strategic Traffic Modelling, one assessment year (2021) has been considered. However, for the Local Junction Modelling, two assessment years (2021 and 2025) have been considered given as the site's operation is 'temporary.' This approach has been deemed to be appropriate to represent the five-year period of operation and to take into account local traffic growth during this period.

As previously detailed the identified site has an extant planning consent for significant employment led mixed use scheme. Whilst in a traditional Transport Assessment it would be appropriate to consider traffic associated with the extant consent (land use) and assess the impact of any difference in traffic generation levels, for the purposes of robust assessment no discount of extant trips has been made.

Further, it should be noted that the development sites do not generate 'new' HGV trips to the strategic road network. The HGVs are already on the Strategic Road Network and simply divert to the site for processing. The Transport Assessment considers all trips to / from the site as new trips within the study network, which provides a further level of robustness to assessment.

6.1.1 Maximum Operating Capacity Scenario

6.1.1.1 Day One / First Six Months - Disruption Days

Based on DfT port statistics, an estimated 5,500 HGVs head outbound from the UK each day via the Port of Dover or Eurotunnel terminal. HMRC data indicates that they expect 3,013 of these HGVs to require HMRC checks and this estimate has been averaged out across a 24-hour day resulting in 126 outbound HGVs arriving and departing the site each hour. DfT has assumed that the remaining 2,487 daily HGVs will require DfT checks. These have been profiled across the day using WebTRIS data provided by the DfT. Of these it has been assumed by DfT that 42% will either not already be border ready or will be unable to become border ready at the site. These HGVs will be turned back to their original origin / depot. HMRC has provided data that indicates on average 2,740 HGVs will be travelling inbound from the Port of Dover and Eurotunnel each day and require HMRC checks. This estimate has been averaged out across a 24-hour day resulting in 114 inbound HGVs arriving and departing the site each hour.

6.1.1.2 Day 200 / After Six Months – Non-Disruption Days

The HMRC use of the site in terms of both HGVs inbound to and outbound from the UK remains the same as for the 'Disruption Days' namely 126 outbound HGVs arriving and departing the site each hour or 114 inbound HGVs arriving and departing the site each hour.

Defra has provided data indicating they are expecting a daily average of 213 HGVs arriving to site that will require checks and these have been profiled across the hours of the day using WebTRIS traffic flow data on the M20 eastbound carriageway between junction 11 and 11a just west of the Eurotunnel terminal from May to June 2019.

Table 6.2 shows the number of HGVs estimated to visit the site by Agency and time period covered by the Strategic Traffic modelling for the Maximum Operating Capacity Scenario. HGVs will access and egress the site based on the Signing Strategy which assumes use of the M20, M20 junction 10a and A2070 Link Road.

Table 6.2: Estimated Number of Average Hourly HGVs by Agency and Time Period for the Maximum Operating Capacity Scenario

Modelled Scenario	Agency	AM (07:00-10:00 average)		IP (10;00-16:00 average)		PM (16:00-19:00 average)		OP (19:00-07:00 average	
		Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Disruption	DfT	127*	113	143	130	120	130	75	115
	HMRC inbound	114	114	114	114	114	114	114	114
	HMRC outbound	126	126	126	126	126	126	126	126
No Disruption	Defra inbound	11	11	12	12	10	12	6	10
	HMRC inbound	114	114	114	114	114	114	114	114
	HMRC outbound	126	126	126	126	126	126	126	126

*Numbers have been rounded to the nearest integer

For staff, there are 357 parking spaces in total across the site. A robust assumption has been assessed that assumes just over half of these parking spaces get turned over at the beginning and end of each of the three shifts which are 07:00-15:30, 15:00-23:30 and 23:00-07:30 hours. The trip distributions used for the staff trips are shown below in Figure 6.1 and Figure 6.2.

Figure 6.1: Staff Trips to Sevington Site

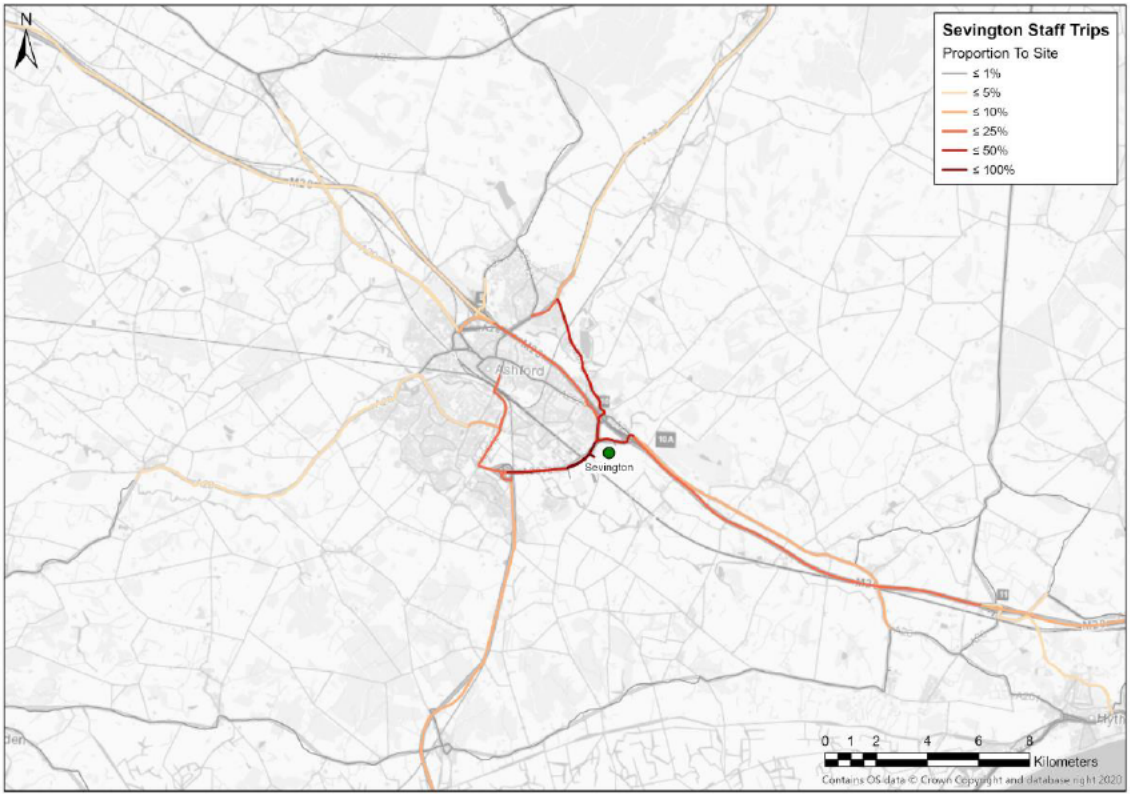
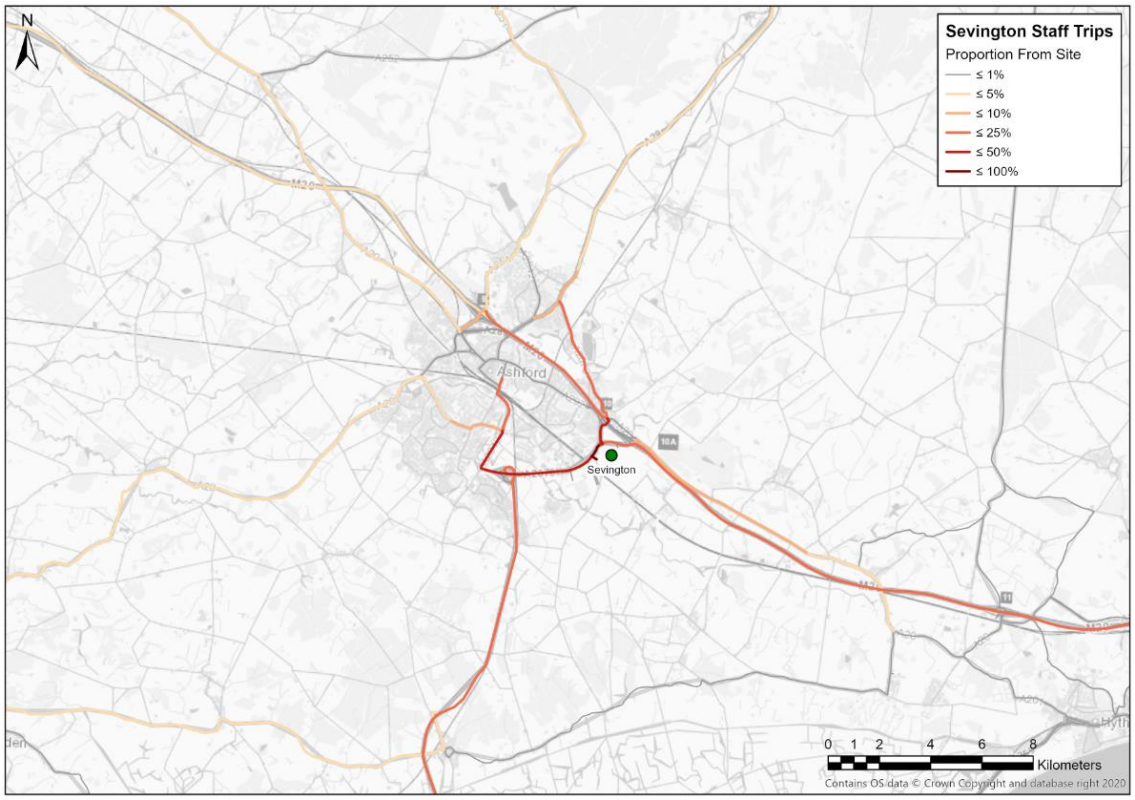


Figure 6.2: Staff Trips from Sevington Site



6.1.2 Realistic Case Scenario

The Realistic Case has been based on additional data provided by HMRC as an additional scenario given that the Maximum Operating Capacity scenario assumes that the HMRC element of the site operates higher than expected demand levels throughout the day and therefore potentially over-estimates the HMRC-related daily demand as well as the corresponding traffic impacts. HMRC provided profiled ferry crossing data at ports across the UK including the Port of Dover and the Eurotunnel terminal as well as the total estimated daily HGVs visiting the site. These have been refined to reflect the total expected demand and the profile of vehicle arrivals and departures at the ports and the journey time between the ports and the sites. The total number of outbound HGVs visiting the site associated with all government agencies does not change during disruption compared to the Maximum Operating Capacity scenario with DfT assuming that any reduction in HMRC related HGV traffic results in an equivalent increase in DfT HGV related traffic. HMRC continues to use the site for inbound or outbound HGVs in the Realistic Case. Defra related HGV demand remains the same as the Maximum Operating Capacity Scenario without disruption.

Table 6.3 shows the number of HGVs estimated to visit the site by Agency and time period covered by the Strategic Traffic Modelling for the Realistic Case scenario. Further details on the numbers presented can be found in Appendix B – Strategic Traffic Modelling Report. HGVs will access and egress the site based on the Signing Strategy which assumes use of the M20, M20 junction 10a and A2070 Link Road. Although the right turn from A2070 Link Road eastbound will be available for Day 200 / after six months, HGVs will still be signed to use M20 junction 10.

Table 6.3: Estimated Number of Average Hourly HGVs by Agency and Time Period for the Realistic Case Scenario

Modelled Scenario	Agency	AM (07:00-10:00 average)		IP (10;00-16:00 average)		PM (16:00-19:00 average)		OP (19:00-07:00 average	
		Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Disruption	DfT	265	215	299	264	250	256	156	185
	HMRC inbound	31	27	38	32	32	43	29	30
	HMRC outbound	14	11	14	13	14	17	10	11
No Disruption	Defra inbound	11	8	12	12	10	12	6	7
	HMRC inbound	121	105	145	123	123	166	112	117
	HMRC outbound	50	40	51	46	50	59	37	40

In terms of staff, the assumptions regarding staff trips and distribution is the same as in the Maximum Operating Capacity Scenario.

6.2 Strategic Traffic Modelling Results

Strategic traffic modelling has been undertaken using the Operation Stack Permanent Solution (OSPS) model, with flows uplifted to 2021, for the following weekday periods:

- AM Peak Period (Average hour 07:00-10:00)
- Inter-Peak (IP) Period (Average hour 10:00-16:00)
- PM Peak Period (Average hour 16:00-19:00)
- Off-Peak (OP) Period (Average hour 19:00-07:00)

The full results from the Strategic Traffic Modelling are provided in Appendix B for all scenarios with summary results provided below.

6.2.1 Maximum Operating Capacity Assessment

6.2.1.1 Disruption Scenario

For most time periods the impacts are local to Ashford as HGVs are primarily re-routed off and back onto the M20. However, in the off-peak some HGVs are re-routed from the A2 / M2 corridor in order to maximise the site occupancy. This leads to some wider flow differences, though due to the lower levels of demand in this period, this has little effect on other traffic.

As HGVs are turned back at the site rather than the ports this reduces traffic flows on the M20 between Ashford and Folkestone and Dover, and on the A2 between Dover and the A229. This is also reflected in a slight increase in flow on the M20 between Ashford and the A229.

For all of the above, most of the vehicle flow changes, with the exception of the routes between the M20 and the site that HGVs travel down, are limited to 50 vehicles per average hour.

Table 6.4 shows the largest changes in modelled flows on key links around M20 junction 10a. Flow changes are focussed on this junction as HGVs are routed through this junction to and from the site. Flow increases can be seen on the A2070 between the site and M20 junction 10a and the slip roads and circulatory links at the junction.

The section of M20 junction 10a with the biggest increase, of around 450 vehicles in each time period, is the northern section of the circulatory carriageway. A large percentage change in flow can be seen on the M20 southbound off-slip which is due to the low background flows on this

link. A reduction in flow can be seen on M20 junction 10a which reflects traffic leaving the M20 to visit the site.

Table 6.4: 2021 Disruption Total Flows (vehs) – M20 Junction 10a

Road Name	Direction	DM	DS	Diff	% Diff
AM Peak					
A2070 to junction 10a	Eastbound (EB)	335	692	357	106.6%
M20 Northbound On-Slip	Northbound (NB)	309	452	143	46.3%
Circulatory - West	NB	352	555	203	57.7%
M20 Southbound Off-Slip	Southbound (S)B	152	396	244	160.5%
Circulatory - North	EB	974	1413	439	45.1%
M20 Southbound On-Slip	SB	508	706	198	39.0%
Circulatory - East	SB	570	801	231	40.5%
Circulatory - South	Westbound (WB)	1158	1486	328	28.3%
A2070 from junction 10a	WB	831	1173	342	41.2%
M20 Northbound through Junction	SB	1408	1278	-130	-9.2%
M20 Southbound through Junction	SB	1108	862	-246	-22.2%
Inter-Peak					
A2070 to junction 10a	EB	342	708	366	107.0%
M20 Northbound On-Slip	NB	309	450	141	45.6%
Circulatory - West	NB	356	559	203	57.0%
M20 Southbound Off-Slip	SB	142	415	273	192.3%
Circulatory - North	EB	886	1350	464	52.4%
M20 Southbound On-Slip	SB	420	624	204	48.6%
Circulatory - East	SB	659	907	248	37.6%
Circulatory - South	WB	1064	1405	341	32.0%
A2070 from junction 10a	WB	741	1104	363	49.0%
M20 Northbound through Junction	SB	1057	929	-128	-12.1%
M20 Southbound through Junction	SB	1142	860	-282	-24.7%
PM Peak					
A2070 to junction 10a	EB	272	641	369	135.7%
M20 Northbound On-Slip	NB	303	453	150	49.5%
Circulatory - West	NB	296	502	206	69.6%
M20 Southbound Off-Slip	SB	180	418	238	132.2%
Circulatory - North	EB	967	1406	439	45.4%
M20 Southbound On-Slip	SB	559	761	202	36.1%
Circulatory - East	SB	642	839	197	30.7%
Circulatory - South	WB	1183	1435	252	21.3%
A2070 from junction 10a	WB	855	1121	266	31.1%
M20 Northbound through Junction	SB	1210	1094	-116	-9.6%
M20 Southbound through Junction	SB	1459	1213	-246	-16.9%
Off-Peak					
A2070 to junction 10a	EB	41	397	356	868.3%
M20 Northbound On-Slip	NB	56	212	156	278.6%

Road Name	Direction	DM	DS	Diff	% Diff
Circulatory - West	NB	43	242	199	462.8%
M20 Southbound Off-Slip	SB	46	254	208	452.2%
Circulatory - North	EB	193	600	407	210.9%
M20 Southbound On-Slip	SB	107	309	202	188.8%
Circulatory - East	SB	90	295	205	227.8%
Circulatory - South	WB	186	498	312	167.7%
A2070 from junction 10a	WB	130	442	312	240.0%
M20 Northbound through Junction	SB	474	369	-105	-22.2%
M20 Southbound through Junction	SB	580	370	-210	-36.2%

Analysis of the strategic model for this scenario indicates that changes in junction volume / capacity and delay values are minimal across the network in all time periods. Increased delay is seen at the site access junction, but as this junction is not operational in the Do-Minimum this reflects the actual delay at the junction.

For the scenarios which look at routing of HGVs via M20 junction 10, the wider impacts of the site are consistent with the wider impacts of those described above where routing of HGVs was via M20 junction 10a. However, the analysis of the strategic model for these scenarios indicates that there are increased localised delays at M20 junction 10, on the A20, and at the right turn into the site on the A2070.

6.2.1.2 Non-Disruption Scenario

The impacts of the site without disruption are very similar to those predicted with disruption. Vehicle flow changes are primarily localised around M20 junction 10a and the surrounding road network of Ashford.

As the DfT are not present in this scenario, no vehicles are turned around at the site, hence the associated reductions in flow south of M20 junction 10a and on the M2 / A2 are no longer predicted in this scenario. There is some re-routing predicted to the east of Ashford on the B2069 in the inter-peak and PM on the B2069 reaching around 40 vehicles in the PM.

All wider flow changes, except for those at M20 junction 10a and the A2070 which HGVs use to access the site, are less than 50 vehicles per hour.

In the Off-Peak some HGVs are re-routed from the A2 / M2 corridor in order to maximise the site occupancy. This leads to some wider flow differences, though due to the lower levels of demand in this period, this has little effect on other traffic.

Table 6.5 shows the largest increase in modelled flows on key links around M20 junction 10a. The flow changes reflect the routing of HGVs through the junction and to and from the site along the A2070. The sections of the M20 junction 10a with the biggest increases, of around 250 vehicles in each time period, are the northern and southern sections of the circulatory carriageway and in each direction on the A2070. A reduction in flow can be seen on the M20 junction 10a which reflects traffic leaving the M20 to visit the site.

Table 6.5: 2021 Non-Disruption Total Flows (vehs) – M20 Junction 10a

Road Name	Direction	DM	DS	Diff	% Diff
AM Peak					
A2070 to junction 10a	EB	334	587	253	75.7%
M20 Northbound On-Slip	NB	318	433	115	36.2%
Circulatory - West	NB	352	481	129	36.6%
M20 Southbound Off-Slip	SB	147	268	121	82.3%
Circulatory - North	EB	974	1221	247	25.4%
M20 Southbound On-Slip	SB	504	630	126	25.0%
Circulatory - East	SB	580	688	108	18.6%
M20 Northbound Off-Slip	NB	581	698	117	20.1%
Circulatory - South	WB	1159	1387	228	19.7%
A2070 from junction 10a	WB	824	1060	236	28.6%
M20 Northbound through Junction	SB	1557	1437	-120	-7.7%
M20 Southbound through Junction	SB	1347	1228	-119	-8.8%
Inter-Peak					
A2070 to junction 10a	EB	342	590	248	72.5%
M20 Northbound On-Slip	NB	312	440	128	41.0%
Circulatory - West	NB	355	478	123	34.6%
M20 Southbound Off-Slip	SB	145	276	131	90.3%
Circulatory - North	EB	891	1144	253	28.4%
M20 Southbound On-Slip	SB	421	546	125	29.7%
Circulatory - East	SB	662	790	128	19.3%
M20 Northbound Off-Slip	NB	404	513	109	27.0%
Circulatory - South	WB	1066	1302	236	22.1%
A2070 from junction 10a	WB	740	976	236	31.9%
M20 Northbound through Junction	SB	1134	1012	-122	-10.8%
M20 Southbound through Junction	SB	1423	1293	-130	-9.1%
PM Peak					
A2070 to junction 10a	EB	279	513	234	83.9%
M20 Northbound On-Slip	NB	305	431	126	41.3%
Circulatory - West	NB	304	410	106	34.9%
M20 Southbound Off-Slip	SB	173	303	130	75.1%
Circulatory - North	EB	966	1203	237	24.5%
M20 Southbound On-Slip	SB	554	667	113	20.4%
Circulatory - East	SB	642	749	107	16.7%
M20 Northbound Off-Slip	NB	535	604	69	12.9%
Circulatory - South	WB	1177	1353	176	15.0%
A2070 from junction 10a	WB	849	1026	177	20.8%
M20 Northbound through Junction	SB	1307	1204	-103	-7.9%
M20 Southbound through Junction	SB	1801	1683	-118	-6.6%
Off-peak					
A2070 to junction 10a	EB	48	295	247	514.6%
M20 Northbound On-Slip	NB	55	181	126	229.1%

Road Name	Direction	DM	DS	Diff	% Diff
Circulatory - West	NB	49	171	122	249.0%
M20 Southbound Off-Slip	SB	48	179	131	272.9%
Circulatory - North	EB	203	457	254	125.1%
M20 Southbound On-Slip	SB	115	240	125	108.7%
Circulatory - East	SB	89	220	131	147.2%
M20 Northbound Off-Slip	NB	96	211	115	119.8%
Circulatory - South	WB	185	430	245	132.4%
A2070 from junction 10a	WB	130	374	244	187.7%
M20 Northbound through Junction	SB	525	422	-103	-19.6%
M20 Southbound through Junction	SB	544	458	-86	-15.8%

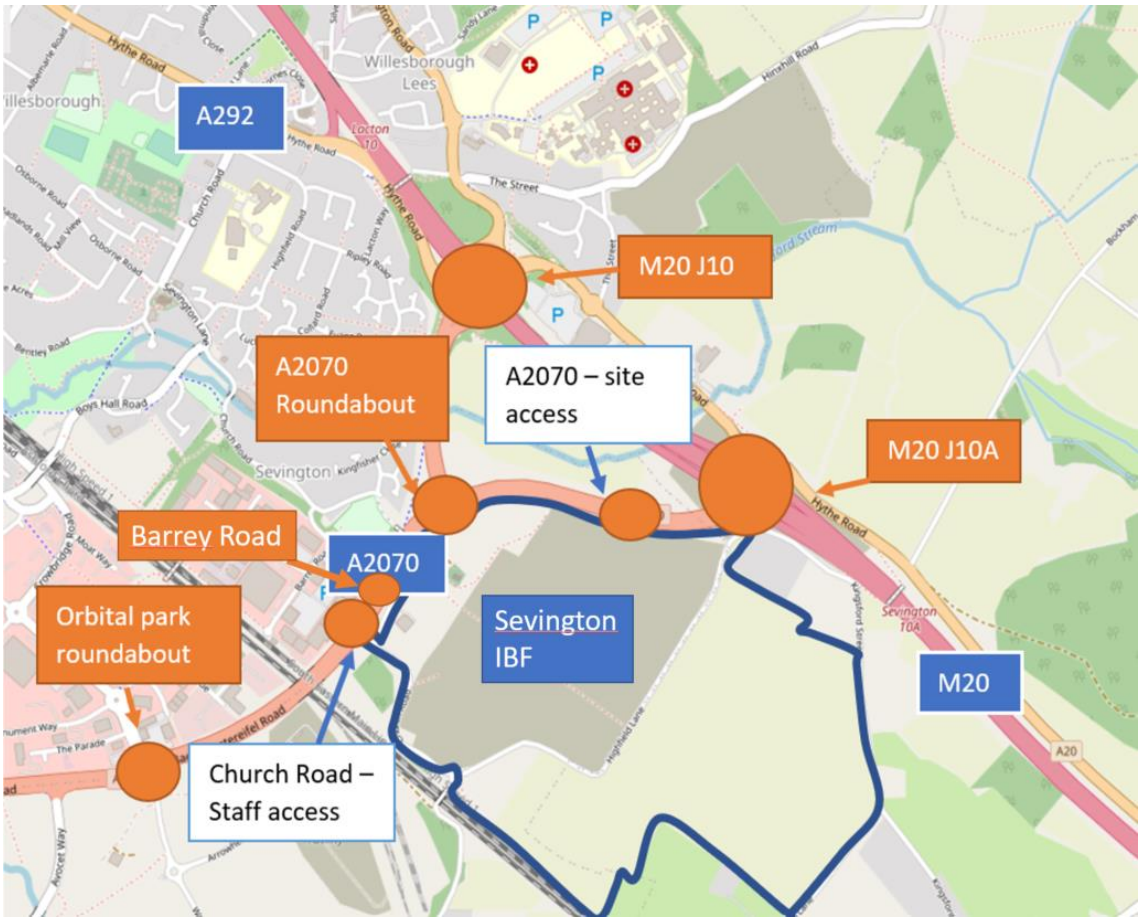
Analysis of the strategic model for this scenario indicates that changes in junction volume / capacity and delay values are minimal across the network in all time periods. Increased delay is seen at the site access junction but as this junction is not operational in the Do-Minimum this reflects the actual delay at the junction.

6.3 Local Junction Modelling

The impact of the site on the local highway network has been assessed at the seven junctions shown in Figure 6.3, namely:

- A2070 Sevington Inland Border Facility (IBF) site access junction (LinSig)
- A2070 Bad Munstereifel Road / Church Road junction (Junctions 9)
- A2070 Bad Munstereifel roundabout (Junctions 9)
- M20 junction 10 (LinSig)
- M20 junction 10a (LinSig)
- A2070 Orbital Park roundabout (Junctions 9)
- A2070 Bad Munstereifel Road / Barrey Road (LinSig)

Figure 6.3: Scope of Local Junction Modelling



The four junctions that are signalised have been assessed using LinSig which is the industry standard software for predicting capacities, queues and delays at signalised junctions. The two roundabouts and single priority junction have been assessed using Junctions 9 which is the industry standard software for predicting capacities, queues and delays at roundabouts and priority junctions.

The junctions have been assessed in both 2021 and 2025 for a baseline and operational scenario. The 2021 scenario considers disruption days traffic flows and the 2025 scenario non-disruption day traffic flows.

The A2070 Orbital Park roundabout has been assessed in its current layout for 2021 and 2025. An additional assessment in 2025 it has been undertaken which assumes the improvement scheme proposed by Crest Nicholson / Highways England, which will convert the Orbital Park roundabout to traffic signals, will have taken place. As such, the A2070 Bad Munstereifel / Church Road junction will have been signalised to accommodate staff trips turning right out of Church Road as they leave the site.

The modelling has been undertaken for the following three time periods:

- AM peak: 08:00-09:00
- Inter-peak: 12:00-13:00
- PM peak: 17:00-18:00

183 staff travelling by car into and out of the site have been modelled for both 2021 and 2025 operational scenarios. This represents a turnover of just over half of the 357 staff spaces in both the AM and Interpeak and so represents a robust assessment.

For the purposes of modelling only, staff shift patterns have been assumed where the first shift changeover of the day occurs at 07:00-07:30 and the second shift changeover of the day occurs at 15:00-15:30. Accordingly, many of the staff trips will have already passed through the junctions prior to the AM peak hour and all of the staff trips will have passed through the junctions after the inter-peak hour. The PM peak hour contains no staff trips since the final shift changeover of the day is assumed by the modelling to take place six hours later at 23:00-23:30.

The modelling results are shown in terms of:

- Queue length in 'passenger car units' (PCUs) / Mean Max Queue (MMQ)
- Average delay per vehicles (seconds)
- Ratio of flow to capacity (RFC) / Degree of Saturation (DoS)
- Level of Service (LoS)

Passenger Car Units (PCUs) are used as this allows for HGVs occupying space equivalent to 2.5 cars in a queue and using capacity equivalent to 2.5 cars at junctions. Values of RFC and DoS in excess of 1.00 or 100 percent exceed theoretical capacity

Background traffic flows from the strategic model were provided as an initial starting point to assess the junctions around the development sites. Although the strategic model included a representation of the recently completed M20 junction 10a scheme, the model was most recently validated in 2019 and hence the changes in traffic flows due to the introduction of the scheme had not been validated. Therefore, a small number of traffic counts were undertaken along the A2070, given its important to the Strategic Road Network and surrounding area. The traffic flows from the strategic model were then factored to reflect observed traffic link flows, while maintaining turning proportions obtained from the strategic model, or other historical turning count data where available.

6.3.1 Growth Factors

As the traffic demand data used for the junction assessments is based on the 2020 traffic surveys, an uplift has been applied to account for any traffic increases associated with background traffic growth. This creates the traffic flows used in the future baseline assessments for both 2021 and 2025.

The factors used to uplift the flows have been derived at Local Authority Level from TEMPro version 7.2b in order to take cognisance of local development. This version of TEMPro utilises the most up-to-date Road Traffic Forecasts (RTF) from 2018 and the National Trip End Model (NTEM) version 7.2. These factors are provided in in Table 6.6.

Table 6.6: Committed Development Growth Factors

Ashford	2021 Committed Development	2025 Committed Development
AM	1.22%	5.65%
IP	1.44%	7.50%
PM	1.20%	5.89%

6.3.2 2021 Baseline Assessment (Disruption Days)

To assess the operation of the seven junctions prior to the development, a baseline assessment has been undertaken (2020 traffic surveys + 2021 growth factor).

6.3.2.1 A2070 Link Road / Site Access Junction (LinSig)

Table 6.7 presents the results for the 2021 baseline assessment of the A2070 Link Road / site access junction. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum Degree of Saturation (DoS) of 37 percent and a queue of five PCUs on the A2070 westbound approach in the AM peak hour. There are no flows predicted on the site access approach in the baseline assessment as the site is not operational.

Table 6.7: 2021 Baseline Assessment – A2070 Link Road / Site Access Junction

Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	5	5	37%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	3	5	25%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	3	4	26%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	3	5	24%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	4	4	34%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	3	5	28%

6.3.2.2 A2070 Bad Munstereifel Road / Church Road Junction (Junctions 9)

Table 6.8 shows the modelling results for the 2021 baseline assessment of the A2070 Bad Munstereifel Road / Church Road junction. The results indicate the junction will operate within capacity in all three time periods.

Table 6.8: 2021 Baseline Assessment – A2070 Bad Munstereifel Road, Church Road Junction

Baseline Flows				
AM peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Church Road	0	9	0.15	A
A2070 Northbound right turn	0	0	0.00	A
Inter-Peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Church Road	0	7	0.07	A
A2070 Northbound right turn	0	0	0.00	A
PM peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Church Road	0	8	0.09	A
A2070 Northbound right turn	0	0	0.00	A

6.3.2.3 A2070 Bad Munstereifel Roundabout (Junctions 9)

Table 6.9 presents the results of the 2021 baseline assessment of the A2070 Bad Munstereifel roundabout. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum RFC of 53% and a queue of one PCU on the M20 junction 10 approach in the AM peak hour.

Table 6.9: 2021 Baseline Assessment – A2070 Bad Munstereifel Roundabout

Baseline Flows				
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.53	A
M20 Junction 10a Approach	0	3	0.20	A
A2070 Bad Munsteriefel Road	1	3	0.44	A
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	3	0.43	A
M20 Junction 10a Approach	0	2	0.10	A
A2070 Bad Munsteriefel Road	1	2	0.32	A
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.52	A
M20 Junction 10a Approach	0	2	0.18	A
A2070 Bad Munsteriefel Road	1	3	0.43	A

6.3.2.4 M20 Junction 10 (LinSig)

Table 6.10 presents the results of the 2021 baseline assessment for M20 junction 10. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 60% and a queue of 10 PCUs on the A2070 northbound approach in the AM peak hour. It should be noted that, for the baseline assessment, signal timings have not been optimised for any of the modelled junctions.

6.3.2.5 M20 Junction 10a (LinSig)

Table 6.11 presents the results of the 2021 baseline assessment for M20 junction 10a. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 67% and a queue of four PCUs on the M20 eastbound off-slip in the inter-peak hour.

Table 6.10: 2021 Baseline Assessment – M20 Junction 10

Baseline Flows

AM Peak Hour	Queue (PCU)	Delay (s)	DoS
A2070 Southbound Approach	6	47	58%
Hythe Road Westbound Circulatory	1	3	42%
Hythe Road Westbound Approach	4	41	43%
M20 North Circulatory	0	1	33%
A2070 Northbound Circulatory	6	19	34%
A2070 Northbound Approach	10	23	60%
Hythe Road Eastbound Circulatory	1	7	14%
Hythe Road Eastbound Approach	6	38	49%
M20 Southbound Circulatory	2	12	43%
M20 Southbound Off-Slip	8	25	56%
A2070 Southbound Circulatory	3	7	36%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	4	32	34%
Hythe Road Westbound Circulatory	5	10	34%
Hythe Road Westbound Approach	1	34	11%
M20 North Circulatory	0	1	25.%
A2070 Northbound Circulatory	2	15	17%
A2070 Northbound Approach	7	18	48%
Hythe Road Eastbound Circulatory	0	7	8%
Hythe Road Eastbound Approach	4	23	33%
M20 Southbound Circulatory	3	14	35%
M20 Southbound Off-Slip	4	17	35%
A2070 Southbound Circulatory	1	4	31%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	4	33	40%
Hythe Road Westbound Circulatory	1	3	32%
Hythe Road Westbound Approach	1	43	17%
M20 North Circulatory	0	1	30%
A2070 Northbound Circulatory	2	19	20%
A2070 Northbound Approach	8	19	51%
Hythe Road Eastbound Circulatory	0	2	16%
Hythe Road Eastbound Approach	7	38	57%
M20 Southbound Circulatory	3	9	51%
M20 Southbound Off-Slip	7	25	46%
A2070 Southbound Circulatory	2	7	41%

Table 6.11: 2021 Baseline Assessment – M20 Junction 10a

Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	0	3	47%
A20 Westbound Circulatory	0	1	20%
A20 Westbound Approach	0	2	36%
CM20 Westbound Off-Slip Circulatory	3	13	34%
M20 Westbound Off-Slip	4	15	54%
A2070 Link Road Circulatory	0	1	15%
A2070 Link Road	0	3	30%
M20 Eastbound Off-Slip Circulatory	4	9	42%
M20 Eastbound Off-Slip	3	25	56%
A20 Eastbound Circulatory	0	1	22%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	0	3	38%
A20 Westbound Circulatory	0	1	18%
A20 Westbound Approach	0	2	33%
CM20 Westbound Off-Slip Circulatory	2	10	25%
M20 Westbound Off-Slip	3	16	39%
A2070 Link Road Circulatory	0	1	15%
A2070 Link Road	0	3	29%
M20 Eastbound Off-Slip Circulatory	3	7	38%
M20 Eastbound Off-Slip	4	33	67%
A20 Eastbound Circulatory	0	1	21%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	2	4	54%
A20 Westbound Circulatory	0	1	21%
A20 Westbound Approach	0	2	35%
CM20 Westbound Off-Slip Circulatory	3	14	40%
M20 Westbound Off-Slip	4	15	47%
A2070 Link Road Circulatory	0	1	19%
A2070 Link Road	0	3	32%
M20 Eastbound Off-Slip Circulatory	5	15	59%
M20 Eastbound Off-Slip	3	16	47%
A20 Eastbound Circulatory	0	1	27%

6.3.2.6 A2070 Orbital Park Roundabout (Junctions 9)

Table 6.12 presents the results of the 2021 baseline assessment for the A0270 Orbital Park roundabout. The results indicate that the junction is forecast to operate within capacity levels in the AM peak hour with a maximum RFC of 90% and a queue of eight PCUs on the A2070 Bad Munstereifel Road westbound approach.

Table 6.12: 2021 Baseline Assessment – Orbital Park A2070 Orbital Park Roundabout

	Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
A2070 Westbound	8	16	0.9	C
Waterbrook Avenue	1	19	0.39	C
A2070 Eastbound	2	4	0.67	A
The Boulevard	1	4	0.49	A
Inter Peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
A2070 Westbound	2	6	0.7	A
Waterbrook Avenue	0	8	0.13	A
A2070 Eastbound	2	3	0.61	A
The Boulevard	1	3	0.39	A
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
A2070 Westbound	4	8	0.79	A
Waterbrook Avenue	0	9	0.07	A
A2070 Eastbound	2	4	0.69	A
The Boulevard	1	4	0.49	A

6.3.2.7 A2070 Bad Munstereifel Road / Barrey Road (LinSig)

Table 6.13 presents the results of the 2021 baseline assessment for the A2070 Bad Munstereifel Road / Barrey Road junction. The results indicate that the junction is forecast to operate within capacity in all three time periods.

Table 6.13: 2021 Baseline Assessment – A2070 Bad Munstereifel Road / Barrey Road

	Baseline Flows		
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	31%
Barrey Road	4	73	55%
A2070 (S) Approach	10	6	54%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	6	25%
Barrey Road	4	66	46%
A2070 (S) Approach	8	6	44%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	28%
Barrey Road	4	69	50%
A2070 (S) Approach	10	6	54%

6.3.2.8 Summary

In summary, all seven modelled junctions are predicted to operate within their capacity in the 2021 baseline scenario.

6.3.3 2021 Operational Impacts (Disruption Days)

To assess the operation of the junctions with additional traffic flows (HGVs and staff trips) generated by the site anticipated during disruption days, an operational impacts assessment has been undertaken.

6.3.3.1 A2070 Link Road / Site Access Junction (LinSig)

Table 6.14 presents the modelling results for the A2070 Sevington site access for the 2021 operational assessment. The results indicate that the junction is forecast to operate within capacity levels in all three time periods with a maximum DoS of 92% and a queue of 28 PCUs on the A2070 Link Road westbound approach and the site access.

Table 6.14: 2021 Operational Assessment – A2070 Link Road / Site Access Junction

Baseline, Staff & Operational HGV Flows			
AM	**Queue (PCU)**	**Delay (s)**	**DoS**
Westbound Approach	28	31	92%
Sevington Site access	14	58	88%
Eastbound Approach	5	12	34%
Inter-Peak	**Queue (PCU)**	**Delay (s)**	**DoS**
Westbound Approach	24	28	88%
Sevington Site access	14	50	85%
Eastbound Approach	5	13	32%
PM	**Queue (PCU)**	**Delay (s)**	**DoS**
Westbound Approach	23	26	87%
Sevington Site access	14	50	85%
Eastbound Approach	6	13	36%

6.3.3.2 A2070 Bad Munstereifel Road / Church Road Junction (Junctions 9)

Table 6.15 presents the results of the 2021 operational assessment of the A2070 Bad Munstereifel / Church Road junction. There are no results for the PM peak hour as there are no shift changeovers during this modelled period. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.15: 2021 Operational Assessment – A2070 Bad Munstereifel Road / Church Road

Baseline & Operational HGV Flows				
AM peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	2	21	0.62	C
A2070 Northbound right turn	0	12	0.22	B
Inter-Ppeak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	1	13	0.46	B
A2070 Northbound right turn	0	9	0.18	A
PM	**As Per Baseline Assessment**			

6.3.3.3 A2070 Bad Munstereifel Roundabout (Junctions 9)

Table 6.16 presents the results of the 2021 operational assessment of the A2070 Bad Munstereifel roundabout. There are no results for the PM peak hour as there are no shift changeovers during this modelled period. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. . The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.16: 2021 Operational Assessment – A2070 Bad Munstereifel Roundabout

Baseline & Operational HGV Flows				
AM	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Junction 10	1	5	0.58	A
Junction 10a	0	3	0.21	A
Ashford	1	3	0.46	A
Inter-Peak	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Junction 10	1	3	0.48	A
Junction 10a	0	2	0.11	A
Ashford	1	2	0.34	A
PM	**As Per Baseline Assessment**			

6.3.3.4 M20 Junction 10 (LinSig)

Table 6.17 presents the results of the 2021 operational assessment for M20 junction 10. There are no results for the PM peak hour as there are no shift changeovers during this modelled period and HGV traffic will use junction 10a to access the site. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter peak hour. This is an improvement over the baseline assessment as signal timings in the LinSig model have been optimised. For the baseline assessment signal timings were not optimised to mirror the models which were provided by Highways England.

Table 6.17: 2021 Operational Assessment – M20 Junction 10

Baseline & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	6.	49	62%
Hythe Road Westbound Circulatory	1	3	44%
Hythe Road Westbound approach	4	41	43%
M20 North Circulatory	0	2	35%
A2070 Northbound Circulatory	6	19	34%
A2070 Northbound Approach	10	23	62%
Hythe Road Eastbound Circulatory	2	7	16%
Hythe Road Eastbound Approach	6	38	49%
M20 Southbound Circulatory	2	13	46%
M20 Southbound Off-slip	8	25	58%
A2070 Southbound Circulatory	3	7	37%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	4	32	38%
Hythe Road Westbound Circulatory	6	10	37%
Hythe Road Westbound approach	1	34	11%
M20 North Circulatory	0	1	27%
A2070 Northbound Circulatory	2	15	17%
A2070 Northbound Approach	7	18	49%
Hythe Road Eastbound Circulatory	0	7	10%
Hythe Road Eastbound Approach	4	23	33%
M20 Southbound Circulatory	4	14	38%
M20 Southbound Off-slip	5	17	37%
A2070 Southbound Circulatory	1	4	33%
PM Peak Hour	**As Per Baseline Assessment**		

6.3.3.5 M20 Junction 10a

Table 6.18 presents the results of the 2021 operational assessment for M20 junction 10a. The results indicate that the junction will operate within capacity in all modelled time periods

Table 6.18: 2021 Operational Assessment – M20 Junction 10a

Baseline, Staff & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound	3	10	73%
Circulating at A20 Westbound	1	2	51%
A20 Westbound	2	6	71%
Circulating at Westbound Off-Slip	11	21	85%
M20 Westbound Off-Slip	8	24	78%
Circulating at Link Road	0	1	15%
Link Road	1	4	57%
Circulating at Eastbound Off-Slip	11	17	80%
M20 Eastbound Off-Slip	5	33	75%
Circulating at A20 Eastbound	10	3	66%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound	2	7	58%
Circulating at A20 Westbound	1	2	48%
A20 Westbound	2	5	63%
Circulating at Westbound Off-Slip	9	13	76%
M20 Westbound Off-Slip	5	20	63%
Circulating at Link Road	0	1	15%
Link Road	1	4	56%
Circulating at Eastbound Off-Slip	9	14	76%
M20 Eastbound Off-Slip	6	44	83%
Circulating at A20 Eastbound	8	3	63%
PM Peak hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound	5	15	82%
Circulating at A20 Westbound	1	2	51%
A20 Westbound	2	6	65%
Circulating at Westbound Off-Slip	11	25	88%
M20 Westbound Off-Slip	6	18	66%
Circulating at Link Road	0	1	19%
Link Road	2	5	61%
Circulating at Eastbound Off-Slip	12	20	84%
M20 Eastbound Off-Slip	5	27	68%
Circulating at A20 Eastbound	9	3	63%

6.3.3.6 A2070 Orbital Park Roundabout

Table 6.19 presents the results of the 2021 operational assessment for the A2070 Orbital Park roundabout. There are no results for the PM peak hour as there are no shift changeovers during this modelled period The results indicate that the junction is forecast to operate with a maximum RFC of 99% and a queue of 28 PCUs on the A2070 Bad Munstereifel Road approach during

the AM peak hour. This is an increase over the baseline assessment when this approach was at capacity with an RFC of 90% and a queue of 8 PCUs as staff trips have been added.

Table 6.19: 2021 Operational Assessment – A2070 Orbital Park Roundabout (Junctions 9)

Baseline and Operational Staff Flows				
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
A2070 Westbound	28	46	0.99	E
Waterbrook Avenue	1	45	0.61	E
A2070 Eastbound	3	5	0.73	A
The Boulevard	1	5	0.55	A
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
A2070 Westbound	4	8	0.8	A
Waterbrook Avenue	0	10	0.17	B
A2070 Eastbound	2	4	0.67	A
The Boulevard	1	3	0.43	A
PM Peak Hour	**As Per Baseline Assessment**			

The results outlined in Table 6.19 need to be considered based on the following:

- The Maximum Operating Capacity scenario has been assessed as a worst-case for the first six months of operation ('disruption days') which includes higher levels of HGV traffic than after six months when no disruption is expected to occur.
- The assessment presented above includes staff trips to and from the site in both the AM peak hour and the Inter-peak hour as a robust test. This equates to approximately 180 vehicles passing through the junction. In reality, the current shift changeover periods of 07:00-07:30 and 15:00-15:30 precede the AM peak hour and occur after the inter-peak hour respectively and therefore staff flows are likely to be lower.

Therefore, the results for the AM peak hour and Inter-peak hour would be the same as those in the baseline assessment, if the staff trips were assumed to have passed through this junction outside the peak hours.

6.3.3.7 A0270 Bad Munstereifel Road / Barrey Road

Table 6.20 presents the results of the 2021 operational assessment for the A2070 Bad Munstereifel Road / Barrey Road. There are no results for the PM peak hour since as there are no shift changeovers during this time period. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.20: 2021 Operational Assessment – A2070 Bad Munstereifel Road / Barrey Road

Baseline & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	33%
Barrey Road (N) Approach	4	79	60%
A2070 (S) Approach	11	6	57 %
Inter Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	3	6	27%
Barrey Road (N) Approach	4	69	50%
A2070 (S) Approach	8	6	48%
PM Peak Hour	**As Per Baseline Assessment**		

6.3.3.8 Summary

In summary, all seven modelled junctions are predicted to operate within their capacity in the 2021 operational scenario. This considers the operational HGV and staff flows on a 'disruption day'.

6.3.4 2025 Future Baseline Assessment

A baseline assessment has also been undertaken for 2025 in which the TEMPro growth factors have been applied to the 2020 baseline traffic flows.

6.3.4.1 A2070 Link Road / Site Access Junction (LinSig)

Table 6.21 presents the results for the 2025 baseline assessment of the A2070 Link Road / site access junction. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum Degree of Saturation (DoS) of 39 percent and a queue of five PCUs on the A2070 westbound approach in the AM peak hour. There are no flows predicted on the site access approach in the baseline assessment as the site would not be operational.

Table 6.21: 2025 Baseline Assessment – A2070 Link Road / Site Access Junction

Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	5	5	39%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	3	5	26%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	3	4	28%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	3	5	26%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	4	5	35%
Sevington Site access	0	0	0%
A2070 Eastbound Approach	4	6	29%

6.3.4.2 A2070 Bad Munstereifel Road / Church Road Junction existing layout (Junctions 9)

Table 6.22 presents the results of the 2025 baseline assessment of the A2070 Bad Munstereifel / Church Road junction. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.22: 2025 Baseline Assessment – A2070 Bad Munstereifel Road / Church Road

Baseline & Operational HGV Flows				
AM peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	0	10	0.16	A
A2070 Northbound right turn	0	0	0	A
Inter-Ppeak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	0	8	0.08	A
A2070 Northbound right turn	0	0	0	A
PM	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	0	8	0.09	A
A2070 Northbound right turn	0	0	0	A

6.3.4.3 A2070 Bad Munstereifel Road / Church Road Signalised All-Movements Junction (LinSig)

In this alternative 2025 baseline scenario, it has been assumed that the Orbital Park roundabout will have been signalised as part of the Crest Nicholson / Highways England scheme. It would therefore be necessary to signalise the A2070 Bad Munstereifel Road / Church Road junction to allow vehicles to turn right out of Church Road onto the A2070 Bad Munstereifel Road, who would have previously turned left out of Church Road and used the Orbital Park roundabout to perform a u-turn. The results, as presented in Table 6.23, indicate that in the 2025 baseline situation the junction is forecast to operation within capacity for all three time periods.

Table 6.23: 2025 Baseline Assessment – A2070 Bad Munstereifel Road, Church Road Jn

Baseline Flows			
AM	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 North	15	9	60%
Church Road	3	93	56%
A2070 South	9	5	52%
Inter-Peak	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 North	10	7	48%
Church Road	2	80	32%
A2070 South	7	4	43%
PM Peak	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 North	12	8	53%
Church Road	2	82	36%
A2070 South	9	5	52%

6.3.4.4 A2070 Bad Munstereifel Roundabout (Junctions 9)

Table 6.24 presents the results of the 2025 baseline assessment of the A2070 Bad Munstereifel roundabout. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum RFC of 56% and a queue of one PCU on the M20 junction 10 approach in the AM peak hour.

Table 6.24: 2025 Baseline Assessment – A2070 Bad Munstereifel Roundabout

Baseline Flows				
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.56	A
M20 Junction 10a Approach	0	3	0.21	A
A2070 Bad Munsteriefel Road	1	3	0.46	A
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	3	0.47	A
M20 Junction 10a Approach	0	2	0.11	A
A2070 Bad Munsteriefel Road	1	2	0.34	A
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.55	A
M20 Junction 10a Approach	0	3	0.19	A
A2070 Bad Munsteriefel Road	1	3	0.45	A

6.3.4.5 M20 Junction 10 (LinSig)

6.3.4.6 M20 Junction 10a (LinSig)

Table 6.26 presents the results of the 2025 baseline assessment for M20 junction 10a. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 71% and a queue of four PCUs on the M20 eastbound off-slip in the inter-peak hour.

Table 6.25 presents the results of the 2025 baseline assessment for M20 junction 10. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 63% and a queue of 10 PCUs on the A2070 northbound approach in the AM peak hour.

6.3.4.7 M20 Junction 10a (LinSig)

Table 6.26 presents the results of the 2025 baseline assessment for M20 junction 10a. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 71% and a queue of four PCUs on the M20 eastbound off-slip in the inter-peak hour.

Table 6.25: 2025 Baseline Assessment – M20 Junction 10

Baseline Flows

AM Peak Hour	Queue (PCU)	Delay (s)	Dos
A2070 Southbound Approach	6	48	60%
Hythe Road Westbound Circulatory	1	3	44%
Hythe Road Westbound Approach	4	41	45%
M20 North Circulatory	0	1	35%
A2070 Northbound Circulatory	6	20	36%
A2070 Northbound Approach	10	23	63%
Hythe Road Eastbound Circulatory	1	7	14%
Hythe Road Eastbound Approach	6	39	51%
M20 Southbound Circulatory	2	12	45%
M20 Southbound Off-Slip	8	24	58%
A2070 Southbound Circulatory	3	7	38%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	4	32	36%
Hythe Road Westbound Circulatory	5	10	36%
Hythe Road Westbound Approach	1	31	12%
M20 North Circulatory	0	1	27%
A2070 Northbound Circulatory	2	15	19%
A2070 Northbound Approach	7	18	51%
Hythe Road Eastbound Circulatory	0	7	8%
Hythe Road Eastbound Approach	4	24	35%
M20 Southbound Circulatory	3	15	37%
M20 Southbound Off-Slip	5	17	37%
A2070 Southbound Circulatory	1	4	33%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	5	33	42%
Hythe Road Westbound Circulatory	1	3	39%
Hythe Road Westbound Approach	1	39	18%
M20 North Circulatory	0	1	31%
A2070 Northbound Circulatory	3	19	21%
A2070 Northbound Approach	8	19	53%
Hythe Road Eastbound Circulatory	0	2	17%
Hythe Road Eastbound Approach	8	39	60%
M20 Southbound Circulatory	3	9	53%
M20 Southbound Off-Slip	8	24	55%
A2070 Southbound Circulatory	2	7	43%

Table 6.26: 2025 Baseline Assessment – M20 Junction 10a

	Baseline Flows		
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	1	3	50%
A20 Westbound Circulatory	0	1	21%
A20 Westbound Approach	0	2	38%
CM20 Westbound Off-Slip Circulatory	3	13	36%
M20 Westbound Off-Slip	5	16	56%
A2070 Link Road Circulatory	0	1	16%
A2070 Link Road	0	3	31%
M20 Eastbound Off-Slip Circulatory	4	9	44%
M20 Eastbound Off-Slip	3	26	58%
A20 Eastbound Circulatory	0	1	23%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	0	3	41%
A20 Westbound Circulatory	0	1	19%
A20 Westbound Approach	0	2	36%
CM20 Westbound Off-Slip Circulatory	2	10	27%
M20 Westbound Off-Slip	3	16	41%
A2070 Link Road Circulatory	0	1	16%
A2070 Link Road	0	3	30%
M20 Eastbound Off-Slip Circulatory	3	7	40%
M20 Eastbound Off-Slip	4	35	71%
A20 Eastbound Circulatory	0	1	23%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	2	4	57%
A20 Westbound Circulatory	0	1	22%
A20 Westbound Approach	0	2	37%
CM20 Westbound Off-Slip Circulatory	3	14	41%
M20 Westbound Off-Slip	4	15	50%
A2070 Link Road Circulatory	0	1	19%
A2070 Link Road	0	3	34%
M20 Eastbound Off-Slip Circulatory	6	16	62%
M20 Eastbound Off-Slip	4	17	49%
A20 Eastbound Circulatory	1	1	29%

6.3.4.8 A2070 Orbital Park Signalised Junction (LinSig)

The A2070 Orbital Park Roundabout is proposed to be improved by Crest Nicholson Homes / Highways England to a signalised junction during the operation of the site, so it has been considered for the 2025 operational assessment, and the results presented in Table 6.27. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 67% and a queue of 9-16 PCUs on the A2070 eastbound and westbound approach in the inter-peak hour.

Table 6.27: 2025 Baseline Assessment – A2070 Orbital Park Signalised Junction

Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	56	61%
A2070 (E) Approach Ahead	14	39	59%
A2070 (E) Approach LT	2	31	13%
Waterbrook Ave Approach RT	2	84	44%
Waterbrook Ave Approach	2	83	40%
Waterbrook Ave Approach LT	0	33	2%
A2070 (W) Approach RT	1	44	8%
A2070 (W) Approach Ahead	12	38	55%
A2070 (W) Approach LT	13	41	62%
The Boulevard Approach RT	8	61	60%
The Boulevard Approach Ahead	7	60	57%
The Boulevard Approach LT	5	20	34%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	63	67%
A2070 (E) Approach Ahead	9	31	41%
A2070 (E) Approach LT	1	26	6%
Waterbrook Ave Approach RT	1	77	26%
Waterbrook Ave Approach	1	76	21%
Waterbrook Ave Approach LT	0	36	2%
A2070 (W) Approach RT	1	48	10%
A2070 (W) Approach Ahead	9	31	41%
A2070 (W) Approach LT	16	38	67%
The Boulevard Approach RT	8	66	65%
The Boulevard Approach Ahead	7	65	62%
The Boulevard Approach LT	4	23	31%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	61	64%
A2070 (E) Approach Ahead	10	32	46%
A2070 (E) Approach LT	2	27	14%
Waterbrook Ave Approach RT	1	74	15%
Waterbrook Ave Approach	0	74	9%
Waterbrook Ave Approach LT	0	36	1%
A2070 (W) Approach RT	1	48	7%
A2070 (W) Approach Ahead	12	34	52%
A2070 (W) Approach LT	15	38	65%
The Boulevard Approach RT	8	64	65%
The Boulevard Approach Ahead	7	64	63%
The Boulevard Approach LT	5	23	37%

6.3.4.9 A2070 Bad Munstereifel Road / Barrey Road (LinSig)

Table 6.28 presents the results of the 2025 baseline assessment for the A2070 Bad Munstereifel Road / Barrey Road. The results indicate that the junction is forecast to operate within capacity across all three peak periods with a maximum DoS of 57% and queue of four PCUs on Barrey Road in the AM peak hour.

Table 6.28: 2025 Baseline Assessment – A2070 Bad Munstereifel Road / Barrey Road

Baseline Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	33%
Barrey Road	4	75	57%
A2070 (S) Approach	11	6	56%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	6	27%
Barrey Road	4	64	46%
A2070 (S) Approach	9	6	48%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	29%
Barrey Road	4	70	53%
A2070 (S) Approach	11	7	56%

6.3.4.10 Summary

In summary all seven modelled junction are predicted to operate within their capacity in the 2021 baseline scenario. This considers the baseline flows on a “non-disruption day” with the Orbital Park roundabout being upgraded to a signalised junction and the A2070 Bad Munstereifel Road / Church Road junction in its existing layout and as a signalised junction.

6.3.5 2025 Operational Impacts (Non-Disruption Days)

Table 6.29 presents the modelling results for the A2070 Sevington site access for the 2025 operational assessment. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 74% on the A2070 Link Road westbound approach in the AM peak hour.

Table 6.29: 2025 Operational Assessment – A2070 Link Road / Site Access Junction

	Baseline, Staff & Operational HGV Flows		
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	16	15	74%
Sevington Site access	9	47	72%
A2070 Eastbound Approach	5	10	33%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	12	14	64%
Sevington Site access	8	39	64%
A2070 Eastbound Approach	5	11	34%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Westbound Approach	14	15	69%
Sevington Site access	8	41	67%
A2070 Eastbound Approach	6	11	36%

6.3.5.1 A2070 Bad Munstereifel Roundabout (Junctions 9)

Table 6.30 presents the results of the 2025 operational assessment of the A2070 Bad Munstereifel roundabout. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum RFC of 61% and a queue of two PCUs on the M20 junction 10 approach in the AM peak hour.

Table 6.30: 2025 Operational Assessment – A2070 Bad Munstereifel Roundabout

	Baseline, Staff & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	2	5	0.61	A
M20 Junction 10a Approach	0	3	0.22	A
A2070 Bad Munsteriefel Road	1	3	0.48	A
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.51	A
M20 Junction 10a Approach	0	2	0.11	A
A2070 Bad Munsteriefel Road	1	3	0.36	A
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
M20 Junction 10 Approach	1	4	0.55	A
M20 Junction 10a Approach	0	3	0.19	A
A2070 Bad Munsteriefel Road	1	3	0.45	A

6.3.5.2 M20 Junction 10 (LinSig)

Table 6.31 presents the results of the 2025 operational assessment for M20 junction 10. As with previous assessment, no PM results are present as staff would not be using this junction during this time period.The results indicate the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 65% the A2070 northbound and southbound approach in the AM peak hour.

Table 6.31: 2025 Operational Assessment – M20 Junction 10

Baseline, Staff & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	7	50	65%
Hythe Road Westbound Circulatory	1	3	46%
Hythe Road Westbound Approach	4	41	45%
M20 North Circulatory	0	1	36%
A2070 Northbound Circulatory	6	20	36%
A2070 Northbound Approach	11	24	65%
Hythe Road Eastbound Circulatory	2	7.4	16%
Hythe Road Eastbound Approach	6	39	51%
M20 Southbound Circulatory	3	13	48%
M20 Southbound Off-Slip	9	24	60%
A2070 Southbound Circulatory	3	7	39%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 Southbound Approach	4	33	40%
Hythe Road Westbound Circulatory	6	10	39%
Hythe Road Westbound Approach	1	31	12%
M20 North Circulatory	0.	1	28%
A2070 Northbound Circulatory	2	15	19%
A2070 Northbound Approach	8	18	52%
Hythe Road Eastbound Circulatory	0	7	11%
Hythe Road Eastbound Approach	4	24	35%
M20 Southbound Circulatory	4	15	40%
M20 Southbound Off-Slip	5	17	39%
A2070 Southbound Circulatory	1	4	34%
PM Peak Hour	**As Per Baseline Assessment**		

6.3.5.3 M20 Junction 10a (LinSig)

Table **6.32** presents the results of the 2025 operational assessment for M20 junction 10a. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 83% and a queue of nine PCUs on the M20 westbound off-slip in the AM Peak hour.

Table 6.32: 2025 Operational Assessment – M20 Junction 10a

Baseline, Staff & Operational HGV Flows

AM Peak Hour	Queue (PCU)	Delay (s)	DoS
A20 Eastbound Approach	3	6	64%
A20 Westbound Circulatory	0	2	39%
A20 Westbound Approach	1	3	55%
CM20 Westbound Off-Slip Circulatory	5	11	57%
M20 Westbound Off-Slip	9	27	83%
A2070 Link Road Circulatory	0	1	16%
A2070 Link Road	1	4	50%
M20 Eastbound Off-Slip Circulatory	8	13	70%
M20 Eastbound Off-Slip	3	26	58%
A20 Eastbound Circulatory	6	2	49%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	2	5	52%
A20 Westbound Circulatory	0	2	36%
A20 Westbound Approach	1	2	51%
CM20 Westbound Off-Slip Circulatory	5	9	50%
M20 Westbound Off-Slip	6	22	68%
A2070 Link Road Circulatory	0	1	16%
A2070 Link Road	1	4	49%
M20 Eastbound Off-Slip Circulatory	7	11	66%
M20 Eastbound Off-Slip	4	29	63%
A20 Eastbound Circulatory	4	2	46%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A20 Eastbound Approach	4	9	73%
A20 Westbound Circulatory	0	2	39%
A20 Westbound Approach	1	3	50%
CM20 Westbound Off-Slip Circulatory	6	13	60%
M20 Westbound Off-Slip	7	19	70%
A2070 Link Road Circulatory	0	1	19%
A2070 Link Road	1	0	52%
M20 Eastbound Off-Slip Circulatory	8	14	71%
M20 Eastbound Off-Slip	5	29	71%
A20 Eastbound Circulatory	4	2	46%

6.3.5.4 A2070 Orbital Park Signalised with A2070 Bad Munstereifel Road / Church Road Junction in its existing layout

Table 6.33 presents the results of the 2025 operational assessment for the A2070 Orbital Park signalised junction with the A2070 Bad Munstereifel Road / Church Road Junction with its existing layout. There are no results for the PM peak hour as there are no shift changeovers during this modelled period. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 68% and a queue of 8 PCUs on the Boulevard Approach in the inter-peak hour.

Table 6.33: 2025 Operational Assessment – Orbital Park Signalised Junction

Baseline, Staff & Operational HGV Flows

AM Peak Hour	Queue (PCU)	Delay (s)	DoS
A2070 (E) Approach RT	9	57	63%
A2070 (E) Approach Ahead	15	42	65%
A2070 (E) Approach LT	6	35	33%
Waterbrook Ave Approach RT	5	82	64%
Waterbrook Ave Approach	5	83	63%
Waterbrook Ave Approach LT	0	31	2%
A2070 (W) Approach RT	1	45	9%
A2070 (W) Approach Ahead	14	41	61%
A2070 (W) Approach LT	13	43	65%
The Boulevard Approach RT	8	63	63%
The Boulevard Approach Ahead	7	63	59%
The Boulevard Approach LT	5	20	36%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	63	67%
A2070 (E) Approach Ahead	10	31	43%
A2070 (E) Approach LT	4	28	22%
Waterbrook Ave Approach RT	4	97	68%
Waterbrook Ave Approach	4	98	67%
Waterbrook Ave Approach LT	0	35	2%
A2070 (W) Approach RT	1	48	10%
A2070 (W) Approach Ahead	10	31	45%
A2070 (W) Approach LT	16	38	67%
The Boulevard Approach RT	8	69	68%
The Boulevard Approach Ahead	7	68	65%
The Boulevard Approach LT	5	24	33%
PM Peak Hour	**As Per Baseline Assessment**		

6.3.5.5 A2070 Orbital Park Signalised with A2070 Bad Munstereifel Road / Church Road Junction signalised

As previously detailed, the A2070 Orbital Park roundabout is proposed to be improved by Crest Nicholson / Highways England to a signalised junction during the operation of the site.

The results for the A2070 Orbital Park signalised junction modelling indicate the scheme is compatible with the operation of the site, although its programme for introduction is not clear at

this stage. Any construction works associated with introducing this scheme will need careful co-ordination with site operations.

Table 6.34 presents the results of the 2025 operational assessment for the A2070 Orbital Park signalised junction. The results indicate that the junction is forecast to operate within capacity in all three time periods with a maximum DoS of 67% and a queue of 9-16 PCUs on the A2070 eastbound and westbound approach in the inter-peak hour.

Table 6.34: 2025 Operational Assessment – Orbital Park Signalised Junction

Baseline, Staff & Operational HGV Flows

AM Peak Hour	Queue (PCU)	Delay (s)	DoS
A2070 (E) Approach RT	9	56	61%
A2070 (E) Approach Ahead	14	40	62%
A2070 (E) Approach LT	2	31	13%
Waterbrook Ave Approach RT	2	84	44%
Waterbrook Ave Approach	2	83	40%
Waterbrook Ave Approach LT	0	33	2%
A2070 (W) Approach RT	1	44	8%
A2070 (W) Approach Ahead	13	39	58%
A2070 (W) Approach LT	13	41	62%
The Boulevard Approach RT	8	61	60%
The Boulevard Approach Ahead	7	60	57%
The Boulevard Approach LT	5	20	34%
Inter-Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	63	67%
A2070 (E) Approach Ahead	10	31	42%
A2070 (E) Approach LT	1	26	6%
Waterbrook Ave Approach RT	1	77	26%
Waterbrook Ave Approach	1	76	21%
Waterbrook Ave Approach LT	0	36	2%
A2070 (W) Approach RT	1	48	10%
A2070 (W) Approach Ahead	10	31	45%
A2070 (W) Approach LT	16	38	67%
The Boulevard Approach RT	8	65	65%
The Boulevard Approach Ahead	7	65	63%
The Boulevard Approach LT	4	23	32%
PM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (E) Approach RT	9	61	64%
A2070 (E) Approach Ahead	10	32	46%
A2070 (E) Approach LT	2	27	14%
Waterbrook Ave Approach RT	1	74	15%
Waterbrook Ave Approach	0	74	9%
Waterbrook Ave Approach LT	0	36	1%
A2070 (W) Approach RT	1	48	7%
A2070 (W) Approach Ahead	12	34	52%

Baseline, Staff & Operational HGV Flows			
A2070 (W) Approach LT	15	38	65%
The Boulevard Approach RT	8	64	65%
The Boulevard Approach Ahead	7	64	63%
The Boulevard Approach LT	5	23	37%
A20 Eastbound Circulatory	4	2	46%

6.3.5.6 A2070 Bad Munstereifel Road / Church Road Junction (Junctions 9)

Table 6.35**Error! Reference source not found.** presents the results of the 2025 operational assessment of the A2070 Bad Munstereifel / Church Road junction in its existing layout. There are no results for the PM peak hour as there are no shift changeovers during this modelled period. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.35: 2025 Operational Assessment – A2070 Bad Munstereifel Road / Church Road

Baseline & Operational HGV Flows				
AM peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	2	24	0.65	C
A2070 Northbound right turn	0	12	0.22	B
Inter-Peak hour	**Queue (PCU)**	**Delay (s)**	**RFC**	**LOS**
Staff Access (Church Road)	1	14	0.49	B
A2070 Northbound right turn	0	10	0.19	A
PM	**As Per Baseline Assessment**			

6.3.5.7 A2070 Bad Munstereifel Road / Church Road Junction signalised (LinSig)

Should the Orbital Park roundabout be converted to a signal-controlled cross-roads junction by 2025, staff leaving the Sevington IBF site via the current left turn only configuration of the Church Road junction will be unable to u-turn to head towards the M20 (previously possible via the Orbital Park roundabout). Therefore, additional modelling has been undertaken to assess the A2070 Bad Munstereifel Road / Church Road junction should it be converted to an all movements signal controlled junction to accommodate Orbital Park alterations.

Table 6.36 presents the results of the 2025 operational assessment of the A2070 Bad Munstereifel / Church Road signalised junction. There are no results for the PM peak hour since the third staff shift changeover of the day does not occur until 23:00-23:30. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and inter-peak hour.

Table 6.36: 2025 Operational Assessment – A2070 Bad Munstereifel Road / Church Road Junction signalised

Baseline, Staff & Operational HGV Flows			
AM	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 North	26	19	74%
Church Road	10	70	74%
A2070 South	17	15	69%
Inter-Peak	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 North	19	17	63%
Church Road	8	60	61%
A2070 South	13	15	61%
PM	**As Per Baseline Assessment**		

6.3.5.8 A0270 Bad Munstereifel Road / Barrey Road

Table 6.37 presents the results of the 2025 operational assessment for the A2070 Bad Munstereifel Road / Barrey Road. There are no results for the PM peak hour since the third staff shift changeover of the day does not occur until 23:00-23:30. Accordingly, the results for the PM peak hour are the same as in the baseline assessment. The results indicate that the junction is forecast to operate within capacity in the AM peak hour and Inter-peak hour.

Table 6.37: 2025 Operational Assessment – A2070 Bad Munstereifel Road / Barrey Road

Baseline, Staff & Operational HGV Flows			
AM Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	34%
Barrey Road (N) Approach	4	82	63%
A2070 (S) Approach	12	6	59%
Inter Peak Hour	**Queue (PCU)**	**Delay (s)**	**DoS**
A2070 (N) Approach	2	5	29%
Barrey Road (N) Approach	4	67	50%
A2070 (S) Approach	9	6	51%
PM Peak Hour	**As Per Baseline Assessment**		

6.3.5.9 Summary

In summary, all seven modelled junctions are predicted to operate within their capacity in the 2025 operational scenario. This considers the operational HGV and staff flows on a "non-disruption day" with the Orbital Park roundabout being upgraded to a signalised junction and the A2070 Bad Munstereifel Road / Church Road junction in its existing layout and as a signalised junction.

6.4 VISSIM Micro-simulation of Site Operation

VISSIM micro-simulation modelling has been undertaken to determine if the proposed internal site layout has sufficient capacity to cater for the expected demand from HGVs to avoid queueing on the public highway. The full VISSIM results are provided in Appendix C – VISSIM Modelling Report. HGV demand for use in the VISSIM micro-simulation modelling has been derived from the strategic traffic modelling and profiled from an hourly figure into 15-minute intervals over a 3-hour peak period based on WebTRIS count data.

The VISSIM model has been developed using AutoCAD files of the proposed site layout including the locations of ‘entry lanes’. The model replicates marshal behaviour in terms of selection of the entry lane with the least queue and then replicates the inspection time based on a dwell time of 1 minute 45 seconds with a 15-minute standard deviation (so essentially a time between 1 minute 30 seconds and 2 minutes).

The results of the VISSIM modelling show that the queues are generally well accommodated by the 42 available entry lanes (within the site). The results do show that in the AM and PM peak hour the capacity of the approach to the site is being reached and queues develop on the approaches to the entry lanes although the number of entry lanes and storage capacity is predicted to be sufficient for the expected arrivals of HGVs. In reality, the queuing is not expected to occur as simulated since the Maximum Operating Capacity scenario has been assessed which maximises arrivals of HGVs throughout the day when the Realistic Case estimates that arrivals will vary from one hour to another. However, should the arrival of HGVs be at a rate the site cannot cope with (vehicles are unable to enter the site and are backing up onto the A2070 link road), then the initial checks can be postponed, and the vehicles directed under supervision to an appropriate parking bay for checks to take place.

7 Mitigation

This chapter provides an overview of measures that will be put in place to minimise the impact of the site on the local transport network. None of the mitigation described was considered as part of the assessment undertaken in Section 6 of this Transport Assessment.

7.1 Operational Management Plan

To support the operation of the site, an Operational Management Plan (OMP) will be prepared. The aim of the OMP is to provide a comprehensive operational plan for the site and to deliver policies and procedures allowing for its safe operation. The document will contain a Traffic Management Plan (TMP), Signage Strategy and Staff Travel Plan (STP) as detailed in the following sections.

7.2 Traffic Management Plan

A TMP will be prepared for the site to minimise the impact on the local transport network. The purpose of the TMP is to support the operation of the site when it opens through identifying measures agreed between stakeholders that can be implemented in advance of opening and following monitoring of the operation of the site. The measures will ensure the 24-hour a day management of HGVs travelling on the Strategic Road Network (SRN) between the M20 and the site, as well as a suitable response to any incidents.

The TMP will outline the traffic management measures which have been grouped into 'pre-opening' and 'live network management', as well as establishing how traffic issues should be identified, which measures should be implemented, by whom and the governance process for traffic management of the site. The TMP will include an escalation process for the site marshals should there be an on-site incident that could cause HGVs to block back onto the SRN, such as an HGV breaking down and blocking the main access on the A2070.

Under normal operating conditions, safety checks will be undertaken at the entrance to the site in the entry lanes. However, if required, part of the escalation procedure will be to allow HGVs into the site to undertake safety checks once they are parked up. This will mitigate any potential build-up of vehicles at the entrance and on the access routes to the site.

7.3 Site Signage Strategy

A Site Signage Strategy for HGV drivers to be directed to and from the site will from part of the OMP based on using M20 junction 10a and the A2070. Advanced Direction Signs and Direction Signs will direct HGV drivers to the site whilst within the site itself directional information provided to drivers will be augmented by the use of road markings and directions from site marshals when necessary.

7.4 Staff Travel Plan

A STP has been prepared to encourage greater use of sustainable transport, although it is acknowledged that alternatives to car use are limited. However, single occupancy car use to the site can be minimised through car sharing as COVID-19 pandemic restrictions allow.

Census data analysed in Section 5 indicates that 82.5% of employees drive to work. This along with the remaining modal splits has been applied to the number of staff per shift who will be working at the site in the Day One and Day 200 scenarios as shown in Table 7.1.

Table 7.1: Staff Modal Split

Mode	Percentage	No. Staff per shift	
		Day One	Day 200
Driving a car / van	82.5%	266	335
On foot	7.3%	24	30
Car / van passenger	4.5%	14	18
Bicycle	2.2%	7	9
Bus / Minibus / Coach	1.5%	5	6
Train	0.8%	3	3
Motorcycle	0.8%	3	3
Other	0.4%	1	2
Total	**100.0%**	**322**	**406**

For Day One operations, the data indicates 266 staff per shift are expected to drive to work. For Day 200 operations, 335 staff per shift are expected to drive. High numbers of personal vehicle use can be attributed to the lack of alternative sustainable transport options at the time of the last census (in 2011). Furthermore, in the last decade walking and cycling have increased in popularity therefore it is expected more staff will utilise these modes compared to the census results. The site will provide 30 cycle parking spaces.

Additionally, as part of the site operations, a shuttle bus will be considered which would connect the site to Ashford town centre and Ashford International railway station. This would significantly enhance the current public transport provision to the site. Subsequently, it would be expected that more staff than the 1.5% given in the census data would travel via bus to the site. Furthermore, the shuttle bus would make travel via rail more attractive given the direct connection from the station to the site. The shuttle bus would provide a public transport connection aligned with shift times, where current provision may not exist.

Modelling has been undertaken based on shift patterns assumed only for modelling purposes. There is scope for staff shift times to be refined such that different staff groups from different agencies have staggered changeover times to minimise the impact of staff travel on the local highway network and to spread demand for parking across the day. Staff shift times will be planned to ensure the safe operation of the site with staggered changeovers used to minimise the chance of parking demand exceeding capacity.

Car sharing and sustainable modes of travel will be promoted through the STP which has the following aims:

- Raise awareness of all alternative opportunities to single occupancy private car use
- Encourage the use of public transport to the site
- Encourage the use of car sharing to the site
- Investigate barriers to travelling sustainably

An Action Plan outlined in Table 7.2 has been created to achieve the above objectives. The responsibility of the Action Plan will lie with the Site Operator, though it is expected this duty will be discharged to the Site Contractor(s).

Table 7.2: Action Plan

Action	Timescale	Responsibility
Communications		
Assign a dedicated Travel Plan Co-ordinator (TPC)	Site Opening	Site contractor
Staff to be briefed on the sustainable travel options at their disposal as well as key access points to the site	First month of site opening	TPC
Information to be provided to staff on travelling safely during COVID-19 restrictions	First month of site opening	TPC
Public Transport		
Providing information to each staff member, to include information on local public transport options	Site Opening	TPC
Investigate the provision of a shuttle bus from the site to Ashford town centre and Ashford International Rail Station	Site Opening	Site contractor
Walking and Cycling		
Cycle storage will be provided for 30 bicycles	Site Opening	Site contractor
Monitor demand amongst staff to travel to and from work by bike. If demand is more than the proposed provision provide additional cycle parking on-site for staff	First month of site opening	Site contractor
Providing maintenance stands together with pumps and basic maintenance and repair tools within the cycle stores for staff use	Site Opening	Site Contractor
Showers and changing facilities will be provided on-site for staff	Site Opening	Site Contractor
Advertise the walking and cycling routes and benefits of active travel to staff	Site Opening	TPC
Motor Vehicles		
Set up a car share scheme to help employees find suitable partners	Site Opening	TPC
Monitoring		
Conduct a staff travel survey for the site to include travel behaviours and motivations	First month, one year and three years post site opening	TPC

7.5 HMRC Origin of Destination / Departure Application

The Office of Departure / Destination system will assist in the management of all the Inland Border Facilities. HGV drivers will advise the system in advance that they will be attending a site to complete the relevant custom procedures. On arrival at the site, ANPR cameras associated with the service detect the vehicle and will send a text message to drivers to advise them on the process once they have parked. As vehicles leave the site they will be scanned by the ANPR cameras to 'count out'. The ANPR will assist with the capacity management of the site as it will provide an idea of how full the site is in real time, as well as triggering workflow processes. A red, amber, green status of the site capacity levels will be able to be viewed on the government website. Once a site reaches 80 % it will change to a red status, with drivers encouraged to attend other sites to stop sites reaching full capacity and avoiding the potential for HGVs blocking back onto the local highway network. The reporting will allow information around peaks and troughs on each site to be gathered.

7.6 Orbital Park Roundabout Upgrade Scheme

The existing A2070 Orbital Park Roundabout is predicted to operate within capacity considering development traffic in 2021 and 2025 across the three peak periods.

The proposed Crest Nicholson signalisation scheme at Orbital Park roundabout is also predicted to accommodate the site traffic generation, namely staff trips, as HGVs will not be routed via the Orbital Park junction in 2021 and 2025 across the peak periods. It is not considered possible to implement this signalisation scheme ahead of the site 'coming live', given the junction construction programme of 12 months. The construction of the signal scheme could have a detrimental impact for site staff trips. Ongoing engagement with Highways England and the appointed contractor is proposed to ensure any temporary traffic management deployed during construction works is design to accommodate traffic associated with the Sevington site.

8 Summary and Conclusions

Mott MacDonald has been commissioned by the Department for Transport (DfT) to prepare a Transport Assessment for the proposed use of land and associated works at the Sevington Inland Border Facility (IBF) site in Ashford, Kent for a temporary Heavy Goods Vehicle (HGV) customs and border control checking and parking facility.

The site will be used by the DfT, Her Majesty's Revenue & Customs (HMRC), Border Force, the Department for Environment, Food & Rural Affairs (Defra) and the Department for Business, Energy and Industrial Strategy (BEIS) to enable required checks to take place inland on traffic entering and exiting the United Kingdom (UK), serving selected trade ports as part of the transitional arrangements arising from the UK's departure from the European Union (EU). Temporary planning permission is being sought for the site to be in operation for five years, with a capacity for a maximum of 1,272 HGVs when HMRC, DfT Border Force and BEIS will be on-site, reducing to 651 after six months when HMRC will replace DfT.

This Transport Assessment has demonstrated that the site can be delivered to meet the relevant national and local transport policies which are presented in Section 2.

To undertake a robust assessment of the impact of the proposed temporary site, this Transport Assessment has considered a Maximum Operating Capacity scenario for the first six months of the site operation whereby the site operates at full capacity throughout the whole day based on turning over the number of HMRC spaces for HGVs every two hours (since inspections of HGVs are expected to take two hours). For Sevington, Ashford where there is capacity to park 1,272 HGVs on-site for the first six months of operation, the assessment considers between 114 and 126 HGVs accessing and egressing the site every hour. For each of the three staff shifts, the assessment considers 183 staff accessing and egressing the site by private car (when the staff shift changeover coincides with the modelled time periods). As the Maximum Operating Capacity scenario potentially over-estimates the daily HGV demand a Realistic Case scenario has also been considered based on data provided by HMRC on the volume and hourly profile of freight traffic arriving and departing from Eurotunnel and the Port of Dover. This varies the HGV demand across the day.

The traffic impacts and operations of the site have been assessed using Strategic Traffic Modelling, Local Junction Modelling and VISSIM microsimulation modelling with the outcomes detailed in the following text.

Strategic Traffic Modelling has been undertaken to forecast the numbers and routings of HGVs and staff trips using Highways England's Operation Stack Permanent Solution (OSPS) model for the Maximum Operating Capacity Scenario and the Realistic Case which covers:

- Weekday AM Peak Period (average hour 07:00-10:00)
- Weekday Inter-Peak (IP) Period (average hour 10:00-16:00)
- Weekday PM Peak Period (average hour 16:00-19:00)
- Weekday Off-Peak (OP) Period (average hour 19:00-07:00)

The results indicate that key impacts are broadly similar across the two scenarios (Maximum Operating Capacity and Realistic Case scenario) and for the first six months and beyond six months of site operation. An increase of approximately 650-700 vehicles per hour is forecast for the main access route between the M20 and the site along the A2070 Link Road for the first six months of operation (disruption days). There are also small forecast changes in flow on the M20

both east and west of the site to reflect DfT operations sending HGVs back to their depot (rather than onto the ports) if not 'border ready'. After six months (non-disruption days) the forecast increase on the A2070 reduces to 500 or less per hour. Small levels of re-routing of local 'existing' traffic are forecast across all scenarios equating to approximately 100 vehicles or less in the average hour on any single route. The forecast impacts of the operation of the site are predicted to be localised to Ashford.

Local Junction Modelling has been undertaken to assess the impact of the forecast numbers and routings of HGVs and staff trips at seven junctions on the road network between the Strategic Road Network (SRN) (M20 motorway) and the site via the A2070 Link Road and A2070 Bad Munstereifel Road. Modelling has been undertaken for both 2021 and 2025, for both baseline and operational scenarios. As the traffic demand data used for the junction assessments is based on the 2020 traffic surveys, an uplift has been applied to account for any traffic increases associated with background traffic growth. The 2021 modelling is based on the disruption scenario, while the 2025 modelling is based on the non-disruption scenario.

In both 2021 and 2025 the junctions are all predicted to operate within capacity for the baseline and operational scenarios. The assessment undertaken presents a robust assessment of the traffic generated by the site because it is based on the Maximum Operating Capacity Scenario for the first six months of operation.

It should be noted that the 2025 local junction modelling has considered the proposed signalisation of the existing A2070 Orbital Park roundabout and indicates the scheme could accommodate the Maximum Operating Capacity scenario once operational. The proposed signalisation would remove the u-turn from A2070 Bad Munstereifel Road westbound to the A2070 Bad Munstereifel Road eastbound which would be used by staff exiting the site requiring destinations accessed via the route to the M20 motorway. The signalisation of the A2070 Bad Munstereifel Road/Church Road junction has therefore been tested which would allow staff to turn right out of Church Road. The modelling of a signalised version of the Church Road junction (if required) indicates it would operate within capacity in the Maximum Operating Capacity scenario. The programme for construction for the Orbital Park signalisation is currently unknown and could present challenges for staff if the construction is commenced during operation of the scheme. At the time of writing, discussions are ongoing with Highways England to understand phasing of the works.

VISSIM micro-simulation modelling has been undertaken to confirm that the internal site layout has sufficient capacity to cater for the expected demand from HGVs based on the worst-case Maximum Operating Capacity scenario for the first six months of site operation. The results show that queues of HGVs can be managed within the site using the 42 proposed 'entry lanes' which are predicted to be sufficient for the expected arrivals of HGVs.

To mitigate impacts and support the operation of the site an Operational Management Plan (OMP) is being developed. The aim of the OMP is to provide a comprehensive operational plan for the site and to deliver policies and procedures allowing for its safe operation. The document will contain a Traffic Management Plan (TMP), Signage Strategy and Staff Travel Plan (STP):

- The TMP will support the operation of the site when it opens through identifying measures agreed between stakeholders that can be implemented in advance of opening and following monitoring of the operation of the site. The measures will ensure the 24-hour a day management of HGVs travelling on the Strategic Road Network between the M20 and the site, as well as a suitable response to any incidents.

- The Signage Strategy for HGV drivers will direct them to use M20 junction 10a and the A2070 Link Road to the main site access, a direct route between the M20 motorway and the site and wholly contained within the SRN.
- The Staff Travel Plan will be prepared to encourage greater use of sustainable transport although it is acknowledged that alternatives to car use are limited and the possibility of early morning and late evening staff shift changeovers introduce challenges in terms of sustainable modes. However, single occupancy car use to the site can be minimised through car sharing when COVID-19 pandemic restrictions allow. Additionally, a new shuttle bus will be investigated to form part of the mitigation that could be part of the site operation. This will connect the site to Ashford town centre and Ashford International railway station, significantly enhancing the current public transport provision to the site and make rail a more attractive given the direct connection from the station to the site. The shuttle bus will also provide a public transport connection aligned with shift times, where current provision may not exist.

A. Appendix A – Construction Traffic Impact Assessment

B. Appendix B – Strategic Traffic Modelling Report

C. Appendix C – VISSIM Modelling Report

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Sevington Inland Border Facility

Air Quality Impact Assessment

06 November 2020

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Figures

1 Introduction

1.1 Overview

Mott MacDonald has been appointed by the Department for Transport (DfT) to undertake an *Analysis of the Likely Environmental Effects of the Development Report* (document ref: 419419-MMD-XX-SV-RP-YE-0002) for the proposed use of a site at Sevington near Ashford in Kent (hereafter referred to as 'the site') for a temporary Inland Border Facility (hereafter referred to as 'the scheme'). The analysis is presented within this report, and it is required as per article 4(2)(h) of the *Town and Country Planning (Border Facilities and Infrastructure) (EU Exit) (England) Special Development Order 2020*. Further details on the scheme including a description of the location of the site is provided in the Sevington Inland Border Facility – An *Analysis of the Likely Environmental Effects of the Development Report* (document ref: 419419-MMD-XX-SV-RP-YE-0002). This air quality impact assessment has been undertaken to support the *Analysis of the Likely Environmental Effects of the Development Report*.

The air quality impacts of the scheme are reviewed and assessed in accordance with *Design Manual for Roads and Bridges (DMRB) Sustainability and Environment Appraisal LA 105 – Air Quality*[1], hereafter referred to as 'DMRB LA 105'.

This assessment refers to the term 'movement'. One movement is defined as one HGV travelling in a single direction to or from the site. Where an HGV returns along the same route this will count as two movements.

1.2 Pollutants of concern

The assessment considers concentrations of oxides of nitrogen (NO_x) and fine particulates (PM_{10}; particles with a diameter smaller than 10 microns and $PM_{2.5}$; particles with a diameter smaller than 2.5 microns) only as these are the key pollutants of concern. A description of these pollutants is provided below.

1.2.1 Oxides of nitrogen

Oxides of nitrogen is a term used to describe a mixture of nitric oxide (NO) and NO_2, referred to collectively as NO_x. These are primarily formed from atmospheric and fuel nitrogen as a result of high temperature combustion. The main sources in the United Kingdom (UK) are road traffic and power generation.

During the process of combustion, atmospheric and fuel nitrogen is partially oxidised via a series of complex reactions to NO. The process is dependent on the temperature, pressure, oxygen concentration and residence time of the combustion gases in the combustion zone. Most NO_x exhausting from a combustion process is in the form of NO, which is a colourless and tasteless gas. It is readily oxidised to NO_2, a more harmful form of NO_x, by chemical reaction with ozone and other chemicals in the atmosphere. NO_2 is a yellowish orange to reddish-brown gas with a pungent, irritating odour and is a strong oxidant.

1.2.2 Particulate matter

Particulate matter is a complex mixture of organic and inorganic substances present in the atmosphere. Sources are numerous and include power stations, other industrial processes,

[1] Highways England (2019) Design Manual for Roads and Bridges, Sustainability and Environment Appraisal LA 105 Air Quality

road transport, domestic wood burning and trans-boundary pollution. Secondary particulates, in the form of aerosols, attrition of natural materials and, in coastal areas, the constituents of sea spray, are significant contributors to the overall atmospheric loading of particulates. In urban areas, road traffic is generally the greatest source of fine particulate matter, although localised effects are also associated with construction and demolition activity.

2 Legislative and Policy Framework

2.1 European Legislation

EU Directive 2008/50/EC on ambient air quality and cleaner air for Europe (hereafter referred to as the 'Air Quality Directive') was adopted in May 2008. This Directive defines limit values and times by which they are to be achieved for the purpose of protecting human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

Directive 2008/50/EC sets out that the limit values apply everywhere with the exception of:

> (a) any locations situated within areas where members of the public do not have access and there is no fixed habitation
>
> (b) in accordance with Article 2(1), on factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply
>
> (c) on the carriageway of roads and on the central reservations of roads except where there is normally pedestrian access to the central reservation

2.2 National Legislation and Policy

2.2.1 Air quality legislation

The *Air Quality Standards Regulations 2010*[2] and the *Air Quality Standards (Amendment) Regulations 2016*[3] and the *Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019*[4] implement the EU's Directive 2008/50/EC[5] on ambient air quality.

Part IV of the *Environment Act 1995*[6] requires that every local authority shall periodically carry out a review of air quality within its area, including likely future air quality. As part of this review, the authority must assess whether air quality objectives are being achieved, or likely to be achieved within the relevant periods. Any parts of an authority's area where the objectives are not being achieved or are not likely to be achieved within the relevant period must be identified and declared as an Air Quality Management Area (AQMA). Once such a declaration has been made, authorities are under a duty to prepare an Action Plan which sets out measures to pursue the achievement of the air quality objectives within the AQMA.

The air quality objectives specifically for use by local authorities in carrying out their air quality management duties are set out in the *Air Quality (England) Regulations 2000*[7] and the *Air Quality (England) (Amendment) Regulations 2002*[8].

The Clean Air Strategy (CAS)[9] establishes the UK framework for air quality improvements. Although the CAS does not set legally binding objectives, the CAS instead has targets for

[2] Gov.uk (2010) The Air Quality Standard Regulations, No. 1001.

[3] Gov.uk (2016) The Air Quality Standards (Amendment) Regulations 2016, No. 1184.

[4] Gov.uk (2019) Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations., No. 74

[5] Council of the European Union (2008) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

[6] Gov.uk (1995) Environment Act, c.25.

[7] Gov.uk (2000) Air Quality (England) Regulations, No. 928.

[8] Gov.uk (2002) Air Quality (England) (Amendment) Regulations, No. 3043.

[9] Defra (2019) Clean Air Strategy

reducing total UK emissions of NO_x and fine particulate matter ($PM_{2.5}$) from sectors such as road transport, domestic sources and construction plant (non-road mobile machinery or NRMM).

The air quality objectives and limit values relevant to the assessment are summarised in Table 2.1.

Table 2.1: Air quality objectives, limit values and critical level

Pollutant	Averaging Period	Concentration	Allowance	Attainment Date	
				Air Quality Objectives	Limit Values
Nitrogen dioxide (NO_2)	Annual	40 µg/m³	-	31 December 2005[a][b]	1 January 2010[b]
	1 Hour	200 µg/m³	18 (equivalent to 99.8th percentile)	31 December 2005[a]	1 January 2010[b]
Particulate Matter (PM_{10})	Annual	40 µg/m³	-	31 December 2004[a]	1 January 2005[c]
	24 Hour	50 µg/m³	35 (equivalent to 90.41st percentile)	31 December 2004[a]	1 January 2005[c]
Particulate Matter ($PM_{2.5}$)	Annual	25µg/m³	-	1 January 2015[a]	-
		20µg/m³	-	-	1 January 2020[b]
Nitrogen Oxides (NO_x)[c]	Annual	30 µg/m³	-	31st December 2000[a]	

Notes:

[a] *Air Quality (England) Regulations 2000* as amended

[b] EU Directive 2008/50/EEC on ambient air quality and cleaner air for Europe and the *Air Quality Standards Regulations 2010*. Derogations (time extensions) have been agreed by the EU for meeting the NO_2 limit values in some zones/agglomerations

[c] Designated for the protection of vegetation and ecosystems and also referred to as the 'critical level' for NO_x. The policy of the UK statutory nature conservation agencies is to apply the annual mean NO_x criterion in internationally designated conservation sites and SSSIs on a precautionary basis, as the Limit Value applies only to locations more than 20 km from towns with more than 250,000 inhabitants or more than 5 km from other built-up areas, industrial installations or motorways. On this basis the limit values have been excluded from this assessment.

Table 2.2 provides details of where the respective objectives should and should not apply and therefore the types of receptors that are relevant to the assessment.

Table 2.2: Locations where the Air Quality Objectives apply

Averaging period	Objectives should apply at:	Objectives should not apply at:
Annual	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
24 Hour	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.
1 Hour	All locations where the annual mean and 24 mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

Source: Defra's Local Air Quality Management Technical Guidance (LAQM.TG16).

For the purpose of compliance for the limit values, Highways England's Design Manual for Roads and Bridges (DMRB), section LA 105 Air Quality reports Defra's interpretation of the Air Quality Directive as including public access (e.g. footpaths) and sensitive receptors (e.g. residential properties, schools etc) within 15m of the running lane / kerbside, but are not within 25m of a junction.

2.2.2 National Planning Policy Framework

The revised National Planning Policy Framework[10] was published in February 2019 and sets out government planning policies for England. With regard to air quality it states that:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas…"

And:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as

[10] Department of Communities and Local Government (2019) National Planning Policy Framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

2.3 Local planning policy

2.3.1 Adopted Local Plan

The Ashford Local Plan[11] was adopted in February 2019 and sets out a framework of policies to manage and control development within the Borough until 2030. Policy ENV12 is related to air quality and states:

'All major development proposals should promote a shift to the use of sustainable low emission transport to minimise the impact of vehicle emissions on air quality.

Development should be located where it is accessible to support the use of public transport, walking and cycling.

Development proposals that might lead to a significant deterioration in air quality or national air quality objectives being exceeded, either by itself, or in combination with other committed development, will require the submission of an Air Quality Assessment to be carried out in accordance with the relevant guidance. This should address:

a) The cumulative effect of further emissions; and,

b) The proposed measures of mitigation through good design and offsetting measures that would prevent the National Air Quality Objectives being exceeded or reduce the extent of the air quality deterioration.

Proposals which will result in National Air Quality Objectives being exceeded will not be permitted.'

[11] Ashford Borough Council (2019) Ashford Adopted Local Plan to 2030. Available at: https://www.ashford.gov.uk/planning-and-development/planning-policy/adopted-development-plan-documents/adopted-local-plan-to-2030/

3 Assessment approach

3.1 Study area

The study area of the scheme has been examined based on annual average traffic flows provided from the scheme traffic modelling. Two Do-Something scenarios which include the scheme have been assessed against two Do-Minimum scenarios which are representative of traffic flows without the scheme. The two scenarios are:

- Scenario 1: With disruption
  - Do-Minimum traffic flows with disruption caused by the Quick Moveable Barrier (QMB) and an extended (by distance) Operation TAP
  - Do-Something
    - Traffic flows with disruption caused by the Quick Moveable Barrier (QMB) and an extended (by distance) Operation TAP
    - Traffic flows associated with rerouting of HGVs heading into and out of the UK
  - 549 staff movements per day (i.e. 1098 two-way movements)
- Scenario 2: No disruption
  - Do-Minimum traffic flows
  - Traffic flows associated with rerouting of HGVs heading into and out of the UK
  - 549 staff movements per day (i.e. 1098 two-way movements)

The site is assumed to operate from January 2021 for five years. The first six months of operation is expected to be at the highest capacity; the remaining time at lower capacity. This assessment has modelled the maximum operating capacity for 12 months based on 2021 traffic flows, emission factors and background concentrations. Whilst the site will be operational from January 2021 for five years, the use of 2021 emission factors and background concentrations rather than 2022-2025 is considered a conservative approach as emission rates from traffic are anticipated to reduce in future years due to improvements in vehicle emissions as new cleaner cars enter the road fleet and replace older more polluting vehicles.

The number of HGV movements have been pro-rated to an annual average daily traffic (AADT) flow[12] to allow the assessment to assess impacts and compare against relevant standards which are calculated against annual averages.

In accordance with paragraph 2.1 of DMRB LA 105, the following criteria have been applied to the change between the Do-Minimum and Do-Something scenario traffic flows. These criteria have been used in order to identify which roads are likely to be affected by the scheme (referred to as affected roads and the affected road network (ARN)) to a degree that they require consideration within the local air quality assessment.

The criteria are:

- Road alignment would change by 5m or more
- Daily traffic flows would change by 1,000 annual average daily traffic (AADT) flow or more
- Heavy duty vehicle (HDV)[13] flows would change by 200 AADT or more

[12] AADT = number of movements (equivalent to the assumed site capacity) x number of hours in a day (24)

[13] HDVs are defined as vehicles with a gross vehicle weight above 3.5 tonnes.

- A change in speed band[14]

The primary criteria being triggered in both scenario 1 and scenario 2 is the change in HDVs by more than 200 movements per day. In addition, the A2070 at the location leading towards the entrance to the site changes speed band from free flow to light congestion, when assessing changes in daily average speed. In line with DMRB LA 105, the extent of the study area has been limited to within 200m of roads where at least one of the above criteria is triggered and sensitive receptors are located. For further details of sensitive receptors locations see Section 3.3.

In scenario 1, border disruption occurs without and with the scheme. Without the scheme in place, HDVs would reach the border crossing at Euro Tunnel or Dover Port and a proportion would be returned back inland. However, with the scheme, HDVs on the M2/A2 and on the M20 are required to report to the site where they are turned back and would not travel as far as the Euro Tunnel or Dover. This causes a decrease of approximately 700 two-way HDV movements along the M20/A20 and along the M2/A2. The HDVs that are returned back inland from the Euro Tunnel/Dover Port in the without scheme scenario are returned north on the M20 from the site causing an increase of approximately 700 HDVs on the M20 between M20 Junction 10a and the M2 Junction 3. There is also predicted to be an increase of approximately 16 000 HDV two-way movements on the A2070 in Ashford between the M20 and the site. This increase in HDVs would be split amongst the M20 Junction 10a entry and exit slip roads.

In scenario 2, there is an anticipated to be a decrease of approximately 600 HDV movements on the M2/A2 between M2 Junction 3 and Dover Port. Subsequently, the equivalent amount of HDVs are expected to increase along the M20, the A20 and the A229 between the M2 Junction 3 and Dover Port. The decrease in HDV movements on the M2/A2 corridor and the subsequent increase along the A229 and the M20 corridor is due to HDVs being diverted from the M2/A2 on to the M20 to allow inspection at the site. There is also anticipated to be an increase of approximately 10 000 two-way HDVs on the A2070 in Ashford between the M20 and the site. This increase in HDVs would be split amongst the M20 Junction 10a entry and exit slip roads.

The ARNs are presented in Figure 3.1 and Figure 3.2.

[14] A speed band is a range of categories (i.e. heavy congestion, light congestion, free flow and high speed) for which speed outputs from the traffic model are grouped into to describe their emissions.

Figure 3.1: Scenario 1 - Affected road network

Source: Mott MacDonald

Figure 3.2: Scenario 2 - Affected road network

Source: Mott MacDonald

3.2 Modelling approach

3.2.1 Overview

This assessment has been undertaken in accordance with DMRB LA 105.

The potential for changes in concentrations of NO_2 and PM_{10} have been modelled using the ADMS-Roads dispersion model (version 5). ADMS Roads is an appropriate choice of model for assessments such as this and is recommended for use in Defra's *Local Air Quality Management Technical Guidance* (LAQM TG16).

In accordance with DMRB LA 105, $PM_{2.5}$ has not been explicitly modelled as concentrations currently meet the legal requirements within the study area. As $PM_{2.5}$ is a constituent of PM_{10}, the predicted concentrations of PM_{10} are used as a proxy for $PM_{2.5}$ and added to the $PM_{2.5}$ background concentrations (presented in Table 4.2) to assess whether the scheme would impact on the achievement of the $PM_{2.5}$ air quality objectives or limit value at the modelled receptors.

Defra's LAQM TG16 guidance indicates that the hourly NO_2 air quality objective of 200µg/m^3 (not to be exceeded more than 18 times per year) is unlikely to be exceeded at roadside locations where the annual mean concentration is less than 60µg/m^3. Following this guideline, the hourly objective has not been considered further within this assessment as the annual modelled mean NO_2 concentrations are less than 60µg/m^3.

The prediction of daily mean concentrations of PM_{10} is available as an output option within the ADMS-roads dispersion model for comparison against the short term air quality objective. However, as the model output for annual mean concentrations is considered more accurate than the modelling of the daily mean, an empirical relationship has been used to determine daily mean PM_{10} concentrations. In accordance with LAQM TG16, an annual mean PM_{10} concentration of 32µg/m^3 equates to 35 days at or above 50µg/m^3: Therefore, where annual mean PM_{10} concentrations are less than 32µg/m^3 the short term (daily) PM_{10} objective is unlikely to be exceeded. A selection of other best practice assessment tools to support the assessment have been used and include:

- LA 105 speed band emissions factors, which are derived from Defra's LAQM emission factor toolkit version 10 (released August 2020) to derive tailpipe emission factors to include in the model
- Defra's NO_x to NO_2 calculator version 8.1 (released August 2020) convert modelled NO_x concentrations to total ambient NO_2 concentrations for comparison with the air quality objectives and limit values
- Defra's projected background maps have been used to assign background pollutant concentrations to modelled receptors

To assess the effects on ecologically designated sites, the effects on concentrations of NO_x and rates of nitrogen deposition are determined. Rates of nitrogen deposition are directly related to concentrations of atmospheric pollutants which contain nitrogen. For the purposes of this assessment, the calculation of nitrogen deposition and assessment approach has been followed from DMRB LA 105.

All modelling is based on 2021 traffic flows, emissions factors and background concentrations. The use of 2021 emission factors and background concentrations rather than other future years is considered a conservative approach as emission rates from traffic are anticipated to reduce in future years due to improvements in vehicle emissions as new cleaner cars enter the road fleet and replace older more polluting vehicles.

3.2.2 Emission sources

The modelling has considered and accounted for emissions from:

- Road traffic emissions – existing road traffic and the additional HGV and staff movements created by the scheme
- Emissions from HGV movements within the site boundary – Emissions from HGV and staff movements in the site have been calculated from data provided by the traffic model developed for the scheme and applied around the outer perimeter of the site
- Transport Refrigeration Unit (TRU) generator emissions when HGVs are parked at the site. These emissions are represented in the dispersion model as area sources. This assessment has assumed that 20% of the spaces will be occupied by TRUs at any time

There would be no idling of engines permitted on site, except for the daily checking of engines. It is intended for the site to be connected to the national grid power supply.

To undertake a conservative assessment, this air quality assessment has included emissions from individual TRU generators which would be required in the event that grid power supply was interrupted.

3.2.3 Traffic data

Outputs from the traffic model developed for the scheme have been used for this assessment. Data on vehicle flows, speed and percent of HDVs are available for the following periods in the Do-Minimum and Do-Something scenarios for the scheme:

- AM peak period (07:00 to 10:00)
- Inter-peak period (10:00 to 16:00)
- PM peak period (16:00 to 19:00)
- Off-peak period (19:00 to 07:00)

The diurnal traffic flow characteristics, and therefore emissions, are represented in the dispersion model using time varying emission factors. The same profile used for weekdays has been applied to the weekend as a worst case.

Speed data has also been derived from the traffic model and has been speed banded in accordance with LA 105 for use in this assessment.

Table 3.1 presents TRU emissions data and is based on currently available information related to the types and sizes of generators used to power refrigerated trailers. It is anticipated that electric hook-ups will be provided within the site and therefore by including emissions from TRUs in the assessment is conservative.

Table 3.1: TRU Emissions

Parameter	Value	Unit	Data source
Energy consumption	9.8	kWe	R.A Barnitt et al (2010) Emissions of transport refrigeration units with CARB diesel, gas to liquid diesel and emission control devices, conference paper NREL/CP-540-46598
Height	3	m	Assumed exhaust height of TRU generator
Exhaust velocity	13.6	m/s	Calculated based on typical exhaust flow rate for a diesel engine (5 kg/hr per kW), which is scalable per kW output.
Exhaust temperature[(a)]	170	°C	A. Mayer et al (2005) Retrofitting TRU-diesel engines with DPF-systems using FBC and intake throttling for active regeneration.

Parameter	Value	Unit	Data source
TRU generator NO_x emission factor	6 (0.016)	g/kwhe (g/s)	CE Delft (2015) Electrical trailer cooling during rest projects
TRU generator PM emission factor	0.7 (0.002)	g/kwhe (g/s)	CE Delft (2015) Electrical trailer cooling during rest projects
Percentage spaces used for TRU	20	%	HMRC

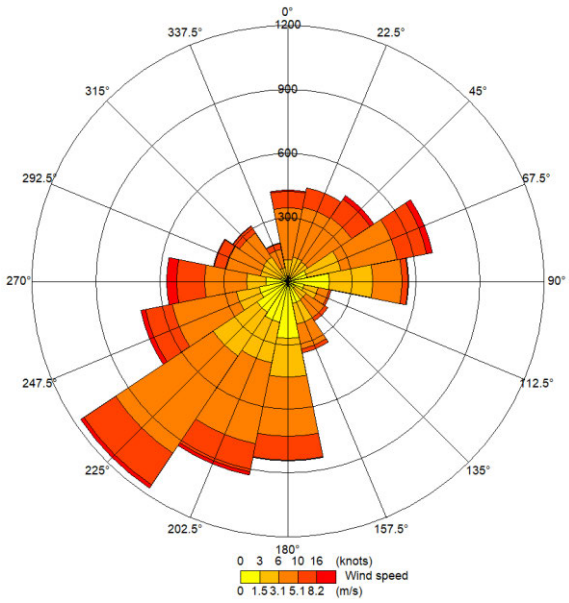
Note: [a] Ambient temperature is conservatively applied to the model as it is assumed that exhaust gas rapidly decreases to ambient temperature after emission from tail pipe.

3.2.4 Meteorological data

The most important meteorological parameters governing the atmospheric dispersion of pollutants are wind direction, wind speed and atmospheric stability. For meteorological data to be suitable for dispersion modelling purposes, parameters need to be measured on an hourly basis. There are only a limited number of sites where the required meteorological measurements are made. This assessment applied 2018 meteorological data from Gatwick Airport.

Figure 3.3 presents the 2018 wind rose which demonstrates that there is dominance in winds from the south-west and the south, with less frequent winds from the north-east and east.

Figure 3.3: 2018 wind rose



3.3 Receptors

3.3.1 Overview

The dispersion modelling includes ‘worst case’ human health and ecological receptors. Worst case refers to the location where the combination of proximity to traffic changes caused by the scheme, the highest traffic flows and the proximity to junctions is likely to cause the greatest pollutant concentrations and greatest increase in pollutant concentrations.

The modelled receptor locations are presented in Table 3.2 and Table 3.3.

No human health or ecological receptors have been assessed along the A2/M2 corridor as traffic is predicted to decrease along this route which would result in air quality improvements.

3.3.2 Human health

The selected worst-case receptors where the annual mean air quality objectives apply are all located within 200m of the ARN discussed in Section 3.1.

Table 3.2: Human health receptor

ID	National grid reference		ID	National grid reference	
	X	Y		X	Y
1H	619969	137474	19H	603547	141899
2H	609451	138036	20H	603517	141931
3H	631791	141055	21H	603312	142151
4H	632656	141502	22H	603557	141050
5H	632854	141594	23H	603529	140513
6H	601441	143530	24H	603149	142215
7H	599543	145120	25H	603504	141769
8H	590817	149552	26H	603538	140470
9H	587981	151102	27H	603636	140405
10H	585958	152574	28H	603595	140846
11H	586079	152648	29H	603573	141130
12H	585160	152904	30H	603310	142035
13H	576938	157778	31H	603269	142195
14H	575230	159578	32H	603755	140175
15H	575091	162394	33H	604470	140998
16H	574511	162429	34H	604596	140961
17H	574706	162997	35H	605087	140797
18H	604166	141361	36H	605660	140247

Source: Mott MacDonald

3.3.3 Ecological receptors

Only ecological designation with statutory status have been considered in this assessment. These include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

There are eight ecologically designated sites with statutory status within 200m of the ARN (Table 3.3). The effect of the scheme has been modelled at 12 transects covering the eight designated sites. The transects start at the closest point to the road and are spaced at 10m intervals up to 200m from the road edge.

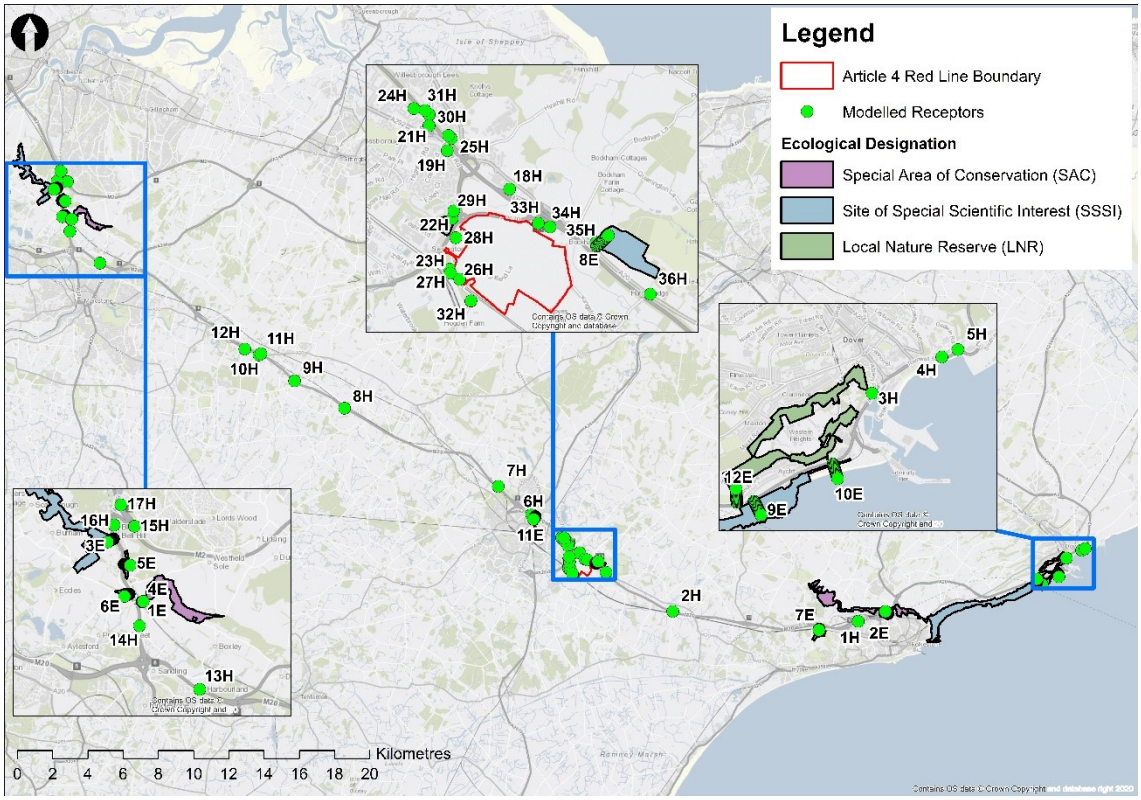
As discussed in table note (c) of Table 2.1, the annual mean NO_x critical level of 30µg/m^3 is applicable to internationally designated conservation sites and SSSIs on a precautionary basis as the EU limit value does not apply within 5km of a motorway.

Table 3.3: Modelled ecological receptors

ID	Receptor name	National grid reference		Designation	Critical Load (CLO) Class	Empirical CLO (kg N/ha/yr)
		X	Y			
1E	North Downs Woodlands	575308	160257	SAC	Asperulo-Fagetum beech forests	10-20
2E	Folkestone to Etchinghill Escarpment	621651	137905	SAC	Semi-natural dry grasslands	15-25
3E	Wouldham to Detling Escarpment	574496	162042	SSSI	Broad-leaved, mixed and yew woodland (Coniferous woodland)	5-15
4E	Wouldham to Detling Escarpment	575308	160257	SSSI	Broad-leaved, mixed and yew woodland (Fagus woodland)	10-20
5E	Wouldham to Detling Escarpment	574795	161322	SSSI	Broad-leaved, mixed and yew woodland (Coniferous woodland)	5-15
6E	Wouldham to Detling Escarpment	574941	160476	SSSI	Broad-leaved, mixed and yew woodland (Fagus woodland)	10-20
7E	Seabrook Stream	617758	137031	SSSI	Acid grassland	8-15
8E	Hatch Park	605091	140754	SSSI	Broad-leaved, mixed and yew woodland (Acidophilous Quercus-dominated woodland)	10-15
9E	Folkestone Warren	630330	139718	SSSI	Calcareous grassland	15-25
10E	Folkestone Warren	631308	140179	SSSI	Calcareous grassland	15-25
11E	Ashford Green Corridors	601641	143414	LNR	Broad-leaved, mixed and yew woodland (Acidophilous Quercus-dominated woodland)	10-15
12E	Western Heights	630116	139701	LNR	Calcareous grassland	15-25

Source: Mott MacDonald

Figure 3.4: Location of discrete modelled receptors



Source: Mott MacDonald

3.4 EU limit value compliance

An assessment of the scheme's impact on the UK's reported ability to comply with the Limit Values has been undertaken. The Pollution Climate Mapping (PCM) model is used by Defra, in combination with monitoring data, to assess compliance with EU limit values. Compliance information is reported within 43 zones and urban agglomerations across the UK.

The assessment of compliance with EU limit values for a proposed scheme should consider the annual mean NO_2 concentrations from roads which form the compliance risk road network (CRRN). The CRRN includes roads where affected roads overlap with links contained within the PCM model and are not within 15m of a motorway running lane and not within 25m of a major[15] junction.

Existing concentrations from the PCM model have been presented in Section 4.3 for the worst link in the scheme's study area and the worst link in the South East Zone which the ARN is located in. This along with the scheme's likely impact has been used to determine if the scheme would delay the UKs reported compliance with the Limit Values.

[15] For non-motorway junctions a "major junction" is defined as a junction, which interrupts the traffic flow on the road and includes, for example, traffic light-controlled junctions.

3.5 Assessment criteria

DMRB LA 105 provides advice for evaluating the significance of local air quality effects for public exposure and ecologically designated sites.

3.5.1 Human health

The difference in pollutant concentrations between the Do-Minimum and Do-Something scenario is used to describe the magnitude of change in concentration in accordance with Table 3.4.

A conclusion of no likely significant air quality effect for human health shall be recorded where the:

1. Outcomes of the air quality modelling for human health indicate that all concentrations at worst case receptors are less than the air quality standard; and / or
2. Difference in concentrations is imperceptible, i.e. less than 1% of the relevant air quality standard

Where the above criteria are not met, the receptors in each magnitude band are then aggregated and compared to the guideline number of receptors constituting a significant effect as shown in Table 3.4. The guideline bands have been developed for each magnitude category and set the upper level of likely non-significance (e.g. 30 for small changes) and the lower level of likely significance (e.g. 60 for small changes). Between these two levels are the ranges where likely significance is more uncertain, and therefore professional judgment is required.

Table 3.4: Guideline to number of properties constituting a significant effect

Magnitude of change in concentration	Number of receptors with:	
	Worsening of air quality objective already above objective or creation of a new exceedance	Improvement of an air quality objective already above objective or the removal of an existing exceedance
Large (>4)	1 to 10	1 to 10
Medium (>2 to 4)	10 to 30	10 to 30
Small (>0.4 to 2)	30 to 60	30 to 60

3.5.2 Ecological designations

When nitrogen deposition rates are assessed for designated sites, and the total Do-Something nitrogen deposition rate is less than the applicable lower critical load (CLO) or the change in nitrogen deposition caused by the scheme is less than 1% of the lower CLO, significant effects are not anticipated.

It is important to note that where impacts are greater than 1%, effects are not necessarily considered 'significant'. Where changes greater than 1% of the lower CLO are predicted, Table 21 of Natural England's Commissioned Report NECR210[16] should be used to identify if the increase in nitrogen deposition caused by the scheme would reduce species richness by one. The lowest increase in nitrogen deposition presented in Table 21 of the NECR210 report which could result in the reduction of species richness is 0.4kg/ha/yr.

[16] Natural England (2016) 'Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance.'

On this basis, where the predicted increase in nitrogen deposition is greater than 1% and less than 0.4kg/ha/yr, significant effects are not anticipated. Where nitrogen deposition is both greater than 1% and 0.4kg/ha/yr the scheme ecologist should determine significance.

3.6 Addressing uncertainty and model verification

Dispersion modelling has associated with it an inherent level of uncertainty, primarily as a result of:

- Uncertainties with emissions data
- Uncertainties with recorded meteorological data
- Simplifications made in the model algorithms or post processing of the data that represent atmospheric dispersion or chemical reactions

To address these uncertainties, modelled NO_x and PM_{10} concentrations have been uplifted by a factor of 1.2 based on recent experience of modelling assessments of this kind. After adjustment, a comparison of modelled NO_x concentrations at human health receptors was compared to NO_2 monitoring sites in similar locations. This exercise showed that the model was over predicting at most comparative locations indicating predicted concentrations and changes in air quality caused by the scheme are conservative.

However, the model was found to underpredict total NO_2 concentrations at receptors located along the A20 in Dover even with the 1.2 adjustment factor. To account for this underprediction, a factor of 3.2 has been applied to modelled NO_x concentrations at receptors adjacent to the A20 in Dover. Following calibration, modelled total NO_2 concentrations are within 10% of the monitored concentration and the model results are considered appropriate to support the Analysis of the Likely Environmental Effects of the Development Report.

Therefore, the model calibration demonstrates the conclusion of the air quality assessment is appropriate to support the *Analysis of the Likely Environmental Effects of the Development Report*.

4 Baseline conditions

4.1 Overview

This section provides an overview of the existing baseline conditions of the site and the surrounding area for 2019 which is the most recent year for which a full data set exists.

Background pollutant concentrations are spatially and temporally variable throughout the UK. Information on air quality within the UK is available from a variety of sources including local authorities, national network monitoring sites and other published sources. This assessment is based on local authority data from Ashford Borough Council, Dover District Council, Maidstone Borough Council and Defra background concentrations.

No AQMAs have been declared by Ashford Borough Council. However, there are expected to be increases in HDVs flows on the A20 through the Dover District Council (DDC) 'A20 AQMA' and on the M20 through the 'Maidstone Borough AQMA' both declared for exceedances of the annual mean NO_2 air quality objective.

4.2 Local Authority monitoring

This section presents ambient air quality monitoring undertaken in areas adjacent to affected roads where the scheme is anticipated to increase HDV movements.

Table 4.1 presents the results from these monitoring sites. The location of the monitors is presented in Figure 4.1.

4.2.1 Automatic monitoring

4.2.1.1 Dover District Council

Dover district council undertook automatic monitoring of PM_{10} at the 'Dover Centre' site in 2019 located on the junction of the A20 and the A258. In 2019, the annual mean PM_{10} concentration recorded at the Dover Centre site was 22µg/m^3 which is well below the relevant air quality objective of 40µg/m^3.

There is no automatic monitoring of NO_2 in close proximity to the site or affected roads.

4.2.2 Diffusion tube monitoring (NO_2)

4.2.2.1 Ashford Borough Council

Ashford Borough Council undertook NO_2 diffusion tube monitoring at six representative diffusion tube sites and their respective concentrations are all below the annual mean objective in 2017 – 2019.

4.2.2.2 Maidstone Borough Council

Maidstone Borough Council undertook NO_2 diffusion tube monitoring at two representative diffusion tube sites, known as Maid63 and Maid75, and their respective concentrations are all below the annual mean objective in 2017 – 2019.

4.2.2.3 Dover District Council

Dover District Council undertook NO_2 diffusion tube monitoring at five representative diffusion tube sites in 2017-2019. Apart from monitors DV23 and DV32 which recorded exceedances of the annual mean objective in 2017, the monitored concentrations are all below the annual mean objective in 2017 – 2019.

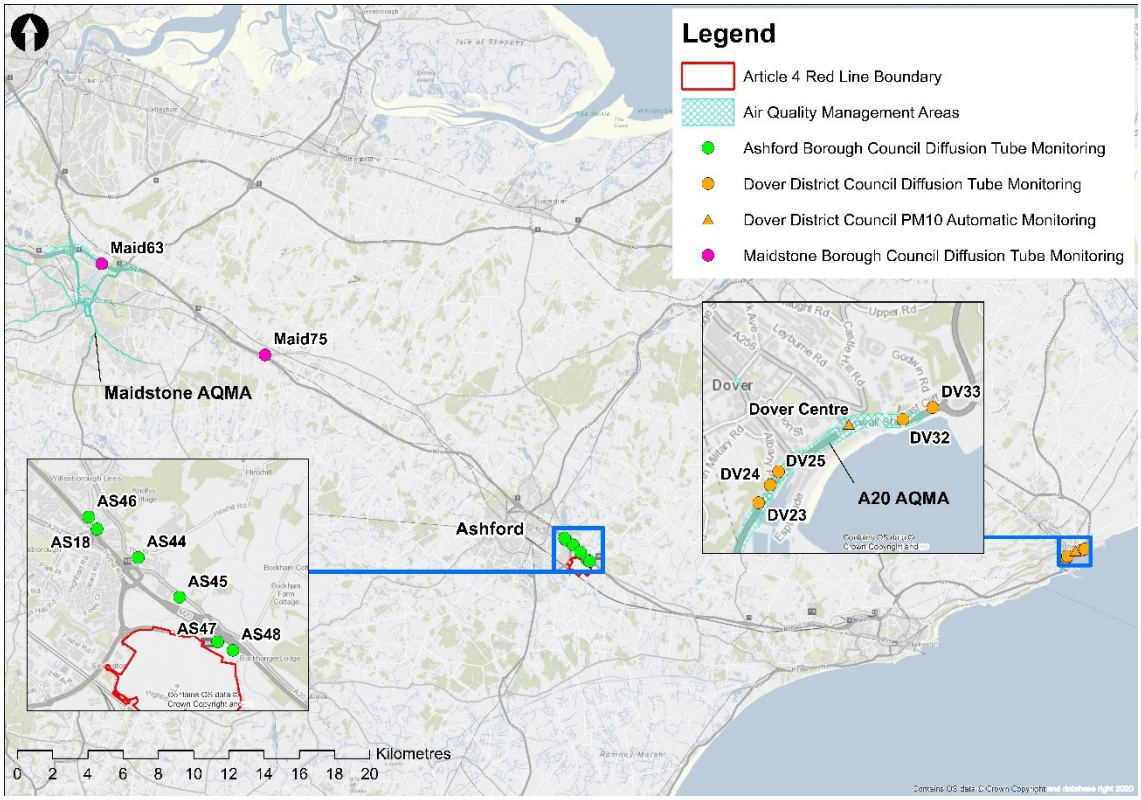
Table 4.1: Diffusion tube monitoring data for NO_2

Site ID	Site classification	National Grid reference		Annual mean NO_2 concentration ($\mu g/m^3$)		
		X	Y	2017	2018	2019
AS18 (triplicate)	Other (Motorway)	603393	142073	27.9	26.3	23.8
AS44	Urban Background	603800	141792	24.1	19.7	18.9
AS45	Urban Background	604207	141400	25.6	20.3	19.4
AS46	Other (Motorway)	603311	142192	32	25.6	23.8
AS47	Other (Motorway)	604583	140961	-	14.4	14.0
AS48	Other (Motorway)	604733	140878	-	13.8	13.2
Maid63	Roadside	577037	157739	34.4	30.1	29.0
Maid75	Roadside	586308	152577	28.9	23.7	27.5
DV23	Roadside	631727	140966	38.0	34.3	31.2
DV24	Roadside	631802	141079	**42.8**	39.0	33.7
DV25	Roadside	631854	141164	35.4	32.6	29.3
DV32	Roadside	632646	141496	**40.1**	35.4	31.7
DV33	Roadside	632836	141572	37.2	37.6	35.9

Source: Kent Air and Local Authority Annual Status Reports (2020)[17]
Notes: All concentrations have been bias adjusted and annualised as necessary
Bold indicates exceedance of objective.

[17] http://www.kentair.org.uk

Figure 4.1: Local authority monitoring



Source: Mott MacDonald

4.2.3 Defra projected background concentrations

Defra provides estimates of background pollution concentrations for NO_x, NO_2, PM_{10} and $PM_{2.5}$ across the UK for each 1km grid square for every year from 2018 to 2030. Future year projections have been developed from the base year of the background maps, which is currently 2018. The maps include a breakdown of background concentrations by emission source, including road and industrial sources which have been calibrated against 2018 UK monitoring data.

Background concentrations for the 1km grid squares covering the modelled human health receptors and designated sites are presented in Appendix A for 2021. The data shows mapped background concentrations for all pollutants are below the relevant objectives.

4.3 EU limit values

Table 4.2 presents the highest predicted annual mean NO_2 concentration in 2021 for all PCM links within the air quality study area and the highest predicted annual mean NO_2 concentration in the 'South East' zone/agglomeration where the scheme and its affected road network is located.

Table 4.2: PCM links contained within the CRRN at risk of exceeding EU limit value in the opening year

Description	PCM link	Road	2021 NO_2 ($\mu g/m^3$)	PCM zone / agglomeration projected compliance year	Compliance zone / agglomeration name (ID)
Highest PCM link in Zone/Agglomeration	802048580	A3	49.8	2025	South East (UK0031)
Highest PCM link in air quality study area	802080735	A229	34.1	-	South East (UK0031)

4.4 Nitrogen deposition

Information on baseline levels of nitrogen deposition for designated sites is available from the Air Pollution Information System (APIS)[18].

The current maximum nitrogen deposition rates and critical loads[19] from APIS for the most sensitive habitat to nitrogen deposition at modelled ecological receptors are shown in Table 4.3: Table 4.3.

Table 4.3: Critical loads (CLO) range and background nitrogen deposition

Receptors ID	CLO class	CLO range (kg N/ha/yr)	Background nitrogen deposition (kg N/ha/yr)
1E	Asperulo-Fagetum beech forests	10-20	28.8
2E	Semi-natural dry grasslands and scrubland facies on calcareous substrates	15-25	17.4
3E	Broad-leaved, mixed and yew woodland (Coniferous woodland)	5-15	28.7
4E	Broad-leaved, mixed and yew woodland (Fagus woodland)	10-20	28.8
5E	Broad-leaved, mixed and yew woodland (Coniferous woodland)	5-15	28.7
6E	Broad-leaved, mixed and yew woodland (Fagus woodland)	10-20	28.7
7E	Acid grassland	8-15	14.4
8E	Broad-leaved, mixed and yew woodland (Acidophilous Quercus-dominated woodland)	10-15	30.2
9E	Calcareous grassland	15-25	15.3
10E	Calcareous grassland	15-25	15.3
11E	Broad-leaved, mixed and yew woodland	10-15	30.2
12E	Calcareous grassland	15-25	15.3

Source: www.apis.ac.uk

[18] http://www.apis.ac.uk/

[19] A critical load is a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge.

5 Air quality impacts

5.1 Overview

Impacts have been predicted at the human health and ecological receptors identified within Table 3.2 and Table 3.3. This assessment presents predicted changes between the Do-Minimum (without-scheme scenarios) and Do-Something (with-scheme scenarios). Therefore, impact descriptors relating to predicted changes in traffic flows refer to the changes when the scheme is operational. All model predictions are based on 2021 traffic, emissions and background data.

5.2 Human Health

Modelled results at human health receptors with the greatest increase in predicted concentrations (receptor 34H), the greatest total concentration (receptor 14H) and those located within AQMAs (receptors 3H, 4H and 14H) are presented in Table 5.1 for scenario 1 and Table 5.2 for scenario 2. All other modelled results at human health receptors are presented in Appendix A.

At all modelled human health receptors, resultant concentrations are either below the relevant air quality objective or the different in concentration is less than 1% of the relevant air quality objective. Therefore, in accordance with DMRB LA 105, there are no likely significant air quality effects for human health.

Considering the predicted impacts from the scheme for both scenarios, the concentrations predicted by the PCM model on roads within the affected road network, and the predicted date of compliance with the South East Zone, the scheme is unlikely to affect the UK's reported date of compliance with the Air Quality Directive.

Table 5.1: Scenario 1: Annual mean NO_2, PM_{10} and $PM_{2.5}$ predicted pollutant concentrations (µg/m^3)

	Annual mean NO_2 concentration (µg/m^3)			Annual mean PM_{10} concentration (µg/m^3)			Annual mean $PM_{2.5}$ concentration (µg/m^3)		
Receptor Number	DM	DS	Change	DM	DS	Change	DM	DS	Change
3H (A20 AQMA)	32.7	32.7	0.0	19.7	19.7	0.0	15.2	15.2	0.0
4H (A20 AQMA)	33.7	33.7	0.0	18.5	18.4	-0.1	14.1	14.0	-0.1
14H (Maidstone AQMA)	39.5	39.6	0.1	20.4	20.5	0.1	14.9	14.9	0.0
34H	13.1	17.5	4.4	16.4	17.0	0.6	10.0	10.6	0.6

Note: DM = Do-Minimum, DS = Do-Something.
Changes in concentration rounded to 0.0 as actual change is less than 0.05
Changes in $PM_{2.5}$ greater than PM_{10} are attributed to rounding of background concentrations

Table 5.2: Scenario 2: Annual mean NO_2, PM_{10} and $PM_{2.5}$ predicted pollutant concentrations (µg/m^3)

	Annual mean NO_2 concentration (µg/m^3)			Annual mean PM_{10} concentration (µg/m^3)			Annual mean $PM_{2.5}$ concentration (µg/m^3)		
Receptor Number	DM	DS	Change	DM	DS	Change	DM	DS	Change
3H (A20 AQMA)	32.4	33.6	1.2	19.6	19.9	0.3	15.0	15.4	0.4
4H (A20 AQMA)	31.9	33.3	1.4	17.9	18.3	0.4	13.4	13.8	0.4
14H (Maidstone AQMA)	39.9	40.0	0.1	20.3	20.4	0.1	14.8	14.9	0.1
34H	13.3	16.3	3.0	16.4	16.9	0.5	10.0	10.5	0.5

Note: DM = Do-Minimum, DS = Do-Something.
Changes in concentration rounded to 0.0 as actual change is less than 0.05
Changes in $PM_{2.5}$ greater than PM_{10} are attributed to rounding of background concentrations

5.3 Ecological Receptors

5.3.1 Critical levels

Modelled results at statutory ecological receptors are presented in Table 5.3 for scenario 1 and Table 5.4 for scenario 2 for assessment against the NOx critical level (CLE) of 30µg/m3.

In scenario 1, the results indicate that the scheme is not predicted to cause any new exceedances of the critical level at any of the modelled ecological transects. The change in predicted annual mean NOx concentrations as a percentage of CLE ranges from -3% to 1%.

In scenario 2, the results indicate that the scheme is not predicted to cause any new exceedances of the critical level at any of the modelled ecological transects. The change in predicted annual mean NOx concentrations as a percentage of CLE ranges from 0% to 11%.

In accordance with DMRB LA 105, the significance of impacts at ecological designations is assessed against changes in CLO and is presented in the section below.

5.3.2 Critical loads

Modelled results at statutory ecological receptors are presented in Table 5.5 for scenario 1 and Table 5.6 for scenario 2 for assessment against the nitrogen deposition CLO.

At all modelled ecological receptors, total nitrogen deposition is predicted to be above the minimum CLO in both the Do-Minimum and Do-Something scenarios at the location closest to the ARN. There are no predicted increases in nitrogen deposition greater than 1% of the minimum nitrogen deposition CLO applied to the habitat.

On this basis, and in accordance with the approach set out in Section 3.5.2 air quality effects at all modelled ecological receptors are not significant.

Table 5.3: Scenario 1: Modelled NO_x CLE main results

Receptor	Designation	NOx concentration (µg/m³)				Change as % of CLE	Total DS as % of CLE	Total DM exceedance of CLE?	Total DS exceedance of CLE?
		BG[a]	Total DM NO_x [b]	Total DS NO_x [c]	Change NO_x [d]				
1E	SAC	19.7	26.9	26.9	0.0	0.0	90	No	No
2E	SAC	17.0	**45.3**	**44.6**	-0.7	-2.3	149	Yes	Yes
3E	SSSI	25.0	**55.7**	**56.0**	0.3	1.0	187	Yes	Yes
4E	SSSI	19.7	26.9	26.9	0.0	0.0	90	No	No
5E	SSSI	20.9	**62.2**	**62.4**	0.2	0.7	208	Yes	Yes
6E	SSSI	18.2	**31.1**	**31.2**	0.1	0.3	104	Yes	Yes
7E	SSSI	14.7	15.2	15.2	0.0	0.0	51	No	No
8E	SSSI	15.0	25.4	25.8	0.4	1.3	86	No	No
9E	SSSI	12.7	**56.3**	**56.4**	0.1	0.3	188	Yes	Yes
10E	SSSI	17.0	**57.3**	**56.3**	-1.0	-3.3	188	Yes	Yes
11E	LNR	21.7	**40.6**	**41.0**	0.4	1.3	137	Yes	Yes
12E	LNR	12.7	**31.3**	**30.8**	-0.5	-1.7	103	Yes	Yes

Notes: (a) BG: Background concentrations from Defra background maps
(b) Total DM: Do-Minimum scenario contribution added to background.
(c) Total DS: Do-Something scenario contribution added to background
(d) CLE: Critical level for NOx (30µg/m³)
Bold shows exceedance of CLE

Table 5.4: Scenario 2: Modelled NO_x CLE main results

Receptor	Designation	NOx concentration (µg/m³)				Change as % of CLE	Total DS as % of CLE	Total DM exceedance of CLE?	Total DS exceedance of CLE?
		BG[a]	Total DM NO_x [b]	Total DS NO_x [c]	Change NO_x [d]				
1E	SAC	19.7	26.6	26.7	0.1	0.3	89	No	No
2E	SAC	17.0	**46.6**	**48.1**	1.5	5.0	160	Yes	Yes
3E	SSSI	25.0	**54.8**	**55.1**	0.3	1.0	184	Yes	Yes
4E	SSSI	19.7	26.6	26.7	0.1	0.3	89	No	No
5E	SSSI	20.9	**60.2**	**60.6**	0.4	1.3	202	Yes	Yes
6E	SSSI	18.2	**30.7**	**30.8**	0.1	0.3	103	Yes	Yes
7E	SSSI	14.7	15.2	15.3	0.1	0.3	51	No	No
8E	SSSI	15.0	26.0	26.5	0.5	1.7	88	No	No
9E	SSSI	12.7	**58.8**	**60.7**	1.9	6.3	202	Yes	Yes
10E	SSSI	17.0	**57.4**	**60.7**	3.3	11.0	202	Yes	Yes
11E	LNR	21.7	**42.3**	**42.7**	0.4	1.3	142	Yes	Yes
12E	LNR	12.7	**31.5**	**32.9**	1.4	4.7	110	Yes	Yes

Notes: (a) BG: Background concentrations from Defra background maps
(b) Total DM: Do-Minimum scenario contribution added to background.
(c) Total DS: Do-Something scenario contribution added to background
(d) CLE: Critical level for NOx (30µg/m³)
Bold shows exceedance of CLE

Table 5.5: Scenario 1: Modelled nitrogen deposition CLO results

Receptor	BG N-dep (kg/ha/yr)	Nitrogen deposition (kg/ha/yr)		Change N-dep	CLO (Min-Max)	Change as % of minimum CL	Total DS exceedance of minimum CLO?	Existing BG exceedance of minimum CLO?	Change as % of minimum CLO greater than 1%[c]	Significance
		Total DM[a]	Total DS [b]							
1E	28.8	29.97	29.98	0.01	10-20	0	Yes	Yes	No	Not significant
2E	17.4	19.43	19.38	-0.05	15-25	0	Yes	Yes	No	Not significant
3E	28.7	33.21	33.25	0.04	5-15	1	Yes	Yes	No	Not significant
4E	28.8	29.97	29.98	0.01	5-15	0	Yes	Yes	No	Not significant
5E	28.7	34.69	34.72	0.03	5-15	1	Yes	Yes	No	Not significant
6E	28.7	30.71	30.72	0.01	5-15	0	Yes	Yes	No	Not significant
7E	14.4	14.46	14.46	0.00	8-15	0	Yes	Yes	No	Not significant
8E	30.2	31.88	31.94	0.06	10-15	1	Yes	Yes	No	Not significant
9E	15.3	18.36	18.37	0.01	15-25	0	Yes	Yes	No	Not significant
10E	15.3	18.11	18.05	-0.06	15-25	0	Yes	Yes	No	Not significant
11E	30.2	33.10	33.16	0.06	10-15	1	Yes	Yes	No	Not significant
12E	15.3	16.65	16.62	-0.03	15-25	0	Yes	Yes	No	Not significant

Notes: Values have been expressed to greater than 1 decimal place to show changes and are not an indication of model accuracy.
Arithmetic errors may occur in the table and are a result of rounding.
(a) Total DM: Do-Minimum scenario contribution added to background.
(b) Total DS: Do-Something scenario contribution added to background.
(c) Rounded to the nearest whole percent. Values rounded to 1% are considered 'not significant'

Table 5.6: Scenario 2: Modelled nitrogen deposition CLO results

Receptor	BG N-dep (kg/ha/yr)	Nitrogen deposition (kg/ha/yr)		Change N-dep	CLO (Min-Max)	Change as % of minimum CL	Total DS exceedance of minimum CLO?	Existing BG exceedance of minimum CLO?	Change as % of minimum CLO greater than 1%[c]	Significance
		Total DM[a]	Total DS [b]							
1E	28.8	29.93	29.95	0.02	10-20	0	Yes	Yes	No	Not significant
2E	17.4	19.52	19.61	0.09	15-25	1	Yes	Yes	No	Not significant
3E	28.7	33.09	33.12	0.03	5-15	1	Yes	Yes	No	Not significant
4E	28.8	29.93	29.95	0.02	5-15	0	Yes	Yes	No	Not significant
5E	28.7	34.42	34.47	0.05	5-15	1	Yes	Yes	No	Not significant
6E	28.7	30.64	30.66	0.02	5-15	0	Yes	Yes	No	Not significant
7E	14.4	14.46	14.46	0.00	8-15	0	Yes	Yes	No	Not significant
8E	30.2	31.98	32.05	0.07	10-15	1	Yes	Yes	No	Not significant
9E	15.3	18.52	18.64	0.12	15-25	1	Yes	Yes	No	Not significant
10E	15.3	18.12	18.33	0.21	15-25	1	Yes	Yes	No	Not significant
11E	30.2	33.35	33.40	0.05	10-15	0	Yes	Yes	No	Not significant
12E	15.3	16.67	16.77	0.10	15-25	1	Yes	Yes	No	Not significant

Notes: Values have been expressed to greater than 1 decimal place to show changes and are not an indication of model accuracy.
Arithmetic errors may occur in the table and are a result of rounding.
(a) Total DM: Do-Minimum scenario contribution added to background.
(b) Total DS: Do-Something scenario contribution added to background.
(c) Rounded to the nearest whole percent. Values rounded to 1% are considered 'not significant'

6 Conclusion

Considering the results presented in this assessment, which are based on a conservative worst case approach assuming the maximum operating capacity, and the temporary nature of the scheme, the operation of the scheme is unlikely to cause a significant air quality effect in accordance with DMRB LA 105. This is because:

- At all modelled human health receptors, resultant concentrations are either below the relevant air quality objective or the difference in concentration is less than 1% of the relevant air quality objective.
- There are no predicted increases in nitrogen deposition greater than 1% of the minimum nitrogen deposition CLO applied to the habitat.
- The scheme is unlikely to affect the reported date of compliance with the Air Quality Directive within the South East Zone.

The scheme does not contravene any international, national or local policy related to air quality.

A. Data tables

This appendix presents data tables referred to in the main report.

Table A.1: Defra projected background concentrations of NO_X, NO_2 and PM_{10} and $PM_{2.5}$ for modelled human health receptors

Receptor ID	1km grid square location (OS grid reference)		2021			
	X	Y	NO_x	NO_2	PM_{10}	$PM_{2.5}$
1H	619500	137500	16.0	12.1	15.4	9.9
2H	609500	138500	12.4	9.5	14.6	9.1
3H	631500	141500	16.8	12.5	14.2	9.7
4H, 5H	632500	141500	18.1	13.3	13.5	9.0
6H	601500	143500	21.7	15.7	16.9	10.9
7H	599500	145500	15.3	11.5	15.9	10.0
8H	590500	149500	14.4	10.9	15.8	9.8
9H	587500	151500	17.0	12.7	16.4	10.3
10H, 12H	585500	152500	16.4	12.3	16.3	10.2
11H	586500	152500	17.8	13.3	16.4	10.5
13H	576500	157500	21.5	15.6	16.7	11.2
14H	575500	159500	23.0	16.6	16.6	10.7
15H	575500	162500	22.5	16.3	16.9	11.4
16H	574500	162500	25.0	17.9	17.0	11.2
17H	574500	162500	25.0	17.9	17.0	11.2
18H	604500	141500	15.9	11.9	16.5	10.1
19H, 20H, 22H, 25H, 29H	603500	141500	19.7	14.5	16.9	11.0
21H, 24H, 26H, 27H, 28H, 30H, 31H	603500	142500	16.1	12.1	16.3	10.4
23H, 26H, 27H, 28H, 32H	603500	140500	14.9	11.3	15.6	9.6
33H, 34H	604500	140500	13.3	10.2	15.9	9.6
35H, 36H	605500	140500	15.0	11.3	16.5	10.0
1H	619500	137500	16.0	12.1	15.4	9.9

Source: https://uk-air.defra.gov.uk/data/laqm-background-maps

Table A.2: Defra projected background concentrations of NO_X and NO_2 for modelled ecological receptors

Receptor ID	1km grid square location (OS grid reference)		2021	
	X	Y	NO_X	NO_2
1E, 4E	575500	160500	19.7	14.4
2E	621500	137500	17.0	12.7
3E	574500	162500	25.0	17.9
5E	574500	161500	20.9	15.2
6E	574500	160500	18.2	13.4
7E	617500	137500	14.7	11.2
8E	605500	140500	15.0	11.3
9E, 12E	630500	139500	12.7	9.7
10E	631500	140500	17.0	12.6
11E	601500	143500	21.7	15.7

Table A.3: Scenario 1: Annual mean NO_2, PM_{10} and $PM_{2.5}$ predicted pollutant concentrations (µg/m^3)

Receptor Number	Annual mean NO_2 concentration (µg/m^3)			Annual mean PM_{10} concentration (µg/m^3)			Annual mean $PM_{2.5}$ concentration (µg/m^3)		
	DM	DS	Change	DM	DS	Change	DM	DS	Change
1H	18.1	18.1	0.0	16.1	16.1	0.0	10.6	10.6	0.0
2H	18.3	18.1	-0.2	15.9	15.9	0.0	10.4	10.4	0.0
3H	32.7	32.7	0.0	19.8	19.8	0.0	15.3	15.3	0.0
4H	33.7	33.7	0.0	18.6	18.5	-0.1	14.1	14.0	-0.1
5H	35.3	34.8	-0.5	17.8	17.7	-0.1	13.3	13.2	-0.1
6H	23.9	24.0	0.1	18.1	18.1	0.0	12.1	12.2	0.1
7H	16.7	16.7	0.0	16.9	16.9	0.0	11.0	11.0	0.0
8H	15.0	15.1	0.1	16.5	16.5	0.0	10.5	10.6	0.1
9H	17.9	18.0	0.1	17.4	17.5	0.1	11.4	11.4	0.0
10H	17.3	17.4	0.1	17.2	17.2	0.0	11.1	11.1	0.0
11H	22.6	22.6	0.0	18.1	18.2	0.1	12.2	12.2	0.0
12H	17.7	17.8	0.1	17.2	17.3	0.1	11.2	11.2	0.0
13H	39.5	39.6	0.1	20.4	20.5	0.1	14.9	14.9	0.0
14H	33.6	33.7	0.1	19.6	19.7	0.1	13.7	13.8	0.1
15H	30.2	30.2	0.0	18.6	18.6	0.0	13.1	13.1	0.0
16H	30.3	30.6	0.3	18.8	18.9	0.1	13.1	13.1	0.0
17H	38.8	39.0	0.2	20.1	20.1	0.0	14.3	14.3	0.0
18H	16.6	19.1	2.5	17.3	17.6	0.3	10.8	11.2	0.4
19H	22.1	22.4	0.3	18.2	18.3	0.1	12.3	12.3	0.0
20H	23.0	23.3	0.3	18.3	18.4	0.1	12.4	12.5	0.1
21H	25.3	25.6	0.3	18.3	18.4	0.1	12.4	12.5	0.1
22H	17.4	18.1	0.7	17.5	17.6	0.1	11.6	11.7	0.1
23H	12.1	13.2	1.1	15.7	15.9	0.2	9.7	9.9	0.2
24H	17.6	17.8	0.2	17.1	17.1	0.0	11.2	11.3	0.1
25H	20.6	20.9	0.3	18.0	18.1	0.1	12.1	12.2	0.1
26H	12.0	13.1	1.1	15.7	15.9	0.2	9.7	9.9	0.2

Receptor Number	Annual mean NO_2 concentration ($\mu g/m^3$)			Annual mean PM_{10} concentration ($\mu g/m^3$)			Annual mean $PM_{2.5}$ concentration ($\mu g/m^3$)		
	DM	DS	Change	DM	DS	Change	DM	DS	Change
27H	11.8	13.5	1.7	15.7	15.9	0.2	9.7	9.9	0.2
28H	13.9	15.2	1.3	16.1	16.3	0.2	10.1	10.3	0.2
29H	17.2	17.8	0.6	17.5	17.6	0.1	11.5	11.6	0.1
30H	20.3	20.6	0.3	17.4	17.5	0.1	11.6	11.6	0.0
31H	27.8	28.1	0.3	18.7	18.8	0.1	12.8	12.9	0.1
32H	11.7	13.0	1.3	15.6	15.8	0.2	9.6	9.9	0.3
33H	13.1	17.5	4.4	16.4	17.0	0.6	10.0	10.6	0.6
34H	13.8	15.9	2.1	16.5	16.7	0.2	10.1	10.4	0.3
35H	15.3	15.6	0.3	17.2	17.2	0.0	10.6	10.7	0.1
36H	19.4	19.4	0.0	18.0	18.0	0.0	11.5	11.5	0.0

Note: DM = Do-Minimum, DS = Do-Something.
Changes in concentration rounded to 0.0 as actual change is less than 0.05

Table A.4: Scenario 2: Annual mean NO_2, PM_{10} and $PM_{2.5}$ predicted pollutant concentrations ($\mu g/m^3$)

Receptor Number	Annual mean NO_2 concentration ($\mu g/m^3$)			Annual mean PM_{10} concentration ($\mu g/m^3$)			Annual mean $PM_{2.5}$ concentration ($\mu g/m^3$)		
	DM	DS	Change	DM	DS	Change	DM	DS	Change
1H	18.5	18.6	0.1	16.1	16.2	0.1	10.6	10.6	0.0
2H	19.0	19.1	0.1	15.9	16.0	0.1	10.4	10.5	0.1
3H	32.4	33.6	1.2	19.6	20.0	0.4	15.1	15.5	0.4
4H	31.9	33.3	1.4	17.9	18.3	0.4	13.5	13.9	0.4
5H	34.1	35.4	1.3	17.5	17.8	0.3	13.1	13.4	0.3
6H	24.6	24.7	0.1	18.1	18.1	0.0	12.2	12.2	0.0
7H	20.1	20.3	0.2	17.1	17.1	0.0	11.2	11.2	0.0
8H	16.8	16.8	0.0	16.6	16.6	0.0	10.6	10.6	0.0
9H	21.4	21.5	0.1	17.6	17.7	0.1	11.6	11.6	0.0
10H	18.8	18.8	0.0	17.2	17.2	0.0	11.1	11.1	0.0
11H	23.6	23.7	0.1	18.0	18.0	0.0	12.0	12.1	0.1

Receptor Number	Annual mean NO_2 concentration ($\mu g/m^3$)			Annual mean PM_{10} concentration ($\mu g/m^3$)			Annual mean $PM_{2.5}$ concentration ($\mu g/m^3$)		
	DM	DS	Change	DM	DS	Change	DM	DS	Change
12H	19.4	19.4	0.0	17.3	17.3	0.0	11.2	11.2	0.0
13H	39.9	40.0	0.1	20.3	20.4	0.1	14.8	14.9	0.1
14H	32.9	33.0	0.1	19.5	19.5	0.0	13.5	13.6	0.1
15H	30.0	30.0	0.0	18.6	18.6	0.0	13.1	13.1	0.0
16H	30.0	30.2	0.2	18.7	18.8	0.1	13.0	13.0	0.0
17H	38.5	38.6	0.1	20.0	20.0	0.0	14.2	14.2	0.0
18H	17.0	18.9	1.9	17.3	17.5	0.2	10.8	11.1	0.3
19H	22.7	23.0	0.3	18.2	18.3	0.1	12.3	12.4	0.1
20H	23.8	24.1	0.3	18.4	18.4	0.0	12.4	12.5	0.1
21H	26.5	26.8	0.3	18.3	18.4	0.1	12.5	12.6	0.1
22H	17.5	18.1	0.6	17.5	17.6	0.1	11.6	11.7	0.1
23H	12.1	13.0	0.9	15.7	15.9	0.2	9.7	9.9	0.2
24H	18.1	18.3	0.2	17.1	17.1	0.0	11.2	11.3	0.1
25H	21.1	21.3	0.2	18.1	18.1	0.0	12.2	12.2	0.0
26H	12.0	12.9	0.9	15.7	15.8	0.1	9.7	9.9	0.2
27H	11.9	13.2	1.3	15.7	15.9	0.2	9.7	9.9	0.2
28H	14.1	15.1	1.0	16.1	16.3	0.2	10.1	10.3	0.2
29H	17.3	17.9	0.6	17.5	17.6	0.1	11.6	11.6	0.0
30H	21.0	21.2	0.2	17.5	17.5	0.0	11.6	11.7	0.1
31H	29.2	29.6	0.4	18.7	18.9	0.2	12.9	13.0	0.1
32H	11.7	12.7	1.0	15.6	15.8	0.2	9.6	9.8	0.2
33H	13.3	16.3	3.0	16.4	16.9	0.5	10.0	10.5	0.5
34H	14.1	15.6	1.5	16.5	16.7	0.2	10.1	10.3	0.2
35H	15.6	15.8	0.2	17.2	17.2	0.0	10.6	10.7	0.1
36H	19.9	20.0	0.1	18.0	18.0	0.0	11.5	11.5	0.0

Note: DM = Do-Minimum, DS = Do-Something.
Changes in concentration rounded to 0.0 as actual change is less than 0.05

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Sevington Inland Border Facility

Cultural Heritage Assessment

06 November 2020

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