



# **West Winch Housing Access Road**

## **Environmental Statement - Chapter 17: Cumulative Effects**

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## Glossary of Abbreviations and Defined Terms

**Effect Interaction** - The interaction or combination of environmental effects of the Proposed Scheme on a common receptor group and/or specific named receptor(s), for example, cumulative noise, ecology and visual effects on a common receptor group or one particular receptor.

**In-Combination Effect** - The combined effects of a number of different projects in the vicinity of the Proposed Scheme (in combination with the Proposed Scheme) on a common sensitive receptor category (similar topics as covered in the Technical Chapters) and/or a single receptor/resource.



# 1 Cumulative Effects

## 1.1 Introduction

1.1.1 The Cumulative Effects Assessment (CEA) chapter assesses the potential for significant cumulative construction and operation phase environmental effects as a result of the Proposed Scheme.

1.1.2 Cumulative effects are defined by Design Manual for Roads and Bridges (DMRB) LA 104 (**Ref 17.1**) guidance as “Impacts that result from incremental changes caused by other present or reasonably foreseeable actions together with the project”.

1.1.3 To accord with the EIA Regulations 2017 and best practice guidance, the following types of cumulative effects have been considered within the ES:

- **Effect Interactions:** The interaction or combination of environmental effects of the Proposed Scheme on a common receptor group and/or specific named receptor(s), for example, cumulative noise, ecology and visual effects on a common receptor group or one particular receptor; and
- **In-Combination Effects:** The combined effects of a number of different projects in the vicinity of the Proposed Scheme (in combination with the Proposed Scheme) on a common sensitive receptor category (similar topics as covered in the Technical Chapters) and/or a single receptor/resource.

1.1.4 Understanding the interaction of multiple development types across large temporal and spatial scales is important for predicting how future developments may impact populations, communities, the economy and biodiversity. Most development activities would typically have minor impacts individually, but collectively over time their impact on the environment may be more substantial.



## 1.2 Scope and Methodology for Assessment

- 1.2.1 This section should be read in conjunction with the cumulative effects section of **Chapter 5: Approach to EIA**.
- 1.2.2 At present, there is no widely accepted methodology or best practice for the assessment of cumulative effects although there are a number of guidance documents available including the National Infrastructure Planning Advice Note 17 (**Ref 17.2**), and guidance from the Institute of Environmental Management and Assessment (IEMA) (**Ref 17.3**) which have been utilised to inform this assessment.
- 1.2.3 Part 1, Regulation 4 subparagraph (2)(e) of the EIA Regulations 2017 (**Ref 17.4**) refers to the need to assess 'the interaction between factors referred to in sub-paragraphs (a) to (d)' which includes: population and human health, biodiversity (with particular attention to species and habitats protected under any law that implemented Directive 92/43/EEC and Directive 2009/147/EC), land, soil, water, air and climate, material assets, cultural heritage and the landscape.
- 1.2.4 Schedule 4, Paragraph 5(e) of the EIA Regulations 2017 (**Ref 17.4**) states that an ES should include a description of the likely significant effects of the development (in this case the Proposed Scheme) on the environment resulting from 'the cumulation of effects with other existing and / or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources'.

### Effect Interactions

- 1.2.5 The approach to the assessment of interactions of environmental effect (effect interactions) considers the changes in baseline conditions at common sensitive receptors (i.e. those receptors that have been identified as experiencing likely residual effects by more than one technical topic) due to the Proposed Scheme. The assessment is based upon residual effects only (considered to be effects of minor adverse or greater significance i.e.



excluding negligible effects). The study area for the assessment is informed by the study areas for the individual topic assessments as set out in technical **chapters 6 to 16**.

1.2.6 The assessment of effect interactions has been undertaken in the following steps:

1.2.7 **Step A:** Identification of receptors or resources considered in more than one technical chapter, and therefore having the potential to be affected by more than one environmental factor; and

1.2.8 **Step B:** For receptors or resources identified in Step A, the significance of the residual effect from each relevant technical chapter was identified.

Consideration was then given to whether there would be a cumulative effect between the individual effects and if so whether the cumulative effect would be of the same or greater significance of the component effects.

#### **In-Combination Effects**

1.2.9 The approach to the assessment of in-combination effects considers the deviation from the baseline conditions at common sensitive receptors as a result of changes brought about as a result of the Proposed Scheme in combination with one or more other committed developments.

1.2.10 A search of committed developments (as defined by the criteria below) was performed through a review of the Norfolk County Council (NCC) Planning Register (**Ref. 17.5**) as well as with consultation from NCC on these committed developments. As part of this search, the committed developments identified were reviewed against the following criteria. The criteria are based on professional judgement relating to whether they are likely to cause significant effects due to their location or other characteristics (such as size or operational activities). Where a committed development met all of the following criteria, it was taken forward for further consideration.

1.2.11 For the purposes of this assessment, committed development is defined as those developments meeting one or more of the following criteria:



- Is subject to a planning application;
- Is subject to an Environmental Impact Assessment;
- Has been, or is currently being consulted upon;
- Has planning permission;
- Has a concurrent construction and/or operational phase; and
- The committed development is within a relevant geographical boundary (2km from the site boundary) with common sensitive receptors;
- Is a residential development that comprises 40+ dwellings; and
- Is an employment, industrial and/or commercial development that comprise a minimum of 1000m<sup>2</sup> of commercial space.

1.2.12 The identified committed developments that have been considered within the in-combination assessment are shown below within **Table 1-1**.

1.2.13 The assessment of in-combination effects will also consider the Housing Allocation as part of the BCKLWN Emerging Local Plan at West Winch, however this is not included within the table of committed developments.

1.2.14 The consideration of in-combination effects has been approached on a topic by topic basis, dependent upon the availability of relevant information. Where environmental information is not presented within the available documents relating to the committed development, a high-level appraisal using publicly available sources has been undertaken to supplement the available information to enable a qualitative assessment of in-combination effects. If insufficient information is available in the public domain, this is clearly outlined.



**Table 1-1 - Summary of Committed Development**

<b>Reference Number</b>	<b>Description</b>	<b>Address</b>	<b>Approximate Distance from the Proposed Scheme</b>	<b>Status</b>
<b>23/00269/F</b>	Proposed product display area and factory retail outlet	LeisureGrow Products Ltd (Old Gardam Site) Clenchwarton Road West Lynn King's Lynn Norfolk	2km north west	Application permitted (Tue 23 May 2023)
<b>20/01957/FM</b>	Construction of 78 affordable dwellings and associated access, infrastructure and landscaping	Land E of Losinga Road W of Waterside And N of Salters Road King's Lynn Norfolk	3km north	Application Permitted (Thu 02 Sep 2021)

Reference Number	Description	Address	Approximate Distance from the Proposed Scheme	Status
<b>17/01151/OM</b>	Outline Major Application: Sustainable mixed-use urban extension comprising: up to 450 dwellings, a mixed use local centre comprising Class A uses (including retail facilities and public house) and Class D1 (such as creche/day centre/community centre) and B1 uses (such as offices), open space and landscaping, wildlife area, childrens play areas, sustainable urban drainage infrastructure, access and link road and associated infrastructure	Land NW of South Wootton School Off Edward Benefer Way King's Lynn Norfolk	3.9km north	Application Permitted (Mon 15 Apr 2019)
<b>23/00195/F</b>	Retrospective: Warehouse extension associated with the existing building to the Southern side of the site	Coolstak Lynn Road West Winch King's Lynn Norfolk PE33 0PD	Adjacent to the south boundary	Application permitted (Thu 27 Jul 2023)

<b>Reference Number</b>	<b>Description</b>	<b>Address</b>	<b>Approximate Distance from the Proposed Scheme</b>	<b>Status</b>
<b>21/01873/FM</b>	Construction of 226 new homes and associated green space, landscaping and ancillary infrastructure	Land SE of 60 Queen Mary Road N of Railway Line And S of Parkway Gaywood King's Lynn Norfolk	1.4km north	Application permitted (Wed 30 Mar 2022)
<b>14/01690/OM</b>	Construction of up to 81 dwellings with access road	Land South of Russett Close King's Lynn Norfolk	3.3km north	Application permitted (Thu 26 Mar 2015)



Reference Number	Description	Address	Approximate Distance from the Proposed Scheme	Status
14/01114/OM	Outline Application: mixed use development comprising business / industrial / storage and distribution floorspace (Class B1 / B2 / B8), DIY superstore and garden centre (Class A1), limited assortment of discount supermarket (Class A1), Drive-Thru Restaurant (Class A3 / A5), Family Public House (Class A4), Hotel (Class C1), Car Showroom (Sui Generis) and associated access, car parking, road infrastructure, servicing and associated works.	Morston Point Hardwick Industrial Estate King's Lynn Norfolk	800m north	Application Permitted (Fri 06 Nov 2015)

<b>Reference Number</b>	<b>Description</b>	<b>Address</b>	<b>Approximate Distance from the Proposed Scheme</b>	<b>Status</b>
<b>16/02231/OM</b>	Residential development of the land to provide up to 600 dwellings, incorporating affordable housing, together with a local centre for uses A1, A2, A3 and/or A5 (600m <sup>2</sup> ) with the total quantum of A1 net sales area not to exceed 279m <sup>2</sup> in the alternative, D2 community floorspace (up to 500m <sup>2</sup> ), open space, formal sport pitches, a car park to serve Reffley Wood and associated development to include substations, drainage features, roads, cycle and pedestrian paths and other such works.	Land West of Knights Hill Village Grimston Road South Wootton Norfolk	4.7km north east	Application Permitted (Appeal Allowed) – 14th July 2020
<b>17/01106/OM</b>	Residential development for up to 125 dwellings together with associated works.	Land on the West Side of Nursery Lane South Wootton Norfolk	4.6km north	Application Permitted 3rd April 2019



## Determining Significant Effects

1.2.15 There is no formal guidance on the criteria for determining significance of cumulative effects. The following principles have been considered when assessing the significance of cumulative effects in relation to both effect interactions and in-combination effects:

- The nature of the receptors/resources affected;
- How the impacts identified combine to affect the condition of the receptor/resource;
- The probabilities of the impacts occurring in relation to each other in such a way so as to produce a cumulative effect; and
- The ability of the receptor/resource to absorb further effects.

1.2.16 The determination of significance for the purposes of this assessment is therefore made on a receptor basis (as set out in paragraph 18.1.5), taking account of the assessments in technical **Chapters 6 to 16**, available environmental information, industry best practice (**Ref 17.2**) (**Ref 17.3**), professional judgement and experience. Levels of significance were made in accordance with the definitions set out in **Chapter 5: Approach to EIA**. Following DMRB LA 104 (**Ref 17.1**), for a cumulative effect to be significant (moderate or large) the effect must be determined to increase the magnitude of overall effect beyond that of the Proposed Scheme in isolation or environmental topic receptor with the largest residual effect.

## 1.3 Assessment of Effects Interaction

### Step A

1.3.1 The **Step A** assessment identified receptors and resources which could be affected by more than one environmental topic, and therefore more than one residual effect. These receptors and resources are referred to as 'Common Receptors'.



- 1.3.2 The review of technical chapters identified a set of common receptors. These common receptors are listed below in **Table 1-2, Table 1-3 and Table 1-4** which also identify the residual effects on each common receptor identified in the technical chapters. Common receptors that are adversely affected by two or more residual effects (minor adverse and above), have been identified with the potential for a residual effect interaction as a result of the construction and/or operation of the Proposed Scheme.
- 1.3.3 The climate resilience section of **Chapter 14: Greenhouse Gases** within **Appendix 14.1** addresses the resilience to climate change of the Proposed Scheme as opposed to effects of the Proposed Scheme on the environment, it is therefore unlikely that the effects will interact with other disciplines. For this reason, Climate has not been considered further in the effect interactions assessment.

**Table 1-2 - Common Receptors**

Common Receptor	Environmental Factors
Local population, including residents of North Runcton and West Winch, and construction workers, existing and future residential properties.	Noise and Vibration (construction and operation)  Landscape and Visual (construction and operation)  Population and Human Health (construction and operation)
Users of existing roads.	Noise and Vibration (construction and operation)  Landscape and Visual (construction and operation)  Population and Human Health (construction and operation)



<b>Common Receptor</b>	<b>Environmental Factors</b>
Users of active travel routes (pedestrian and cycle routes).	<p>Noise and Vibration (construction and operation)</p> <p>Landscape and Visual (construction and operation)</p> <p>Population and Human Health (construction and operation)</p>
Economic receptors (at local level), community receptors.	<p>Noise and Vibration (construction and operation)</p> <p>Landscape and Visual (construction and operation)</p> <p>Population and Human Health (construction and operation)</p>
Ecological receptors, including the Wash Ramsar, Special Area of Conservation (SAC), Special Protection Area (SPA), and Site of Special Scientific Interest (SSSI), River Nar SSSI, Sheep's Course County Wildlife Site (CWS), Pierpoint Drain (aquatic receptors), River Nar (Aquatic Receptors), Hedgerows, Mature Trees, Bats, Badgers, Birds, Amphibians, Water Voles and Otters	<p>Ecology (construction and operation)</p> <p>Landscape and Visual (construction and operation)</p>
River Nar, Unnamed field drains, the Country Drain, and Middleton Stop Drain, Third Party Flood Risk, Proposed Scheme.	<p>Landscape and Visual (construction and operation)</p> <p>Water Resources, Flood Risk and Drainage (construction)</p>





## Step B

- 1.3.4 **Table 1-3** and **Table 1-4** comprise of summary matrices for the construction and operational phases of the Proposed Scheme showing the significance of residual effects (of minor, moderate and major adverse only) on common receptors for environmental topics, following the implementation of the required mitigation measures set out in technical **chapters 6 to 16**.
- 1.3.5 This enables a qualitative assessment of the interactions of residual effects outlining the overall significance to the identified common sensitive receptors. The results of the assessment of effect interactions are subsequently shown in **Table 1-3** and **Table 1-4**. For the purpose of this assessment, residual effects that have been identified in technical chapters 6 to 16 that do not affect the common sensitive receptors identified have not been presented below, as no effects interactions are anticipated.

**Table 1-3 - Construction Phase Effect Interactions Assessment**

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
<b>Ecology</b>	Not applicable	Not applicable	Not applicable	Not applicable	<p>Sheep's Course Wood impacted significantly by dust pollution. The implementation of a Construction Environment Management Plan (CEMP) mitigates effects to <b>Negligible (Not Significant)</b>.</p> <p>Terrestrial habitats and veteran trees impacted significantly by site and vegetation clearance. The implementation of mitigation outlined in Chapter 8 of this Environmental Statement (ES) reduces the magnitude of impact to <b>Medium (Not Significant)</b>.</p> <p>Aquatic ecology impacted by chemical and sediment pollution. Following the implementation of CEMP, effects are considered <b>Negligible (Not Significant)</b>.</p> <p>Birds, breeding and wintering birds, terrestrial invertebrates, badgers, bats, water vole, reptiles, amphibians impacted by site vegetation and clearance and lighting. Measures implemented through CEMP minimise effect to <b>Negligible (Not Significant)</b>.</p>	Not applicable
<b>Noise and Vibration</b>	<p>Brook Farm (C2) is considered to have <b>'Moderate Adverse (Significant)'</b> effects following the implementation of mitigation measures outlined in Chapter 10 of this ES.</p> <p>Given the uncertainty around night works, residual effects on East Anglia House (C1) is considered <b>Moderate Adverse (Significant)</b>.</p> <p>The sensitivity of vibration on Cranfield (C8) is considered <b>'Not Significant'</b> following the implementation of mitigation measures.</p> <p>There is likely to be <b>'negligible (Not Significant)'</b> effects on receptors East Anglia House (C1), 26 Chequers Lane (C4), 22 Orford Place (C6), 5 Poplar Road (C7) and Cranfield (C8) from noise arising from daytime construction following the embedded mitigation.</p> <p>Receptors 44 Norfolk House (C3), 26 Chequers Lane (C4), and High Orchard (C5) all result in <b>minor adverse (Not Significant)</b> effects from noise following embedded mitigation.</p>	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
<b>Water Environment</b>	Third Party flood risk effect– a Flood Risk Assessment (FRA) has been undertaken, mitigating flood risk and resulting in <b>Slight (Not Significant)</b> residual effects.	Flood risk to the Proposed Scheme – a Flood Risk Assessment (FRA) has been undertaken, mitigating flood risk and resulting in <b>Slight (Not Significant)</b> residual effects.	Third Party flood risk effect– a Flood Risk Assessment (FRA) has been undertaken, mitigating flood risk and resulting in <b>Slight (Not Significant)</b> residual effects.	Third Party flood risk effect– a Flood Risk Assessment (FRA) has been undertaken, mitigating flood risk and resulting in <b>Slight (Not Significant)</b> residual effects.	Not applicable	<p>Unnamed field drains, Middleton Stop Drain, and Country Drain being affected by increase in sedimentation and pollution risks. Residual effect is <b>Slight (Not Significant)</b>.</p> <p>River Nar affected by sedimentation and pollution risks through construction. Implementation of a CEMP mitigates effects, resulting in <b>Slight (Not Significant)</b> effects.</p> <p>Changes to groundwater quality to aquifers and ground water at the site, mitigated through CEMP implementation. Residual effect is <b>Slight (Not Significant)</b>.</p>
<b>Landscape and Visual</b>	<p>CRoW and Common Land CL433, CL110, CL112 – <b>Major / Moderate (Significant)</b>.</p> <p>CRoW and Common Land CL111, CL58, CL59, CL60, CL113, and footpaths – <b>Not Significant</b>.</p> <p>Residential – <b>Significant</b>.</p>	Highways – <b>Not significant</b> .	<p>Long Distance Routes – <b>Moderate / Minor Adverse (Not Significant)</b>.</p> <p>Bridleway BR4 – <b>Major / Moderate adverse (Significant)</b>.</p> <p>Byway RB3 – <b>Major / Moderate Adverse (Significant)</b>.</p> <p>Byways RB6, RB2 – <b>Not significant</b>.</p>	Businesses – <b>Not significant</b> .	<p>Landscape Character Area E2: Saddlebow and Wormegay – <b>Moderate / Minor (Not Significant)</b> and G1: Bawzey and Leziate – <b>Minor (Not Significant)</b>.</p> <p>Landscape Character Area G2: Middleton – <b>Major / Moderate (Significant)</b>, and G4: West Winch – <b>Major / Moderate (Significant)</b>.</p>	Not applicable

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
<b>Population and Human Health</b>	Local residential receptors and community land use are likely to experience increased disturbance from construction and construction operations. Following mitigation outlined in Chapter 9 of this ES, effects are considered <b>Not Significant</b> .	Not applicable	Active travel users are likely to experience increased disturbance from construction and construction operations. There is also potential for routes to be temporarily altered during construction. Following mitigation outlined in Chapter 9 of this ES, effects are considered <b>Not Significant</b> .	Community and business receptors are likely to experience increased disturbance from construction and construction operations. Following mitigation outlined in Chapter 9 of this ES, effects are considered <b>Not Significant</b> .	Not applicable	Not applicable
<b>Effect Interaction</b>	Adverse effects are anticipated on the local population from different environmental topics. These effects are derived from noise and vibration, water resources, flood risk and drainage and landscape and visual. The effects from noise and vibration will be temporary in nature.  The effects are anticipated to impact upon the various local population receptors in different capacities. As such, a <b>Minor/Moderate (Not Significant)</b> effect interaction is anticipated on the local population.	Adverse effects are anticipated on the highways users from different environmental topics. These effects are derived from noise and vibration, flood risk and drainage and landscape and visual. There is anticipated to be limited effect interaction, as such, a <b>Negligible (Not Significant)</b> effect interaction is anticipated.	Adverse effects are anticipated on the active travel route users from different environmental topics. These effects are derived from water resources, flood risk and drainage, population and health, and landscape and visual. There is anticipated to a small scale, temporary, effect interaction, as such, a <b>Minor (Not Significant)</b> effect interaction is anticipated.	Adverse effects are anticipated on business and community receptors from different environmental topics. These effects are derived from flood risk and drainage, population and health, and landscape and visual. There is anticipated to be limited effect interaction, as such, a <b>Negligible (Not Significant)</b> effect interaction is anticipated.	Minor, moderate and major / moderate adverse effects are anticipated on ecological receptors from different environmental topics. The effects identified on ecological receptors are as a result of lost habitat and harm to habitats. Landscape and visual effects within Landscape Character Areas during construction is considered to be moderate. Mitigation will be implemented associated with effects regarding habitats. The effects are anticipated upon different ecological receptors. As a result, a <b>Negligible (Not Significant)</b> effect interaction is anticipated.	Minor Adverse effects are anticipated on controlled waters from different environmental topics. However, introduction of physical contaminants and disruption of groundwater are <b>Minor Adverse</b> . There is anticipated to be limited effect interaction. As such, a <b>Negligible (Not Significant)</b> effect interaction is anticipated on controlled waters.

**Table 1-4 - Operational Phase Effect Interactions Assessment**

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
Ecology	Not applicable	Not applicable	Not applicable	Not applicable	<p>Sheep's Course Wood impacted significantly by air pollution. <b>Significant</b> effects at a local scale.</p> <p>Ancient Woodland, Veteran Trees impacted by air pollution during operation – <b>Negligible (Not Significant)</b>.</p> <p>Aquatic ecology impacted by chemical pollution. Following the implementation of CEMP, effects are considered <b>Negligible (Not Significant)</b>.</p> <p>Barn owls impacted by road traffic collisions, and disturbed by lighting, noise and visual. Following implementation of embedded mitigation, effects are considered <b>Negligible (Not Significant)</b>.</p> <p>Badgers impacted by road traffic collisions and habitat interruption and fragmentation. Effects considered <b>Negligible (Not Significant)</b> following construction mitigation.</p> <p>Bats affected by road traffic collisions and road mortality. Effects are considered medium term (until vegetation has established. This results in a medium impact <b>(Significant adverse)</b> at local scale. Lighting and noise disturbance results in <b>significant</b> effects locally.</p> <p>Great Crested Newt road mortality – <b>Negligible (Not Significant)</b>.</p>	Not applicable

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
<b>Noise and Vibration</b>	<p>Fewer vehicles utilising the existing A10, resulting in <b>Major / Moderate Beneficial (Significant Benefit), Major / Moderate Beneficial (Not Significant), and Negligible (Not Significant)</b> effects on residential receptors.</p> <p>Residential receptors located in the east of North Runcton – <b>Minor Adverse (Not Significant)</b>.</p> <p>Residential receptors located at the A10 tie-in – <b>Minor Adverse (Not Significant)</b>.</p> <p>Residential receptors located to the west of North Runcton – <b>Moderate / Major Adverse (Significant)</b>.</p> <p>Residential receptors located off Rectory Lane – <b>Major Adverse (Significant) and Moderate Adverse (Significant)</b>.</p>	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>Water Environment</b>	Third Party Flood Risk from surface water flood risk mitigated by FRA – <b>Slight (Not Significant)</b> .	Flood risk to the proposed scheme from surface water flood risk mitigated by FRA – <b>Slight (Not Significant)</b> .	Third Party Flood Risk from surface water flood risk mitigated by FRA – <b>Slight (Not Significant)</b> .	Third Party Flood Risk from surface water flood risk mitigated by FRA – <b>Slight (Not Significant)</b> .	Not applicable	<p>Unnamed field drains, The Country Drain, and the Middleton Stop Drain pollution risks, culvert flows, and changes in catchment hydrology may result in changes. FRA mitigation has been included, resulting in <b>Slight (Not Significant)</b> residual effects.</p> <p>Potential for pollution risks on the River Nar – <b>Slight (Not Significant)</b>.</p> <p>Groundwater pollution and sedimentation increase – <b>Slight (Not Significant)</b>.</p>
<b>Landscape and Visual</b>	<p>CRoW and Common Land – <b>Minor Adverse (Not Significant), Minor / Negligible Adverse (Not Significant), Neutral (Not Significant)</b>.</p> <p>Residential – <b>Moderate / Minor Adverse (Significant), Negligible (Not Significant), Minor Adverse (Not Significant), Neutral (Not Significant), Major Adverse (Significant), Major/Moderate Adverse (Significant)</b>.</p>	Highways – <b>Negligible (Not significant), Minor / Negligible Adverse (Not Significant), Neutral (Not Significant), Minor Adverse (Not Significant)</b> .	<p>Long Distance Routes – <b>Minor Adverse (Not Significant)</b>.</p> <p>Footpaths – <b>Neutral (Not Significant)</b>.</p> <p>Bridleway – <b>Minor Adverse (Not Significant)</b>.</p> <p>Byways – <b>Major / Moderate (Significant), Neutral (Not Significant), Minor / Negligible (Not significant), Neutral (Not Significant)</b>.</p>	<p>Leisure – <b>Minor / Negligible Adverse (Not Significant), Neutral (Not Significant)</b>.</p> <p>Businesses – <b>Negligible (Not significant), Minor / Negligible Adverse (Not Significant)</b>.</p>	<p>Landscape Character Area E2: Saddlebow and Wormegay – <b>Minor / Negligible (Not Significant)</b> and G1: Bawzey and Leziate – <b>Negligible (Not Significant)</b>.</p> <p>Landscape Character Area G2: Middleton – <b>Minor (Not Significant)</b>, and G4: West Winch – <b>Minor (Not Significant)</b>.</p>	Not applicable

Topic	Local Population	Highways Users	Active Travel Users	Economic and Community	Ecological Receptors	Controlled Waters
<b>Population and Human Health</b>	Local residential receptors and community land use changes in access are considered <b>Negligible (Not Significant)</b> .	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>Effect Interaction</b>	<p>Beneficial and adverse effects are anticipated on the local population from different environmental topics. The effects as a result of noise and vibration, landscape and visual on the local population have the potential to be magnified. The noise and vibration effects range from major beneficial to minor adverse, whilst the landscape and visual effects range from negligible adverse to major/moderate adverse.</p> <p>The effects are anticipated to impact upon the various local population receptors in different capacities. As such, a <b>Minor/Moderate (Not Significant)</b> effect interaction is anticipated on the local population.</p>	<p>Adverse effects are anticipated on the highways users from different environmental topics. These effects are derived from flood risk and drainage and landscape and visual. There is anticipated to be limited effect interaction, as such, a <b>Negligible (Not Significant)</b> effect interaction is anticipated.</p>	<p>Adverse effects are anticipated on the active travel route users from different environmental topics. These effects are derived from flood risk and drainage, and landscape and visual. There is anticipated to a small scale, temporary, effect interaction, as such, a <b>Minor (Not Significant)</b> effect interaction is anticipated.</p>	<p>Adverse effects are anticipated on business and community receptors from different environmental topics. These effects are derived from flood risk and drainage and landscape and visual. There is anticipated to be limited effect interaction, as such, a <b>Negligible (Not Significant)</b> effect interaction is anticipated.</p>	<p>Adverse effects are anticipated on the ecological receptors from different environmental topics. The effects have been identified by ecology and landscape and visual. The effects are likely to persist due to the nature of the development.</p> <p>As such, there is a <b>Moderate Adverse (Significant)</b> effect interaction anticipated on the ecological receptors.</p>	<p>Negligible adverse and beneficial effects are anticipated on controlled waters from different environmental topics. The slight adverse effects are as a result of water pollution. As such, <b>Negligible Adverse (Not Significant)</b> effect interaction is anticipated on controlled waters.</p>



## Summary

### Construction

- 1.3.6 Of the assessed common receptors, the local population and active travel users are anticipated to experience a residual effect interaction.
- 1.3.7 Highways users, businesses and community receptors, ecological receptors and controlled waters are anticipated to experience a **Negligible (not significant)** residual effect interaction and no further mitigation measures are required.
- 1.3.8 The local population is anticipated to be affected by noise and vibration, flood risk and drainage, and landscape and visual effects during construction. The effects from noise and vibration are considered to be temporary in nature. The effects are anticipated to impact upon the various local population receptors in different capacities. As such, a **Minor/Moderate (Not Significant)** effect interaction is anticipated on the local population.
- 1.3.9 Active travel users are anticipated to be affected by flood risk and drainage, population and health, and landscape and visual construction effects. There is anticipated to be a small scale, temporary, effect interaction, as such, a **Minor (Not Significant)** effect interaction is anticipated.
- 1.3.10 Adverse effects are anticipated on the ecological receptors from different environmental topics, namely ecology and landscape and visual. The effects are likely to persist due to the nature of the development. As such, there is a **Moderate Adverse (Significant)** effect interaction anticipated on the ecological receptors.

### Operation

- 1.3.11 Of the assessed common receptors, the local population, active travel users, and ecological receptors are anticipated to experience a residual effect interaction.
- 1.3.12 The local population is anticipated to be affected by noise and vibration and landscape and visual effects during operation. The effects are anticipated to impact upon the various local population receptors in different capacities. As such, a **Minor/Moderate (Not Significant)** effect interaction is anticipated on the local population.





- 1.3.13 With regard to active travel users, these common receptors are affected by flood risk and drainage and landscape and visual operational effects. There is anticipated to be a small scale, temporary, effect interaction, as such, a Minor (Not Significant) effect interaction is anticipated.
- 1.3.14 Adverse effects are anticipated on the ecological receptors from different environmental topics, namely ecology and landscape and visual. The effects are likely to persist due to the nature of the development. As such, there is a Moderate Adverse (Significant) effect interaction anticipated on the ecological receptors.
- 1.3.15 Highways users, businesses and community receptors, and controlled waters are anticipated to result in a **Negligible (not significant)** effect interaction and no further mitigation measures are required.

## 1.4 Assessment of In-Combination Effects

### Air Quality

#### Construction Phase

- 1.4.1 In the construction phase, there is one committed development within the study area. All other developments were assessed cumulatively within the traffic model as described within Chapter 6 of this ES. This is a warehouse extension adjacent to the south of the Site boundary (23/00195/F). As this is an extension to an existing warehouse, construction activities will likely be small and unlikely to present a significant cumulative effect if these activities occur at the same time as the construction phase of the Proposed Scheme.

#### Operational Phase

- 1.4.2 In the operational phase, all committed developments that are likely to cause substantial increases in traffic have been included in the traffic data, and so have been included in the air quality assessment. The effects of this increase in traffic is considered to be **not significant**.

### Archaeology and Heritage

- 1.4.3 Cumulative effects are 'elevated' effects which occur where the combined effect of the Proposed Scheme with other proposed schemes in the vicinity, on a discrete and



significant shared buried heritage asset, is more severe than that reported at the Proposed Scheme Site. For intangible and deeply buried heritage assets it is not feasible to quantify accurately the nature of the resource across the study area, which would enable the identification of a cumulative impact and potential elevated effect.

- 1.4.4 As part of the Housing Allocation, it is proposed to construct of 4,000 new homes to the west of the Proposed Scheme. This would introduce a new built form into the wider rural landscape. In particular, the Proposed Scheme would result in the additional loss of the surrounding landscape to the east of the A10 in West Winch. The impacts are summarised in **Table 1-5**.
- 1.4.5 Taken overall, any potential cumulative effects to other heritage assets would be **negligible** and no further mitigation is required.



**Table 1-5 - Summary of Cumulative effects on Archaeology and Heritage**

<b>Heritage asset (sensitive receptor)</b>	<b>Potential effects</b>	<b>Cumulative effect</b>
Church of St Mary (listed Grade II*)	<p>The Proposed Scheme would introduce an additional new built form into the wider rural landscape, which is an important part of the asset's setting. The Proposed Scheme would further change how the asset is currently experienced, notably in journeys to and from the Church of St Mary along Rectory Lane.</p> <p>The Proposed Scheme would further detract from the asset's significance.</p> <p>No additional mitigation is proposed.</p>	Moderate negative (substantial)



<b>Heritage asset (sensitive receptor)</b>	<b>Potential effects</b>	<b>Cumulative effect</b>
<p>The Mill at TF 6314 1678 (listed Grade II)</p>	<p>The Proposed Scheme would introduce an additional new built form into the wider rural landscape, which is an important part of the asset's setting, changing how the asset is currently experienced.</p> <p>The Proposed Scheme would further detract from the asset's significance.</p> <p>No additional mitigation is proposed.</p>	<p>Moderate negative (substantial)</p>
<p>Medieval moated enclosure within site of Fincham Manor (under consideration for scheduling)</p>	<p>The Proposed Scheme would introduce an additional new built form into the wider rural landscape, which is an important part of the asset's setting, changing how the asset is currently experienced.</p> <p>The Proposed Scheme would further detract from the asset's significance.</p> <p>No additional mitigation is proposed.</p>	<p>Moderate negative (substantial)</p>



## Ecology

- 1.4.6 There is potential for significant and non-significant effects arising from the Proposed Scheme alone to act in combination with committed developments. This may result in cumulative effects to Important Ecological Features which could have an increased significance compared to the assessment of the Proposed Development alone.
- 1.4.7 **Table 1-6** has outlined the committed developments and any likely cumulative effects on ecological receptors.
- 1.4.8 The majority of these committed developments are small to medium sized developments that are generally isolated from the Proposed Scheme and the Important Ecological Features that are included in this assessment. It is considered that for the majority of the developments, there are no plausible impact pathways that could combine to result in significant effects or an increase to the scale of significant effects.
- 1.4.9 In addition to these developments, the Housing Allocation has been included within the assessment of cumulative effects. The West Winch Growth Area Framework Masterplan (Borough of King's Lynn and West Norfolk, 2023) has been used for reference, which provides an outline of the current proposed development location and layout.
- 1.4.10 The air quality modelling for the Proposed Scheme detailed in **Chapter 6: Air Quality** includes the cumulative effect of the Proposed Scheme including the Housing Allocation, as such the cumulative effect of this impact has been included within this assessment and is not considered further within this section.



**Table 1-6 - Ecological Assessment of Committed Developments**

<b>Planning Reference Number</b>	<b>Description</b>	<b>Approximate distance</b>	<b>Comments</b>	<b>Cumulative impacts and effects likely</b>
23/00269/F	Proposed product display area and factory retail outlet	2km northwest	Sufficient distance from the Proposed Scheme and application is within an area of existing residential and commercial development.	None.
20/01957/FM	Construction of 78 affordable dwellings and associated access, infrastructure and landscaping	3km north	Development within existing residential area on an area of unmanaged modified grassland. EclA completed and all impacts are reported to have been appropriately mitigated and adverse effects reported to be minor adverse upon bats and breeding birds through habitat loss. Under construction.	Cumulative effects are considered unlikely given the small scale of this development, distance from the Proposed Scheme and scale of impacts.



<b>Planning Reference Number</b>	<b>Description</b>	<b>Approximate distance</b>	<b>Comments</b>	<b>Cumulative impacts and effects likely</b>
17/01151/OM	Outline Major Application: Sustainable mixed-use urban extension comprising up to 450 dwellings and associated infrastructure.	3.9km north	Development on an area of mixed pastoral and arable farmland. EclA for the development describes impacts ranging from adverse (non-significant) to positive (significant effect).	Due to the adverse effects arising from the development being non-significant or positive, there are no cumulative effects predicted.
23/00195/F	Retrospective: Warehouse extension associated with the existing building to the Southern side of the site	Adjacent to the south boundary	Small scale development unlikely to contribute to cumulative effects	None.



<b>Planning Reference Number</b>	<b>Description</b>	<b>Approximate distance</b>	<b>Comments</b>	<b>Cumulative impacts and effects likely</b>
21/01873/FM	Construction of 226 new homes and associated green space, landscaping and ancillary infrastructure	1.4km north	Development within an area of amenity grassland within existing residential area. An ecology assessment has been produced for the development which concludes negligible effects upon all Important Ecological Features.	None
14/01690/OM	Construction of up to 81 dwellings with access road	3.3km north	Development within existing residential area adjacent to the Gaywood River. Basic ecology assessments completed for protected species and mitigation proposed.	None.





<b>Planning Reference Number</b>	<b>Description</b>	<b>Approximate distance</b>	<b>Comments</b>	<b>Cumulative impacts and effects likely</b>
14/01114/OM	Outline Application: mixed use development comprising business / industrial / storage and distribution floorspace.	800m north	Development within an area of semi natural grassland adjacent to existing mixed-use development. A comprehensive ecological appraisal has been carried out which concludes minor adverse effects upon Otter, Water Vole and Grass Snake. The populations of Water Vole and Grass Snake are likely to be distinct to those within the Proposed Scheme.	None.



<b>Planning Reference Number</b>	<b>Description</b>	<b>Approximate distance</b>	<b>Comments</b>	<b>Cumulative impacts and effects likely</b>
16/02231/OM	Residential development of the land to provide up to 600 dwellings and associated infrastructure.	Approximately 4.3km north	Development within an area of open grassland adjacent to ancient woodland. The ES for the development concludes negligible effects upon all ecological features apart from terrestrial invertebrate which will incur minor beneficial effects.	None.
17/01106/OM	Residential development for up to 125 dwellings together with associated works.	NA	Limited ecological data is available for the development. A letter report submitted with the application infers that the development is unsuitable for reptiles, and that Badger and Water Vole are likely absent.	None.



## Housing Allocation

1.4.11 It is envisaged that the Housing Allocation will deliver up to 4,000 homes, with 2500 being delivered by 2036. The Housing Allocation will be brought forward by individual developer planning applications and at present, two applications were identified through the BCKLWN planning portal: Land At West Winch Kings Lynn Norfolk (18/02289/OM), and Land West of Constitution Hill Constitution Hill North Runcton Norfolk PE33 0QP (3/01615/OM).

1.4.12 The majority of the Housing Allocation is located within arable and pastoral farmland to the east of West Winch. The Proposed Scheme will curtail the eastern extent of the Housing Allocation. One development (Land West of Constitution Hill Constitution Hill) will be constructed within the habitat mosaic east of Sheep's Course Wood, which has been identified as an area of habitat that is of County importance and is designated as a CWS.

1.4.13 In consideration of relevant plans and projects in relation to the developments noted above, it is concluded that cumulative effects will arise upon selected Important Ecological Features that are also affected by the Proposed Scheme.

### Sheep's Course Wood CWS

1.4.14 The Proposed Scheme will cause significant effects at a Local scale due to air pollution arising from increased traffic levels. This assessment contained within **Chapter 6** of this ES was made based upon traffic modelling that incorporated the additional 4000 homes within the Housing Allocation.

### Terrestrial Habitats

1.4.15 The majority of the Housing Allocation appears to be within areas of arable cropland and pastoral farmland which is not an important ecological feature in its own right as defined within this assessment.

1.4.16 The Proposed Scheme and the development at Land West of Constitution Hill will result in habitat loss from both developments. This habitat loss will occur to the west of Sheep's Course Wood, within the mosaic of habitat that is



assessed as important at a County scale. The grassland within this area that is located within the development area at Land West of Constitution Hill was also assessed as important at a County scale, with impacts predicted at a County scale. Effects upon other habitats within this development are predicted at a Local scale.

1.4.17 The combined effect of both developments upon habitats are not considered to exceed the County and Local scale impact reported for the development at Land West of Constitution Hill.

#### Ancient Woodland

1.4.18 Air quality modelling for the Proposed Scheme allowed for the increase in housing from the Housing Allocation. It is considered that there will be no significant effects in combination with other plans and projects included within this assessment.

#### Veteran Trees

1.4.19 Air pollution modelling has considered the increase in air pollution as a result of the Housing Allocation. No further impacts or effects are anticipated to occur to veteran trees within or adjacent to the Proposed Scheme as a result of other plans or projects within this assessment.

#### Aquatic Ecology

1.4.20 No impacts are anticipated from other plans or projects within this assessment to the Pierpoint Drain or other aquatic features that are connected to the Proposed Scheme.

#### Birds

##### *Barn Owl*

1.4.21 The Proposed Scheme will not result in significant effects upon Barn Owl and the two development applications within the Housing Allocation do not report significant effects upon these species. The cumulative effect of residual impacts on this species are unlikely to result in significant effects.



### *Breeding and Wintering Birds*

- 1.4.22 Cumulative impacts and effects upon other bird species cannot be quantified for all projects within the Housing Allocation due to a lack of available survey information.
- 1.4.23 Minor negative effects are reported for breeding birds at a District level and wintering birds at Local level through the development at Land West of Constitution Hill. The development at Land At West Winch Kings Lynn Norfolk concludes no significant effects on breeding and wintering birds.
- 1.4.24 The Proposed Scheme will result in impacts that are not significant and it is anticipated that the cumulative effects of the neighbouring housing developments discussed above would not lead to an increase in the scale of effects upon breeding and wintering birds.

### Terrestrial Invertebrates

- 1.4.25 Surveys have been completed for the Proposed Scheme and the development Land West of Constitution Hill. No other survey data is available however it is considered unlikely that the rest of the Housing Allocation supports significant populations of important species given that the developments will likely be constructed within arable cropland that is of negligible suitability for invertebrates.
- 1.4.26 The development at Land West of Constitution Hill reports an adverse effect at a County scale due to habitat. The Proposed Scheme is not considered to result in an increase to the scale of this County scale adverse effect.

### Mammals

#### *Badger*

- 1.4.27 No significant effects will occur from the Proposed Scheme or either of the two development applications that have been submitted. No information is available to assess cumulative effects upon Badgers across the remaining Housing Allocation.



1.4.28 The assessment for land West of Constitution Hill concludes significant minor negative effects at Local scale. The Proposed Scheme is not considered to result in an increase to the scale of this adverse effect.

#### *Bats*

1.4.29 Cumulative effects are likely to occur as a result of the developments within the Housing Allocation due to the urbanisation of the landscape that will cause habitat loss and an increase in lighting above the baseline environment. It is considered unlikely that the importance of any species across the Housing Allocation would exceed the Local importance attributed by all development's assessments. This is due to the majority of high suitability habitat being located within the Proposed Scheme and the development at Land West of Constitution Hill, for which both schemes identified activity by low numbers of bats, resulting in an assessment of Local importance. The remaining Housing Allocation development is confined to large open habitats (arable cropland and pastoral grassland) that are likely of low to moderate suitability for roosting bats.

1.4.30 The cumulative effect on all bat species is considered to remain at a Local scale in the light of available ecological information as presented within the technical appendices of the ES chapter.

#### *Water Vole*

1.4.31 The distribution and abundance of Water Vole across the Housing Allocation cannot be quantified due to the lack of survey information available for the remaining developments that have not been submitted for planning. Therefore, cumulative effects upon Water Vole cannot be accurately assessed for the whole Housing Allocation.

1.4.32 The applications that have submitted include mitigation proposals to reduce adverse effects and the residual effects are not considered to represent



significant effects. The combined residual impacts upon Water Vole are considered to represent cumulative effects that are not significant.

Reptiles and Great Crested Newt

1.4.33 No cumulative effects are anticipated upon Great Crested Newts or reptiles as all development assessed within this cumulative assessment have included measures to mitigate significant effects upon reptiles. The Proposed Scheme is not considered to result in significant effects in combination with these individually non-significant effects.

Landscape and Visual

1.4.34 Many of the Committed Developments lie outside of the 2km LVIA Study Area, so are not considered within this assessment of cumulative effects.

**Table 1-7** outlines the Committed Developments and their scope in/out of the cumulative effects assessment.

**Table 1-7 - Summary of Committed Development**

<b>Committed Development Reference</b>	<b>Address</b>	<b>Distance from the Proposed Scheme</b>	<b>Scoped in/out of Cumulative LVIA Assessment</b>
<b>23/00269/F</b>	LeisureGrow Products Ltd (Old Gardam Site) Clenchwarton Road West Lynn King's Lynn Norfolk	2km north west	<b>Out</b>  Lies outside of 2km LVIA Study Area
<b>23/00269/F</b>	LeisureGrow Products Ltd (Old Gardam Site) Clenchwarton Road West Lynn King's Lynn Norfolk	2km north west	<b>Out</b>  Lies outside of 2km LVIA Study Area



<b>Committed Development Reference</b>	<b>Address</b>	<b>Distance from the Proposed Scheme</b>	<b>Scoped in/out of Cumulative LVIA Assessment</b>
<b>20/01957/FM</b>	Land E of Losinga Road W of Waterside And N of Salters Road King's Lynn Norfolk	3km north	<b>Out</b> Lies outside of 2km LVIA Study Area
<b>17/01151/OM</b>	Land NW of South Wootton School Off Edward Benefer Way King's Lynn Norfolk	3.9km north	<b>Out</b> Lies outside of 2km LVIA Study Area
<b>23/00195/F</b>	Coolstak Lynn Road West Winch King's Lynn Norfolk PE33 0PD	Adjacent to the south boundary	<b>In</b> Immediately adjacent to PSS





<b>Committed Development Reference</b>	<b>Address</b>	<b>Distance from the Proposed Scheme</b>	<b>Scoped in/out of Cumulative LVIA Assessment</b>
<b>21/01873/FM</b>	Land SE of 60 Queen Mary Road N of Railway Line And S of Parkway Gaywood King's Lynn Norfolk	1.4km north	<b>Out</b>  Although within Study Area, it is constrained within the urban setting of Kings Lynn and will not contribute to a cumulative effect upon landscape character areas
<b>14/01690/OM</b>	Land South of Russett Close King's Lynn Norfolk	3.3km north	<b>Out</b>  Lies outside of 2km LVIA Study Area



Committed Development Reference	Address	Distance from the Proposed Scheme	Scoped in/out of Cumulative LVIA Assessment
14/01114/OM	Morston Point Hardwick Industrial Estate King's Lynn Norfolk	800m north	<b>In</b> Extends the urban edge of Kings Lynn eastwards into previously undeveloped land within LCA G2
16/02231/OM	Land West of Knights Hill Village Grimston Road South Wootton Norfolk	4.7km north east	<b>Out</b> Lies outside of 2km LVIA Study Area
17/01106/OM	Land on the West Side of Nursery Lane South Wootton Norfolk	4.6km north	<b>Out</b> Lies outside of 2km LVIA Study Area

1.4.35 The methodology used to assess cumulative effects is in accordance with the principles set out in Chapter 7 of The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute and the Institute for Environmental Management and Assessment, 2013). It is important to note in particular that at GLVIA para 7.5, states that such an



assessment is to be kept 'reasonable and in proportion to the nature of the project under consideration'.

- 1.4.36 The absence of detailed design information in relation to the above-mentioned scheme makes assessing cumulative visual impacts difficult to predict with any degree of accuracy at this stage. For this reason, the assessment of cumulative effects arising from the combination of the Proposed Scheme and the above-mentioned scheme will be limited to landscape effects only.
- 1.4.37 The cumulative assessment assumes that all development will take place concurrently, with construction phase activity giving way to operational phase simultaneously.
- 1.4.38 There are four sensitive receptors assessed for cumulative effects. These are the Landscape Character Areas (LCA) E2: Saddlebow and Wormegay, LCA G1: Bawzey and Leziate, LCA G2: Middleton, and LCA G4: West Winch.

### **Construction Phase**

LCA E2: Saddlebow and Wormegay

- 1.4.39 The section of the LCA within the study area is predominantly rural, encompassing the floodplain and catchment of the River Nar, around 50m from the western extents of the CSS boundary at its closest point. Whilst there will be no direct effects, the close proximity and the large scale of the development mean that indirect effects are likely due to intervisibility with neighbouring LCA's (G4 and G2), although these views are likely to be limited to the eastern extents of the LCA, with the foreground still largely characterised by agricultural fields.
- 1.4.40 Whilst there will be no direct effects during the construction phase, the scale of the Cumulative Development is such that the presence of construction traffic, plant and machinery will be noticeable across a wide area. Established rural buffers between West Winch and King's Lynn will be eroded and replaced with large-scale construction activity, greatly increasing the overall presence of development in longer views eastwards from the LCA.



1.4.41 Magnitude of change Medium, level of effect **Moderate adverse (not significant as temporary and not direct effects).**

LCA G1: Bawzey and Leziate

1.4.42 The section of the LCA within the Study area is located approximately 1000m to the north-east of the Cumulative Development, it is largely rural in nature except for where it meets the King's Lynn urban edge. The wider LCA beyond the Study area has a distinctly more industrial feel due to the presence of mineral extraction workings. Whilst there will be no direct effects, some indirect effects are possible due to intervisibility with neighbouring LCA's (G4 and G2), although views are limited by existing plantation woodland and field boundary vegetation.

1.4.43 The presence of construction traffic, plant and machinery associated with the Cumulative Development will be a noticeable discordant feature. Effects will be temporary and localised in terms of the scale of the wider character area, in addition to being limited by existing woodland planting and field boundary hedgerows and the influence of the existing urban edge of King's Lynn.

1.4.44 Magnitude of change High-Medium, level of effect **Moderate-Minor adverse (not significant).**

LCA G2: Middleton

1.4.45 The CDS is located within the west of the LCA, so effects will be direct. The existing character across the wider LCA to the east is predominantly rural in nature, however the presence of the A47 and the King's Lynn urban edge, as well as residential development at Fair Green and Middleton, add notable elements of urbanisation to the otherwise largely rural setting.

1.4.46 The scale of the cumulative development is such that construction phase activity will be highly noticeable. It will be particularly apparent at the local scale, but will also be visible across much of the wider LCA to the east to a lesser degree. A substantial area of previously undeveloped land between the A10 and the A47 and along the existing Kings Lynn urban fringe will be



dominated by the presence of construction phase activity, altering the character and tranquillity of the area considerably, albeit temporarily.

1.4.47 Magnitude of change High, level of effect **Major-moderate adverse (significant, albeit temporary)**.

LCA G4: West Winch

1.4.48 The CDS is located towards the west of the LCA, so effects will be direct. The existing character across the wider LCA is slightly less rural and tranquil than neighbouring character areas to the north, with the A10 running north-south through the area, as well as existing development at Setchey, West Winch, North Runcton, and to a lesser degree, the urban edge of King's Lynn to the north.

1.4.49 The Construction Phase will introduce highly noticeable discordant elements into the landscape, most notably in previously undeveloped areas between settlements. Whilst construction activity will be temporary in nature, the scale of the Cumulative Development in relation to the LCA is such that effects upon both character and tranquillity will be highly noticeable, altering the character of the western extent of the LCA to the extent that it will also be noticeable across the wider LCA to the east.

1.4.50 Magnitude of change High, level of effect **Major-moderate adverse (significant, albeit temporary)**.

**Operational Phase**

LCA E2: Saddlebow and Wormegay

*Operational Phase Year 1*

1.4.51 At year 1, the notably discordant elements associated with the construction phase will no longer present, however the scale of the cumulative development is such that there will be a very noticeable increase in the presence of development visible in longer easterly views from the LCA. Rural buffers between King's Lynn and West Winch will be reduced considerably



and replaced by housing, resulting in the overall outlook becoming noticeably more urbanised.

1.4.52 Magnitude of change Low, level of effect **Minor adverse (not significant)**

*Operational Phase Year 15 (Residual effects)*

1.4.53 At year 15, it is anticipated that planting associated with the cumulative development will have reached a level of maturity where it is able to provide some screening function of the wider development, however the overall increase in the presence of built form within the landscape is likely to be unavoidable, diminishing rural character in easterly views from the LCA .

1.4.54 Magnitude of change Low, level of effect **Minor adverse (not significant)**

LCA G1: Bawzey and Leziate

*Operational Phase Year 1*

1.4.55 At year 1, discordant elements associated with the construction phase will no longer feature in the view. Mitigation planting to the east of the CDS will not have become effective at this stage, views of development along the Kings Lynn urban fringe associated with 14/01114/OM, will combine with longer south-westerly views of the highway and the housing scheme beyond, which when considered cumulatively, will increase the overall sense of urbanisation considerably.

1.4.56 Magnitude of change Medium, level of effect **Minor adverse (not significant)**

*Operational Phase Year 15 (Residual effects)*

1.4.57 At year 15, woodland and hedgerow planting towards the north-eastern boundary of the CDS will have reached a level of maturity where it can deliver effective screening, largely obscuring intervisibility of both the highway scheme and the housing development beyond. Views of development along the Kings Lynn urban fringe associated with 14/01114/OM are likely to remain visible however.



1.4.58 Magnitude of change Low, level of effect **Minor-Negligible adverse (not significant)**

LCA G2: Middleton

*Operational Phase Year 1*

1.4.59 At year 1, the cessation of activity associated with the construction phase will remove a large discordant feature from the landscape, however mitigation planting to the east of the CDS will not have become effective at this stage, so the highway and the housing scheme beyond, will remain highly noticeable. When considered cumulatively, the King's Lynn urban edge will be extended southwards and eastwards, connecting with the previously separate settlements of North Runcton and West Winch, increasing the overall sense of urbanisation within the western extent of the LCA considerably, with views likely across the wider LCA to the east in the absence of mature mitigation planting.

1.4.60 Magnitude of change High-Medium, level of effect **Moderate adverse (Significant)**

*Operational Phase Year 15 (Residual effects)*

1.4.61 At year 15, landscape planting across the Cumulative Development will have reached a level of maturity where it can deliver its intended screening function, this will be particularly apparent in the areas to the east and north-east of the PSS, where substantial belts of woodland are proposed. Whilst this will have a limited effect in the immediate vicinity of the Cumulative Development, where baseline character will be fundamentally altered, it will greatly reduce the noticeable presence of urbanisation across the wider LCA to the east, reducing effects considerably.

1.4.62 Magnitude of change Medium-Low, level of effect **Moderate-Minor adverse (not significant)**



LCA G4: West Winch

*Operational Phase Year 1*

1.4.63 At year 1 of operation, the removal of discordant elements associated with the construction phase reduces effects to some degree, particularly with regards to tranquillity. The scale of the Cumulative Development in relation to the LCA is such that it will noticeably alter the character of the western extent of the character area, increasing the sense of urbanisation locally and across the wider LCA to the east to a lesser degree, in the absence of mature mitigation planting.

1.4.64 Magnitude of change High-Medium, level of effect **Moderate adverse (significant)**

*Operational Phase Year 15 (Residual effects)*

1.4.65 At year 15, landscape planting across the Cumulative Development will have reached a level of maturity where it can perform its intended screening function. Whilst this will have a limited effect in the immediate vicinity of the Cumulative Development where baseline character will be fundamentally altered, it will reduce the noticeable presence of urbanisation across the wider LCA to the east considerably.

1.4.66 Magnitude of change Medium-Low, level of effect **Minor adverse (not significant)**

**Noise and Vibration**

1.4.67 A summary of the committed developments surrounding the scheme are identified in **Table 1-1**. The traffic flows provided include some committed developments as determined by the project transport consultant. This means that the operational road traffic noise assessment within **Chapter 10: Noise and Vibration** is inherently cumulative in nature. Given the distance from the Proposed Scheme to each of the cumulative developments is over 300m,





cumulative construction noise or vibration impacts are considered unlikely.

Therefore effects are considered **Not Significant**.

### **Water Environment**

1.4.68 Cumulative effects for the Water Environment have been assessed in **Table 1-8** below.



**Table 1-8 - Committed Developments with the potential for cumulative effects on Water**

<b>Reference Number</b>	<b>Description</b>	<b>Approximate distance from the Proposed Scheme</b>	<b>Cumulative impacts and effects likely</b>
23/00269/F	Proposed product display area and factory retail outlet.	2km north west	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.
20/01957/FM	Construction of 78 affordable dwellings and associated access, infrastructure and landscaping.	3km north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.



<b>Reference Number</b>	<b>Description</b>	<b>Approximate distance from the Proposed Scheme</b>	<b>Cumulative impacts and effects likely</b>
17/01151/OM	Outline Major Application: Sustainable mixed-use urban extension comprising: up to 450 dwellings, a mixed use local centre comprising Class A uses (including retail facilities and public house) and Class D1 (such as creche/day centre/community centre) and B1 uses (such as offices), open space and landscaping, wildlife area, children's play areas, sustainable urban drainage infrastructure, access and link road and associated infrastructure.	3.9km north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.



<b>Reference Number</b>	<b>Description</b>	<b>Approximate distance from the Proposed Scheme</b>	<b>Cumulative impacts and effects likely</b>
23/00195/F	Retrospective: Warehouse extension associated with the existing building to the Southern side of the site.	Adjacent to the south boundary.	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the minor nature of the development. It is assumed that appropriate mitigation has been included within the development to ensure no impacts on nearby surface water features.
21/01873/FM	Construction of 226 new homes and associated green space, landscaping and ancillary infrastructure.	1.4km north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.



<b>Reference Number</b>	<b>Description</b>	<b>Approximate distance from the Proposed Scheme</b>	<b>Cumulative impacts and effects likely</b>
14/01690/OM	Construction of up to 81 dwellings with access road.	3.3km north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.



Reference Number	Description	Approximate distance from the Proposed Scheme	Cumulative impacts and effects likely
14/01114/OM	Outline Application: mixed use development comprising business / industrial / storage and distribution floorspace (Class B1 / B2 / B8), DIY superstore and garden centre (Class A1), limited assortment of discount supermarket (Class A1), Drive-Thru Restaurant (Class A3 / A5), Family Public House (Class A4), Hotel (Class C1), Car Showroom (Sui Generis) and associated access, car parking, road infrastructure, servicing and associated works.	800m north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to no hydraulic connectivity to the Proposed Scheme. It is assumed that appropriate mitigation has been included within the development to ensure no impacts on the surface water features.



Reference Number	Description	Approximate distance from the Proposed Scheme	Cumulative impacts and effects likely
16/02231/OM	Residential development of the land to provide up to 600 dwellings, incorporating affordable housing, together with a local centre for uses A1, A2, A3 and/or A5 (600m <sup>2</sup> ) with the total quantum of A1 net sales area not to exceed 279m <sup>2</sup> in the alternative, D2 community floorspace (up to 500m <sup>2</sup> ), open space, formal sport pitches, a car park to serve Reffley Wood and associated development to include substations, drainage features, roads, cycle and pedestrian paths and other such works.	5.3km north east	It is unlikely that significant cumulative effects on the water environment receptors would occur due to distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.



<b>Reference Number</b>	<b>Description</b>	<b>Approximate distance from the Proposed Scheme</b>	<b>Cumulative impacts and effects likely</b>
17/01106/OM	Residential development for up to 125 dwellings together with associated works.	4.8 km north	It is unlikely that significant cumulative effects on the water environment receptors would occur due to the distance to the Proposed Scheme and no hydraulic connectivity to the Proposed Scheme.





## Housing Allocation

1.4.69 It is unlikely that significant cumulative effects on the water environment receptors would occur as a result of the Housing Allocation developments. Appropriate mitigation will be included within the developments in accordance with legislation to ensure that impacts to surface water and groundwater features are minimised as appropriate. Some increase in sediment and pollution loading during construction would be likely if physical works are undertaken within or adjacent to surface water features at the same time as the construction of the Proposed Scheme, but it is not expected to be significant.

## 1.5 Geology and Soils

1.5.1 In consideration of the committed developments outlined in **Table 1-1**, it is considered that no cumulative effects would impact the geological conditions on the Site. **Table 1-9** presents a screening of committed developments to identify the potential for in-combination cumulative effects.



**Table 1-9 - Cumulative Effects on Geology and Soils**

<b>Committed Development</b>	<b>Cumulative effects likely during construction phase?</b>	<b>Reason (Construction Phase)</b>	<b>Cumulative effects likely during operational phase?</b>	<b>Reason (operational phase)</b>
<b>23/00269/F</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)
<b>20/01957/FM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)



<b>Committed Development</b>	<b>Cumulative effects likely during construction phase?</b>	<b>Reason (Construction Phase)</b>	<b>Cumulative effects likely during operational phase?</b>	<b>Reason (operational phase)</b>
<b>17/01151/OM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)



<b>Committed Development</b>	<b>Cumulative effects likely during construction phase?</b>	<b>Reason (Construction Phase)</b>	<b>Cumulative effects likely during operational phase?</b>	<b>Reason (operational phase)</b>
<b>23/00195/F</b>	Yes	Within 500 m study area and therefore potential in-combination impacts in relation to groundwater contamination; however, should contaminative sources be present on-site then appropriate mitigation measures, such as ground investigation and remediation method statements, would likely be conditioned through the planning consent and works would be undertaken in accordance with a CEMP. Accordingly, the risk is negligible.	No	Completed development would have been signed off as fit for purpose

<b>Committed Development</b>	<b>Cumulative effects likely during construction phase?</b>	<b>Reason (Construction Phase)</b>	<b>Cumulative effects likely during operational phase?</b>	<b>Reason (operational phase)</b>
<b>21/01873/FM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)
<b>14/01690/OM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)
<b>14/01114/OM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)

<b>Committed Development</b>	<b>Cumulative effects likely during construction phase?</b>	<b>Reason (Construction Phase)</b>	<b>Cumulative effects likely during operational phase?</b>	<b>Reason (operational phase)</b>
<b>16/02231/OM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)
<b>17/01106/OM</b>	No	Considered to be too far away from site (>500 m). Airborne contaminants and lateral migration of surface / groundwater deemed unlikely	No	Considered to be too far away from site (>500 m)
<b>Housing Allocation Development</b>	No	No Application to date	No	Scheme is dependent on present proposed scheme.



### Construction Phase

- 1.5.2 Typically, cumulative effects associated with contaminated land during the demolition and construction stage would be restricted to mobilisation of, for example, dust or gas, from multiple sites within 500 m of the site where works occur concurrently. In the case of the Proposed Scheme, demolition and construction management processes would ensure that there are no significant emissions from the site. It is a reasonable expectation that nearby schemes would also have requirements with regards to the protection of the wider environment and therefore there is a low likelihood of any cumulative effects occurring during the demolition and construction stage.
- 1.5.3 Accordingly, the effects in respect of on-site and off-site users in isolation, that being short-term, temporary, **Negligible** and **not significant**.
- 1.5.4 With respect to contamination in groundwater, this would only need to be considered where the cumulative schemes are present hydraulically upgradient of the site. Of the cumulative schemes to be considered, no sites are shown upgradient and within 500 m of the proposed scheme as outlined in **Table 1-9**. It is reasonable to assume that the cumulative schemes would similarly be required to demonstrate that the sites are fit for purpose and would be subject to relevant planning conditions with regards to contaminated land and subsequent remediation strategies and CEMPs would be required to demonstrate suitable piling and construction methodologies, dewatering protocol, and contamination management during construction and that discharges of groundwater would be subject to suitable treatment such that there would be no cumulative significant contamination effect.

### Operational Phase

- 1.5.5 As shown in **Table 1-9** no in-combination effects have been identified for the Proposed Scheme with other schemes. Furthermore, in respect of on-site users, off-site users, again it is reasonable to assume that is consistent



with the embedded mitigation of the Proposed Scheme, the cumulative schemes would ensure that appropriate remediation strategies and design measures are implemented to ensure that ground contamination risks are not significant in respect of human health and controlled waters. On this basis, and taking into account the location of cumulative schemes, the cumulative effects would in isolation, that being long-term, permanent, **Negligible**, and **not significant**.

## 1.6 Materials and Waste

### Construction Phase

- 1.6.1 The committed developments have the potential to give rise to significant inter-project cumulative effects in relation to waste generation and disposal. No significant effects for material resources have been identified for the Proposed Scheme, as such, significant cumulative effects with other committed developments are not anticipated.
- 1.6.2 The Proposed Scheme is not anticipated to give rise to significant effects during operation for material resource consumption and waste generation, and was scoped out of the assessment. As such, no significant cumulative effects with other committed developments during operation are not anticipated.
- 1.6.3 Prior to the implementation of additional mitigation measures for the Proposed Scheme, significant effects for waste generation and disposal during construction are anticipated. With the implementation of additional mitigation, the residual adverse effects are reduced and are **not significant**.
- 1.6.4 Cumulative significant effects for waste generation and disposal may occur, however, the quantities of waste generation for disposal to landfill for the committed developments are not quantified to allow a robust assessment to be carried out. Through legislation and planning conditions imposed, it can be asserted that the committed developments will adopt good and best





practice measures for sustainable resource and waste. As such, the potential for adverse effects which are significant, are reduced and considered unlikely.

## **1.7 Greenhouse Gases and Climate Resilience**

### **Greenhouse Gases**

- 1.7.1 The impacts of GHGs relate to their contribution to global warming and climate change. These impacts are global and cumulative in nature, with every tonne of GHGs contributing to impacts on natural and human systems. GHG emissions result in the same global effects wherever and whenever they occur. It is the cumulative effect of all GHG-emitting human activities that cause climate change, and therefore the assessment of the GHGs due to the Proposed Scheme implicitly assesses the cumulative effect of GHG emissions. For the Proposed Scheme, the quantification of the emissions in the assessment of significance or effects inherently assesses the combined and cumulative impacts, and this includes comparing the GHG emissions against the carbon budgets.

### **Climate Resilience**

- 1.7.2 The climate resilience effects identified as a result of the construction, and operation phases are limited in their spatial extent to the Site boundary and the Proposed Scheme in isolation. Therefore, cumulative climate change resilience effects with other schemes have not been considered.

## **1.8 Population and Human Health**

### **Construction Phase**

- 1.8.1 The land allocated for development of up to 4,000 dwellings to the east of West Winch is located adjacent to the Proposed Scheme. The development of these homes is dependent on the implementation of the Proposed Scheme to allow for access. There would therefore be no cumulative effect



interaction in the construction phase of the Proposed Scheme between these dwellings and the Population and Human Health receptors identified.

### **Operational Phase**

- 1.8.2 In the operational phase, the only anticipated cumulative effect interaction would be for human health. The associated increase in vehicle movements has been included in the traffic assessment, air quality, and noise assessments. There are no cumulative effects predicted in relation to human health and the receptors identified in this chapter.

## **1.9 Traffic and Transport**

### **Construction**

- 1.9.1 Many of the Committed Developments will have very little construction impact in combination with the Proposed Scheme due to proximity, construction trip generation, construction route and construction period.
- 1.9.2 The majority of the Housing Allocation is considered to be dependent development except the first 300 units, thus the rest of it cannot be occupied until the road is open. The 300 non-dependent units could be built at the same time as the Proposed Scheme and so has been considered in combination with the Proposed Scheme.
- 1.9.3 Additionally, construction traffic for 150 dwellings (50 on each of the three parts of the site which have live planning applications) have been considered in combination with the Proposed Scheme.
- 1.9.4 As a worst-case scenario, the peak construction traffic has been combined with the Proposed Scheme's peak construction traffic to estimate the magnitude of impact. It should be noted that the likelihood for the peaks to occur at the same time on the same route is very minimal. The combined peak construction traffic is set out in **Table 1-10**.

**Table 1-10 - Total Daily two-way Daily Construction Traffic and Magnitude of Impact**

Link	2019 Base (All Vehicles)	Proposed Scheme	Impact	450 Homes	Impact	In- Combination Flows	In- Combination Impact	Link Sensitivity
A47	40695	166	0.41%	2	0.01%	168	0.4%	Low
A47 (Hardwick Roundabout)	23325	166	0.71%	2	0.01%	168	0.7%	Very Low
A149 Queen Elizabeth Ln	28897	38	0.13%	1	0.00%	39	0.1%	Very Low
A10 West Winch Road	24919	110	0.44%	2	0.01%	112	0.4%	Medium
A47 Constitution Hill	20457	110	0.54%	2	0.01%	112	0.5%	Very Low
A47 Constitution Hill	20457	130	0.64%	2	0.01%	132	0.6%	Very Low
A10 Lynn Road	23159	110	0.47%	2	0.01%	112	0.5%	Medium
A10 Lynn Road	20890	110	0.53%	2	0.01%	112	0.5%	Medium
A10 Lynn Road	21044	24	0.11%	0	0.00%	24	0.1%	Medium
A149 Hardwick Road	20729	16	0.08%	0	0.00%	16	0.1%	High
School Road (Middleton)	598	130	21.74%	2	0.30%	132	22.0%	High
A47 (Lynn Road)	20005	130	0.65%	2	0.01%	132	0.7%	Low



Link	2019 Base (All Vehicles)	Proposed Scheme	Impact	450 Homes	Impact	In-Combination Flows	In-Combination Impact	Link Sensitivity
A149 Hardwick Rd (north)	25334	16	0.06%	0	0.00%	16	0.1%	Medium

**Table 1-11 - Total Dail two-way Construction Traffic (HGVs) and Magnitude of Impact**

Link	2019 Base (All Vehicles)	Proposed Scheme	Impact	450 Homes	Impact	In-Combination Flows	In-Combination Impact	Link Sensitivity
A47	3663	74	2%	1	0.0%	75	2%	Low
A47 (Hardwick Roundabout)	2333	74	3%	1	0.0%	74	3%	Very Low
A149 Queen Elizabeth Ln	1445	10	1%	1	0.0%	10	1%	Very Low
A10 West Winch Road	2492	42	2%	1	0.0%	42	2%	Medium
A47 Constitution Hill	1432	42	3%	1	0.0%	42	3%	Very Low
A47 Constitution Hill	1432	118	8%	1	0.0%	118	8%	Very Low
A10 Lynn Road	2316	42	2%	1	0.0%	42	2%	Medium
A10 Lynn Road	2298	42	2%	1	0.0%	42	2%	Medium



<b>Link</b>	<b>2019 Base (All Vehicles)</b>	<b>Proposed Scheme</b>	<b>Impact</b>	<b>450 Homes</b>	<b>Impact</b>	<b>In- Combination Flows</b>	<b>In- Combination Impact</b>	<b>Link Sensitivity</b>
A10 Lynn Road	2315	0	0%	1	0.0%	0	0%	Medium
A149 Hardwick Road	829	0	0%	1	0.0%	0	0%	High
School Road (Middleton)	30	118	393%	1	0.0%	118	393%	High
A47 (Lynn Road)	1400	118	8%	1	0.0%	118	8%	Low
A149 Hardwick Rd (north)	760	0	0%	1	0.0%	0	0%	Medium



1.9.5 Based on rule 1 and 2 of the IEMA Guidance only School Road is scoped in for assessment.

1.9.6 As demonstrated in **Tables 1-10 and 1-11**, the anticipated impact of the housing scheme is less 1% uplift in general traffic or HGVs. The Proposed Scheme is expected to have the most significant effect.

### **Operational**

1.9.7 The assessment within **Chapter 16: Traffic and Transport** already includes committed development in the DS2 scenario. Hence the cumulative effect has therefore been assessed within the DS2 assessment.

1.9.8 The assessment of the links against the individual criteria thresholds demonstrated that generally across the network within the study area, there will be a moderate to minor impact from traffic and transport on receptors due to the housing scheme.

1.9.9 With the housing scheme in place, the Proposed Scheme is expected to see a moderate adverse effect as a worst case but given the proposed segregated walking and cycle routes with safe crossing points, the effect of the redistributed traffic on the Proposed Scheme is expected to be permanent minor to negligible adverse which is **not significant**.

1.9.10 Long Lane following the housing scheme is expected to see a permanent moderate adverse effect on severance and pedestrian and cycle amenity which is **significant**.

1.9.11 Also, Granvelhill Lane is expected to see a substantial adverse effect on severance which is **significant**.

1.9.12 These effects are however outside the Proposed Scheme. It is therefore expected that the housing scheme will consider additional mitigation at these locations.

1.9.13 The DS2 scenario will also result in a change in sensitivity of some of the links due to the additional dwellings. However due to the reduction in traffic on



most local roads, the impact remains as discussed in the main assessment. The Proposed Scheme with the relatively high traffic volume could be expected to see a substantial adverse effect when the sensitivity is changed from low to medium. However, this is because there are no base flows to compare the future flows with, so the magnitude of impact is exaggerated.

1.9.14 The effect as assessed is therefore expected to be minor adverse on the Proposed Scheme due to the NMU infrastructure proposed .

## 1.10 Difficulties and Uncertainties

1.10.1 The assessment of effect interactions and in-combination effects resulting from the Proposed Scheme have focused on the residual effects from the construction and operational phase following the implementation of mitigation measures.

1.10.2 There is an assumption that mitigation measures identified in the respective technical **chapters 6 to 16** have been incorporated or adopted to mitigate any adverse effects resulting from the Proposed Scheme.

1.10.3 An assessment of in-combination effects has been limited to publicly available information obtained from the NCC planning portal, Borough Council of King's Lynn and West Norfolk planning portal. Any assumptions due to missing information have been made using professional judgement. This document contains committed developments on the planning portal at the time of writing.



## 1.11 References

**Reference 17.1:** DMRB LA 104. [online] Available at: [DMRB LA 104](#)

**Reference 17.2:** National Infrastructure. Planning Advice Note. Available online at: [Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects | National Infrastructure Planning \(planninginspectorate.gov.uk\)](#)

**Reference 17.3:** IEMA Cumulative Effects Assessment in EIA . [online] Available at: [IEMA - Cumulative Effects Assessment in EIA](#)

**Reference 17.4:** Town and Country Planning (Environmental Impact Assessment) Regulation 2017.

**Reference 17.5:** Norfolk City Council, Planning Portal. [online] Available at: [planning-&-building-control \(norfolk.gov.uk\)](#)



**Figures**

**Figure 1 – Committed Developments**

