

# Anglia Square, Norwich

Environmental Statement

## **Chapter 14: Cumulative Effects, Mitigation And Residual Impacts**

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## CHAPTER 14: CUMULATIVE EFFECTS, MITIGATION AND RESIDUAL IMPACTS

- 14.1 The following chapter provides a summary of the potential cumulative effects already described in each technical assessment. The chapter also summarises the predicted environmental impacts, including residual impacts and, where proposed, any necessary mitigation measures.

### Cumulative effects

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- 14.2 In addition to the assessments already undertaken in relation to the environmental topics, the EIA Regulations 2017 require an ES to describe the likely effects of development on the environment when taken cumulatively with other environmental effects and any existing or approved development in the vicinity.
- 14.3 Whilst there is no legislative definition or formal national guidance of what constitutes a ‘cumulative effect’ and there is no prescribed methodology on how to assess such interactions between environmental receptors or other development sites, the European Commission (EC) describes cumulative impacts as:

*“Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project.”*

- 14.4 There are two types of cumulative effect, which are commonly known as ‘Type 1’ and ‘Type 2’ effects, respectively. These are generally defined as follows<sup>1</sup>:
- **Type 1 Cumulative Effects;** Combined effects of individual effects, for example noise, dust and visual intrusion from one development on a particular receptor (each sensitive receptor has been defined with the individual assessments and may vary across the topics); and
  - **Type 2 Cumulative Effects:** The combined effects arising from another development site or sites, which individually might be insignificant, but when considered together could create a significant cumulative effect.
- 14.5 Throughout this ES, each of the technical chapters has assessed whether there will be any cumulative or interactive effects, as defined above. These effects are considered as an integral part the technical chapters and are summarised in the table below.

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<sup>1</sup> Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, European Commission, 1999

14.6 Cumulative effects can be defined as those that arise from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. The following table lists the cumulative schemes, either existing or approved, that have been agreed with NCC:

**Table 14.1: Cumulative Effects agreed with NCC**

Project Name	Project Reference and Description	Status
St Annes Wharf King Street Norwich Norfolk	04/00605/F: The demolition of existing buildings to slab level and the development of the following mixes; 437 residential units ,2128 sq m of A1,A2 , A3 and D2 uses(max.2000 sq m A1),the provision of 305 car parking spaces, riverside walkway, public open space and hard and soft landscaping including external lighting ,seating, bollards, walkways, cycle paths, steps and ramps, internal access roads, delivery bays, boundary enclosure, new vehicle and pedestrian and cycle access points, alteration of existing access points and associated infrastructure works	Consented 16 March 2006  Under construction
Land North Of Carrow Quay Kerrison Road Norwich	11/02104/O: Outline application with full details of access for residential-led development of between 200 and 250 No. residential flats (Use Class C3) and 140 car parking spaces with commercial office space (Class B1a), groundsman's facilities (Class B8), community uses (Class D1/D2) and associated works including Riverside Walk and access road	Consented 28 Jun 2013  A lawful start has been made on site.
Barrack Street Development Site Barrack Street Norwich	15/01927/O: Outline application with all matters reserved for the erection of up to 200 dwellings, together with public open space and up to 127 car parking spaces for B1 office use and 150 residential parking spaces.	Consented 12 August 2016
The Quad, All Saints Green, Norwich	16/00790/F: Construction of a 244 student bedroom development with management facilities and amenities; flexible office/business space with independent access, and associated landscaped courtyard (revised)	Consented 28 October 2016
St Marys Works Duke Street	16/01950/O: Outline planning application to include the demolition of office/workshop buildings; part	Resolution to grant consent,

Norwich 1QA NR3	demolition/part retention, conversion and extension of St Mary's Works building and redevelopment of the site to provide circa 151 residential units (Use Class C3); circa 4,365sqm office floor space (Use Class B1a); circa 3,164sqm hotel and ancillary restaurant facility (Use Class C1); circa 451sqm retail (Use Class A1/A5); circa 57sqm gallery space (A1/D1); circa 124 parking spaces and associated landscaping works (amended description and plans)	awaiting s.106 January 2018.
Land and Buildings North East Side Of Spitfire Road Norwich	17/00016/F: Construction of hotel with associated parking, landscaping and highways works	Consented 6 December 2017
St Stephens Tower St Stephens Street Norwich, NR1 3QN	17/00357/F: Redevelopment of St Stephens Tower for student accommodation with vertical extensions, demolition of ancillary structures to facilitate a new link building and landscaping.	Consented 8 September 2017
St Crispins House Duke Street Norwich NR3 1PD	17/01391/F Change of Use application in respect of the conversion and extension of an existing 3, 4 and 5 storey office building (B1 use class) to student accommodation (sui generis use class) containing 614 student bed spaces and communal accommodation at ground floor level, to include common room facilities and a gymnasium. Associated external works.	Approved 1 March 2018
Land North of Carrow Quay Kerrison Road Norwich	11/02104/O and 13/01270/RM: development of 250 flats/offices.	Lawfully implemented

### Highways, Traffic and Transport

- 14.7 Transport and traffic is discussed in detail at Chapter 6 of this ES. The potential cumulative effects of this Proposed Development combined with other potential developments in the local area have been thoroughly assessed. The effect of cumulative developments is already included in the future

base scenario for the growth applied to the traffic flows on the network. Therefore, cumulative effects have been considered within the main body of the transport assessment outlined in Chapter 6.

### **Construction**

- 14.8 It is considered that the cumulative effect of developments in the area will result in a temporary increase in traffic during construction (due to the construction vehicles), however, this is considered to be a negligible temporary impact.
- 14.9 Notwithstanding, these impacts would be mitigated through good practices to be set out in a Construction Environmental Management Plan.

### **Operational**

- 14.10 The Norwich Northern Distributor Road (NDR) strategic model has been used to inform the growth in traffic on the surrounding highway network. This model takes into consideration the planned and committed schemes in Norwich, South Norfolk and Broadland Districts and was informed by NCC.
- 14.11 In particular, the St Marys Works site, which is on the opposite corner of the St Crispins Road / Pitt Street roundabout, has recently received a resolution to grant planning permission for a mixed-use redevelopment. The Transport Assessment for St Mary's Works highlighted that the proposals would generate less traffic than the current land use assuming the site is fully operational. Application of the existing traffic data from the St Marys Works site (which would be included within the NDR, model) would therefore provide a robust analysis. Therefore, the assessment undertaken within the Transport Assessment for the Development at Anglia Square, and the traffic flows indicated within this ES chapter already, take into account planned and committed developments.
- 14.12 The traffic modelling demonstrates that the regeneration of Anglia Square would have a minor impact on the operation of the surrounding highway network in the anticipated year of opening of Phase 1 and on completion for the full development in 2028.

### **Heritage**

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- 14.13 The findings of the Heritage assessment are set out at Chapter 7 of this ES. There are several heritage assets within the study area of the Site that are considered to be potentially sensitive to the cumulative effects. The Study Area was established to identify built heritage assets that could potentially be affected by development on the Site, including all designated heritage assets and locally listed buildings within a 250m radius of the Site and all Grade I and Grade II\* designated heritage assets and Scheduled Monuments within a 1km radius. The Built Heritage Statement (**Appendix 7.1**) provides a comprehensive overview of heritage assets within the Study Area.

14.14 The Site includes 43/45 Pitt Street, which is included on NCC's Local List. The Site is located entirely within the Norwich City Centre Conservation Area and makes up the larger part of Character Area 2: Anglia Square.

### **Construction**

14.15 During the Construction phase there would be major adverse residual constructional effects caused to the built fabric of 43/45 Pitt Street, which is proposed for demolition. These effects would be permanent. However, it should be noted that there is an extant permission for its demolition which was granted in 2008 (LPA Ref: 08/00974/F).

14.16 The remaining construction effects would otherwise involve effects on the settings of heritage assets, which could relate to construction noise, dust or vibration, in addition to views of construction equipment (including any cranes) and hoardings. These effects would be short term and temporary and would change as the construction phase progresses. Construction effects would be mitigated by the implementation of a Construction Environmental Management Plan to control and direct construction works accordingly to minimise effects.

### **Operational**

#### **Conservation Areas**

14.17 It is considered that cumulative developments could have an effect upon the character and appearance of the Norwich City Centre Conservation Area, when viewed cumulatively alongside the Proposed Development, namely:

- St Anne's Wharf, King Street;
- The Quod, All Saints Green
- St Marys Works Duke Street;
- St Stephen's Tower, St Stephens Street;
- Car Park Rear of Premier Travel Inn Duke Street; and,
- St Crispins House Duke Street.

14.18 It should be noted that the development known as the 'Car Park of the Premier Travel Inn, Duke Street' was refused on 14 March 2018 and therefore, is no longer considered to be a 'reasonably foreseeable' project and hence no longer included in the cumulative assessment.

14.19 The identified cumulative schemes all fall within the City Centre Conservation Area, with potential to have cumulative effects on its character and appearance. St Anne's Wharf, King Street, The Quod, All Saints Green and St Stephen's Tower, St Stephen's Street are all dispersed across the southern

end of the conservation area and would have negligible cumulative effects alongside the Site at Anglia Square. St Mary's Works, Duke Street and St Crispins House, Duke Street are both located within the same Character Area as Anglia Square and there would be more noticeable cumulative effects.

- 14.20 The Conservation Area Appraisal identifies that the Character Area is one of very poor townscape quality which visually severs the northern housing areas from the rest of the historic central area, with St Crispins House identified as a negative landmark (as with Anglia Square). The cumulative developments, therefore, collectively offer the opportunity to greatly enhance and reinvigorate this area of townscape with high quality schemes that improve connectivity and vitality in these areas.
- 14.21 There would be some degree of increased building scale, with upper limits of 9 storeys at St Mary's Works and 8 storeys at St Crispins House, but this character of larger buildings has already been established in this location with Stannard's Place and St Crispins House, and so this would not fundamentally affect the manner in which this part of the conservation area is appreciated.
- 14.22 Overall, it is considered that the identified schemes could deliver significant beneficial cumulative effects, particularly relating to Character Area 2, Anglia Square.

**Listed Buildings**

- 14.23 The following table summarises the cumulative effects of the Proposed Development with the identified cumulative developments.

**Table 14.2: Cumulative Effects on Listed Buildings in Norwich City**

Sensitive Receptors	Cumulative Developments alongside Anglia Square	Cumulative Effect
Church of St Martin at Oak (Grade I)	St Marys Works, Duke Street	It is expected that the cumulative developments could enhance the setting of the identified listed buildings through the replacement of poor quality areas of townscape with high quality schemes, introducing a new vitality to the area. These schemes could limit potential glimpsed views from within the principal settings of these assets towards the Development at Anglia Square, with associated increases in density of development. As such, the cumulative effects could
Church of St Mary (Grade I)	St Crispins House Duke Street	
Folly House and Pineapple House (Grade II)		

Sensitive Receptors	Cumulative Developments alongside Anglia Square	Cumulative Effect
		<p>reduce any potential effects of the Proposed Development on the setting of the listed buildings.</p> <p>Overall it is expected that these schemes could deliver beneficial cumulative effects within the settings of the identified listed buildings.</p>
<p>Church of Saint George (Grade I)</p> <p>1-9 Muspole Street (Grade II)</p> <p>The Woolpack Public House (Grade II)</p>	<p>St Crispins House, Duke Street.</p>	<p>Potential views of the Proposed Development would be affected by the scheme at St Crispins House. The additional two storeys proposed to the main bulk of St Crispins House would completely obscure Block F and also part of the 25-storey tower (see Townscape View 36 showing cumulative schemes).</p>
<p>The setting of Norwich Castle</p>	<p>The Quad, All Saints Green</p> <p>St Anne's Wharf, King Street</p> <p>St Stephen's Tower, St Stephens Street.</p>	<p>It is considered that the cumulative effect of these identified schemes, along with Anglia Square, on the setting of Norwich Castle would be very low. Most of the Proposed Development at Anglia Square would merge with the surrounding townscape, with only the tower element featuring in distant views. It is considered that the cumulative effects of the tower element alongside those other identified schemes would not fundamentally have any greater effect than the Proposed Development in its own right, which would have negligible residual effects.</p>

Sensitive Receptors	Cumulative Developments alongside Anglia Square	Cumulative Effect
Former Church of St James (Grade I),	Barrack Street Development Site, Barrack Street.	It is considered that there would be no cumulative effects as a result of this scheme and the Proposed Development at Anglia Square on the setting of the Former Church of St James, which derives only a limited contribution from its setting, located next to the busy St Crispins Road.

## Archaeology

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- 14.24 Archaeology is considered in detail at Chapter 8 of this ES.
- 14.25 The Archaeology assessment considered type 2 cumulative effects i.e. the combined effects of several development schemes (in conjunction with the proposed Development) which may, on an individual basis be insignificant but, cumulatively, have a significant effect with the agreed cumulative developments. The assessment identified that no archaeological assets (either designated or undesignated), which lie beyond the confines of the Site itself, will be impacted by the proposed Development, and in the light of this, no cumulative effects on archaeological assets have been identified.

## Noise

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- 14.26 The cumulative effect of Noise is assessed at Chapter 9 of the ES. It considers possible noise effects during the construction phase, and during the operational phase by way road traffic noise. The Chapter concludes that the most significant cumulative effect would occur from the changes to traffic flow occurring from the Development.
- 14.27 The model used within the Transport Assessment, relied on the Norwich Northern Distributor Road (NDR) strategic model to inform the growth in traffic on the surrounding highway network. This model took into consideration the planned and committed development and road schemes in Norwich, South Norfolk and Broadland, and was informed by NCC. Of these cumulative developments taken into account, the St Marys Works scheme, located on the opposite corner of the St Crispins Road/Pitt Street roundabout, was the subject of a resolution to grant planning consent for mixed use redevelopment in January 2018 and is the most relative to the Development at Anglia Square.

14.28 As such, in respect of cumulative effects, taking account St Crispin's Road development and the opening of the NDR with the resultant city centre traffic measures, noise levels from vehicle movements on St Crispins Road should be lower from 2018, and more so by 2028, the year of full occupation of the Development, compared to the current situation as measured. As the traffic levels are predicted to be less, as a consequence, the likely noise effects from traffic is also likely to be less. This ensures that the desired internal and external noise levels for the Development can be achieved with the mitigation indicated, as detailed within the SES Noise Assessment Report.

### **Air Quality**

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14.29 Air quality is discussed at Chapter 10 of this ES and establishes that cumulative effects manifest themselves through dust associated with the construction phase of the developments, and through the increased traffic flows during the operational phase of the development.

### **Construction**

14.30 IAQM guidance indicates that cumulative effects of the construction phase are likely to occur where separate construction sites are within 500m of each other. It is noted that concurrent construction will be taking place at the St Mary's Works site which is within 500m of the Site.

14.31 As such, dust monitoring will be carried out during the construction phase to ensure that dust mitigation measures are effective during this phase of the Development. The monitoring and associated mitigation measures will be detailed within the Construction Environmental Management Plan. With these control measures and monitoring in place, the Development will not cause harm due to adjacent sites.

### **Operational**

14.32 The cumulative impacts of developments within the area has been taken account of in traffic data provided by WSP. Therefore, the impacts described previously thus account for the cumulative impacts.

### **Socio- economic**

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14.33 The Socio-economic effects of the Development are considered at Chapter 11 of this ES.

14.34 This assessment identifies whether effects from several developments which individually may be insignificant could, when considered together, cause significant cumulative effects requiring mitigation.

### **Construction**

14.35 In terms of the construction phase, it is recognised that adverse cumulative socio-economic effects could arise if all of the developments were to all come forward at once, as the availability of labour

could be constrained. However, the developments are at different stages of the development process, have varying lead-in times and are expected to come forward on a phased basis.

- 14.36 A number of the schemes are currently under construction and are expected to be complete prior to the commencement of the Development. Similarly, some schemes already benefit from planning permission but not yet commenced construction, these schemes are likely to come forward sooner.
- 14.37 As such, the demand for labour and specific skills is likely to be distributed over a number of years as individual schemes are built out. Furthermore, construction firms often use their own, permanent workforce on projects supported by local contractors, meaning that availability of local labour would not necessarily act as a constraint to delivery of projects. Following the uplift in construction activity in recent years, it is likely there will now be a supply of local workers with construction skills and businesses which have developed to support / supply this activity. Therefore, it is considered that the magnitude of any adverse effects at the construction phase will be negligible and therefore does not require mitigation.

### **Operational**

#### **Social and Community Infrastructure**

- 14.38 Table 14.3 below summarises the quantum of development and the supporting social and community infrastructure proposed as part of the cumulative schemes under consideration. The analysis indicates that the majority of the schemes provide social and/or community infrastructure to meet the demands that they generate and wider needs across the Norwich Area. The Community Infrastructure Levy (CIL) Charging Schedule was adopted by Norwich City Council on the 25th June 2013 and came into effect on the 15th July 2013. Regulation 123 of the CIL Regulations (2011) as amended, outlines that once a local authority charging schedule is adopted, then the Section 106 should be scaled back to those matters that are directly related to a specific site. CIL contributions ensure that development proposals provide an appropriate payment for the funding of current and future infrastructure arrangements which are identified as being relevant to the specific development in question.
- 14.39 On this basis, it is considered that the magnitude of any adverse effects arising from increased demand for social and community infrastructure will be negligible and are likely to be short term and therefore does not require mitigation.

#### **Housing**

- 14.40 The Joint Core Strategy for Broadland, Norwich and South Norfolk (JCS) sets the overall housebuilding levels needed to achieve the ambitious housing growth required in the greater Norwich area to 2026. For the City of Norwich, the new dwelling requirement over this period (calculated from

a base date of April 2008) is 8,592 dwellings. Further to this, there is a need for additional housing sites to be identified in Norwich sufficient for 3,000 extra homes over the plan period. This is in addition to sites that already have planning permission for housing development and land already earmarked for housing in other adopted plans. As such, the cumulative effect of new housing provision will be beneficial and of major significance.

**Table 14.3: Quantum of Development and Supporting Infrastructure Proposed by Cumulative Schemes**

Scheme	LPA Ref	No.of Residential Units (net)	Retail	Employment Space (sqm)	Educational Facilities	Healthcare Facilities	Open Space, Sport, Rec, Playspace	Community Facilities
Land and Buildings north east of Spitfire Road	17/00016/F	~	C1 Hotels-5114 m <sup>2</sup> (125 rooms)	~	~	~	+	Fitness suite, meeting rooms, breakfast and communal areas
Redevelopment of St Stephens Tower	17/00357/F	702	~	~	~	~	+	Student centre with common rooms
St Mary's Works extension	16/01950/O	151	451m <sup>2</sup> A1/A5. 3,164 m <sup>2</sup> hotel and ancillary restaurant facility (Use Class C1)	4,365sqm office floor space (Use Class B1a)	~	~	+	57m <sup>2</sup> A1/D1
St Crispins House change of use to student housing	17/01391/F	614	~	6,351 (net) 20,840 (gross)	~	~	+	Courtyard and seating area, and common room
Barrack Street	15/01927/O	200	~	Shared parking with adjacent B1 use	~	~	+	Public open space
Land North of Carrow Quay	11/02104/O	200-250	~	Commercial office space (B1a); groundsman's facilities (B8)	~	~	+	Community uses (D1/D2)

Scheme	LPA Ref	No.of Residential Units (net)	Retail	Employment Space (sqm)	Educational Facilities	Healthcare Facilities	Open Space, Sport, Rec, Playspace	Community Facilities
Land North of Carrow Quay	13/01270/RM	250	~	B1a offices- 113m <sup>2</sup> ; B8- 279m <sup>2</sup> ; 401m <sup>2</sup> - flexible office space	~	~	+	Community uses (D1/D2)

## Ecology

14.41 Ecology is addressed at Chapter 12 of this ES. The Site contributes little in the way of ecology for the City of Norwich by itself and has no continuity of 'green' habitat with surrounding areas. It is currently devoid of any significant biodiversity. A phase one habitat survey is submitted as part of the application but does not form part for the assessment for the purposes of this ES. The ecology chapter addresses a requirement to assess the proposals for redevelopment of Anglia Square on the European Union protected sites within a 22mile (35.4km) radius of the Site. The study area was widened to include all areas within about 22 miles (35.4km) of the Site, which includes several EU towards the coast at Great Yarmouth. There are two EU sites in the area, the River Wensum Special Area of Conservation (SAC) and The Broads SAC. The River Wensum SAC is the nearest to the south of Anglia Square.

## Construction

14.42 It is not likely that there will be any overspill of construction works' effects out of the development site into any of the EU sites, because all of the known EU sites are located at some distance from the construction sites. In addition, the construction activity on each cumulative site will be closely monitored by the respective developers, in accordance with Construction Environmental Management Plans (CEMPs) which will be agreed with NCC and Norfolk County Council prior to the commencement of any of the sites.

14.43 In relation to dust, air and water quality, the construction site would not be anticipated to produce any toxic gases or effluents that might be transmitted by air, or by water as leachate that might find their way into any of the sensitive EU sites, because these matters would also be covered by the respective CEMPs.

## Operational

14.44 The cumulative effect of an increase in the population, and modes of travel by cars and bicycles to these sites could have a potential to detrimentally affect the EU sites. However, this is offset by the normal management of nature reserves where people and their pets are carefully corralled along paths that avoid sensitive areas whilst visitors enjoy good views. Typically, visitors are directed along particular pathways that avoid sensitive habitats and species, and that direction is successful for the protection of those habitats and species, it can be concluded that an increase in footfall will not detract from the overall success of the nature conservation being managed. This success is only applicable where people are not permitted to venture off such designated routes through sensitive sites.

14.45 The EU sites are located around the east coast, the Norfolk wetlands, so visitors are usually separated by water, marshes and fens that stop visitors wandering off site and disturbing habitats and wildlife. The Norfolk area as a whole, and the EU sites, do not have large open spaces of

heathland (except Breckland) where visitor pressure is more of a potential issue, so the issue of potential damage to heathland is not a significant issue.

- 14.46 The assessment of cumulative effects of the Proposed Development in combination with other cumulative schemes concludes that most, if not all of the cumulative developments, will have enhancements of their own which will offset any detrimental effects of the developments on the EU sites. Furthermore, the designated nature reserves have put in place measures to accommodate the pressure from visitors and to offset any adverse environmental impact on protected habitats and protected species.
- 14.47 The impact of cumulative development will therefore be negligible.

### **Townscape and Visual**

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- 14.48 Chapter 13 of the ES assesses the likely significant effects on townscape and visual receptors in Norwich as a result of the Proposed Development. **Appendix 13.1** provides illustrative views of the Development from a number of agreed viewing points.

### **Construction**

- 14.49 The likely construction effects relate to the changes that would result from the construction process i.e. the demolition of the existing buildings and construction of the new buildings. The effects associated with this process are temporary, such as the construction machinery that will be present on the Site during construction phases, construction dust, noise and hoardings which will be present for a short term. These temporary effects will change as the Proposed Development progresses and will not be present at the completion of the project.
- 14.50 In terms of the cumulative developments, the cumulative schemes are either currently under construction and are expected to be completed prior to the commencement of the Development or already benefit from planning permission but not yet commenced construction, these schemes are likely to come forward sooner. Therefore, it is unlikely that the construction of the cumulative schemes would take place alongside the Proposed Development at Anglia Square at the same stage of construction.
- 14.51 The Proposed Development would involve the demolition of all buildings, except for Gildengate House, and the building upon the cleared areas and the surface car parking, with the establishment of 6 new urban blocks. During this period of development there would be temporary effects experienced, such as closure of access routes through the Site and substantial construction machinery, having a moderate-adverse effect. However, this will be experienced only for a short period and owing to the nature of the phased development, this adverse effect will be offset by the benefits of the incremental completion of the Proposed Development and the improvements this will deliver. This

will result in a direct and permanent moderate-beneficial effect through the establishment of a higher quality townscape.

### **Operational**

14.52 Following a site visit and 3D model testing, the cumulative schemes found most relevant to the Proposed Development are: St Marys Works and St Crispin's House. These schemes have been assessed in conjunction with the Proposed Development and when viewed cumulatively, St Mary's Works and St Crispin's House would be seen in the foreground, resulting in reduced visibility of the Proposed Development in some views. Therefore, this would reduce the magnitude of change of the Development in some cases, altering the significance of the effect somewhat, but retaining the qualitative quality of the effect.

### **Summary of Mitigation and Residual Effects**

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14.53 Table 14.4 below reports the possible environmental effects associated with the Proposed Development, proposed mitigation where appropriate, and the identification of residual effects.

14.54 Residual effects are those which remain following the implementation of the mitigation measures described for each topic, and are summarised in this chapter.

14.55 The formulation of the proposal has been an iterative process undertaken in parallel with the assessment of environmental effects. As a consequence, some measures to mitigate significant potential negative environmental effects have been incorporated into the scheme design in order to avoid, reduce or offset such effects.

14.56 However, where it has not been possible to incorporate mitigation into the iterative design process, the following mitigation could be achieved by one of the following means:

- Mitigation through controls on construction activities; or
- Mitigation to be applied through on-going management and monitoring once development commences; or
- During the operation of the development.

14.57 The residual effects of the Proposal have been assessed following the implementation of the proposed mitigation measures outlined in the preceding technical chapters. Each technical chapter contains detailed consideration of residual effects.

**Table 14.4: Summary of Mitigation and Residual Effects**

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Highways Traffic and Transport	Driver delay & severance	Operational / Permanent / Adverse	Negligible other than; Edward Street – Major Esdelle Street – Minor Magpie Road – Minor	Provision of an improved crossing facility for cyclists and pedestrians across Edward Street; Provision of a layby on Magdalen Street to relocate the existing inbound Magdalen Street bus stop to prevent blocking of the bus lane while buses are alighting; Provision of an unsignalised crossing south of the flyover on Magdalen Street; CEMP to be completed and approved prior to commencement of demolition/construction; Provision of new areas of high quality public realm; Two new principal north-south and east-west pedestrian/cycle routes running across the Site; CCTV monitoring; Provision of secure cycle parking;	Negligible other than; Edward Street – Major adverse Esdelle Street – Minor adverse Magpie Road – Minor adverse  (these negative impacts are resulting from the fact that at the moment the existing Multi-Storey Car Park is currently not

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
				High quality parking within a new MSCP for public use; and Travel Plan to be implemented prior to first occupation, including monitoring of measures, and appointment of a Travel Plan Co-ordinator.	in operation, in addition Edward Street currently has low traffic flows. If the existing Multi-Storey Car Park were to be reopened it is likely that this would be a negligible impact on Edward Street)
	Pedestrian & cycle delay & amenity	Operational / Permanent / Beneficial	Negligible		Moderate Beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Accidents & safety	Operational / Permanent / Adverse	Negligible		Negligible
	Fear and Intimidation	Operational / Permanent / Adverse	Negligible		Negligible
	Driver delay & stress	Construction period / temporary / Adverse	Negligible		Negligible
	Pedestrian & cycle delay & amenity	Construction period / temporary / Adverse	Negligible		Negligible

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Accidents & safety	Construction / temporary / Adverse	Negligible		Negligible
	Severance	Construction / temporary / Adverse	Negligible		Negligible
	Fear and Intimidation	Construction / temporary / Adverse	Negligible		Negligible
Heritage	Visual and audible effects of construction in close proximity, mitigated by CEMP. Demolition would remove poor quality buildings within setting.	Temporary, Short Term	Moderate Adverse	Implementation of CMP	Moderate Adverse

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
(Group 1) <sup>2</sup>					
Heritage (Group 2) <sup>3</sup>	Visual and audible effects of construction experienced from within courtyard, mitigated by CEMP.	Temporary, Short Term	Moderate Adverse	Implementation of CMP	Moderate Adverse
Heritage	Visual and audible effects of construction but these would be short term and temporary.	Temporary, Short Term	Moderate Adverse	Implementation of CMP	Moderate Adverse

<sup>2</sup> 75 Magdalen Street, Grade II (1372839), Cat and Fiddle Public House, Grade II (1051191), Rear of Numbers 13 and 15, St Augustine's Street, Grade II (1051897), 107 and 109, Magdalen Street, Grade II (1218903), 1 and 3, St Augustine's Street, Grade II (1220508), 5, St Augustine's Street, Grade II (1051893), 7, St Augustine's Street, Grade II (1220515), 9 and 11, St Augustine's Street, Grade II (1372494)

<sup>3</sup> Doughty's Hospital, Grade II (1187193), Church of St Augustine, Grade I (1051896)

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
(Group 3) <sup>4</sup>					
Heritage 2-12, Gildencroft, Grade II (1051248)	Visual and audible effects of construction in close proximity, mitigated by CMP and reduced by intervening tree planting.	Temporary, Short Term	Moderate Adverse	Implementation of CMP	Moderate Adverse
Heritage	Demolition of building, no operational effects.	Permanent, Long Term	Moderate Adverse	Demolition of building, mitigated with appropriate building recording, level to be agreed with NCC. No subsequent operational effects.	Moderate Adverse

<sup>4</sup> 21, St Augustine's Street, Grade II (1220534), 23 and 25, St Augustine Street, Grade II (1372495), 27-29, St Augustine's Street, Grade II (1220544), 22 and 24, St Augustine's Street, Grade II (1220581), 26-30, St Augustine's Street, Grade II (1372458), 32, 34, 36 and 36A, St Augustine's Street, Grade II (1290907)

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
43/45 Pitt Street (Locally Listed Building)					
Heritage  75 Magdalen Street, Grade II (1372839)  Cat and Fiddle Public House, Grade II (1051191)	Replacement of cinema and poor quality buildings with high quality scheme of appropriate scale at eastern edge.	Permanent, Long Term	Moderate Beneficial	No further mitigation required	Moderate Beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
113, Magdalen Street, Grade II (1051192)					
Doughty's Hospital, Grade II (1187193)	Views of proposed development, with taller scale and massing. Recladding of poor quality Gildengate House offers an enhancement to the existing view of this building.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse
Heritage (Group 4) <sup>5</sup>	Views of proposed Development, with taller scale and massing, but also associated enhancements to urban grain and connectivity.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse

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1 and 3, St Augustine's Street, Grade II (1220508), 5, St Augustine's Street, Grade II (1051893), 7, St Augustine's Street, Grade II (1220515), 9 and 11, St Augustine's Street, Grade II (1372494), 21, St Augustine's Street, Grade II (1220534), 23 and 25, St Augustine's Street, Grade II (1372495), 27-29, St Augustine's Street, Grade II (1220544), 2-12, Gildencroft, Grade II (1051248) 22 and 24, St Augustine's Street, Grade II (1220581), 26-30, St Augustine's Street, Grade II (1372458), 32, 34, 36 and 36A, St Augustine's Street, Grade II (1290907), 42-52, St Augustine's Street, Grade II (1051897).

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Heritage Church of St Augustine, Grade I (1051896)	Proposed Development in close proximity, with taller scale and massing, but enhancements to setting through reinstatement of historic urban grain and high-quality design of new buildings.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse
Heritage 115 and 117, Magdalen Street, Grade II (1291722)	Replacement of cinema and poor-quality buildings with high quality scheme of appropriate scale at eastern edge.	Permanent, Long Term	Moderate Beneficial	No further mitigation required	Moderate Beneficial
Heritage Former Church of St Saviour,	Views of poor quality cinema building at eastern edge of the Site replaced with high quality scheme.	Permanent, Long Term	Moderate Beneficial	No further mitigation required	Moderate Beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Grade I (1372838)					
Heritage The Catherine Wheel Public House, Grade II (1290924)	Views of proposed Development, with taller scale and massing, but also associated enhancements by replacement of Sovereign House with building that reveals new views of the Cathedral.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse
Heritage The Cathedral of the Holy and Undivided Trinity, Grade I (1051330)	Views of proposed Development within wider setting of the listed building, with tall scale and massing. Enhancements offered by the creation of new views of the Cathedral, currently blocked by Sovereign House.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Heritage  Church of St Clement, Grade I (1051282)  2-9, Octagon Court, Grade II (1051929)  City walls and towers, Grade I and Scheduled Ancient Monument, 1004023	Views of proposed Development within wider setting of the listed building, with taller scale and massing.	Permanent, Long Term	Moderate Adverse	Embedded mitigation through high quality design of proposed Development and considered placement of tower element.	Moderate Adverse

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Archaeology	<p>Potential destruction of previously unrecorded buried archaeological remains during the construction phase of the Development</p> <p>No effects anticipated during operational/post construction phase</p>	Permanent	Moderate adverse	The Development design will allow some areas of archaeological remains to be preserved in situ. Where impacts on potential buried archaeological remains are inevitable, these will be offset by a programme of archaeological excavation, recording, analysis and publication which would fully realise their potential as sources of archaeological data	There will be no residual impacts
Air Quality	Construction dust emissions.	Temporary, during construction phase	Moderate	Implementation of a CEMP	Not significant
	Increased NO <sub>2</sub> levels from increased operational phase traffic.	Long term	Slight/Negligible	Installation of mechanical ventilation, or whole house ventilation systems, as required by elevation	Negligible

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Increased PM <sub>10</sub> levels from increased operational phase traffic.	Long term	Negligible	<p>The provision of Electric Vehicle (EV) “rapid charge” and other charging points where on-site parking is provided for residents, at a ratio to parking spaces to be agreed with NCC</p> <p>Provision of a detailed travel plan to minimise traffic.</p>	Negligible
Noise	Construction Noise	Temporary, during	Moderate	Best Practice Measures set out in the CEMP	Negligible

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
		construction phase only			
	Increased noise with due to traffic	Long term	Minor	None provided.	Negligible
Socio-economic - Local economy (construction phase)	Construction employment – 250-300 FTE direct construction jobs at a range of skill levels over the eight year duration of the build supplemented by 400-480 indirect and induced jobs.	Medium-term, temporary	Moderate, beneficial	Targeted work opportunities to support those on low incomes and with lower skill levels through apprenticeship schemes and potential linkages with local education providers. Use of local labour and supply chains where possible.	Medium-term, temporary, moderate beneficial effect

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Existing employment/ businesses – disruption and displacement of existing uses during construction.	Short-term, temporary	Minor, adverse	Considered phasing will allow parts of the shopping centre to remain open throughout. Provision of opportunities for relocation of uses.	Short-term, temporary, minor, adverse
Socio-economic - Local economy (operational phase)	Operational employment – 536-639 jobs (gross) could be supported across a range of sectors and skill levels within the Development resulting in an uplift of 336-443 jobs (net). Indirect employment could result in an additional 71-93 jobs.	Long-term, permanent	Moderate, beneficial (Local Impact Area)	Encourage, local recruitment for the new job opportunities.	Long-term, permanent, moderate, beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Labour supply – uplift in the number of economic active people in the local economy by 1,538 people.	Long-term, permanent	Moderate, beneficial (Local Impact Area)	Encourage, local recruitment for the new job opportunities.	Long-term, permanent, moderate, beneficial
	Resident expenditure – generation of £12.5 million of one-off expenditure on furnishing new homes as well gross spending of between £23.2-40.7 million of resident expenditure each year.	Long-term, permanent	Moderate, beneficial	Encourage local spending to support local businesses and the vitality and viability of Norwich City Centre.	Long-term, permanent, moderate, beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Socio-economic – Local community and residents	Levels of deprivation – enhancement of socio-economic conditions through the delivery of new housing, commercial/ community space, provision of employment opportunities and the rejuvenation of Anglia Square to provide a key focal point of the neighbourhood.	Long-term, permanent	Moderate to major, beneficial	Encourage integration and cohesion between new and existing communities. Including measures to design out crime.	Long-term, permanent, moderate to major beneficial
	Housing – increased housing supply including a mix of tenures and dwelling sizes reducing barriers of access to housing	Long-term, permanent	Moderate to major, beneficial (Local Impact Area)	N/A	Long-term, permanent, moderate to major beneficial

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	Social and community infrastructure provision (education, healthcare, open-space, sport and recreation, community facilities, place of worship) - while the additional population will increase the demand for infrastructure and facilities, the existing level of provision in the area proximate to the Site is assessed as being able to accommodate the majority of this increase with the exception of healthcare.	Long-term, permanent	Minor, adverse/ minor, beneficial	Engage with NHS CCG to consider the scope for providing a GP surgery or office space to accommodate supporting services within the Development. Provide a replacement Surrey Chapel.	Negligible/ minor beneficial.

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
Ecology	Increased pressure on EU designated sites of River Wensum SAC and the Broads SAC	Long term	Negligible	Provision of public spaces and connections to green spaces will relieve visitor pressure on designated sites.	Positive
Townscape and Visual	The Proposed Development will largely be seen as a positively contributing element within the existing townscape of Norwich City Centre and when visible within the wider urban landscape. The effect of the development on Townscape Receptors will be either Neutral or Beneficial.	Long term/permanent	Impacts ranging from minor to major	None required.	Overall, impacts ranging from neutral or Minor (not significant) to major (significant), have been identified, all of a Beneficial nature.

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
	<p>The Proposed Development will largely be seen as a positively contributing element when visible within the local and wider context of Norwich City. However, one adverse impact has been identified, related to how the Proposed Development would be experienced within the Norwich skyline and in conjunction with significant landmarks such as Norwich Cathedral in one panoramic view.</p>	<p>Long term/permanent</p>	<p>Impacts ranging from no change to major</p>	<p>Mitigation of the likely potential effect of the Proposed Development on visual receptors has been achieved through the massed design, a comprehensive modelling study has been carried out to ensure the impact on sensitive receptors is minimised. In addition to this, the the design responds to the existing context through selection of contextual and complementary materials.</p>	<p>Beneficial or Neutral impacts ranging from no change (not significant) to major-beneficial (significant)</p> <p>Moderate-adverse (significant) effect would be experienced only when gathering a broad panoramic view of Norwich, but when considered within its northern location, the impact is of lower significance as it is not visible in conjunction with this level of</p>

Receptor / Environmental Resource	Description of effect	Nature of effect (Permanent /Temporary/ Short/ Long Term)	Significance (Major/ Moderate /Minor/ Beneficial /Negligible)	Mitigation Measures	Residual Impact and likely significances
					townscape receptors within direct views.

14.58 A comprehensive and robust assessment of the potential impacts of the construction and operation phases of the Proposed Development has been undertaken. Further to this, a range of appropriate mitigation measures have been proposed to minimise any likely significant effects.

14.59 As summarised in Table 14.4 above, the majority of impacts on the environment are either negligible (no significance) or beneficial. The EIA has, however, identified some potentially minor adverse significant effects, largely surrounding the built heritage.

14.60 In terms of those assets which will experience moderate adverse effects in the operational phase Heritage assessment concluded within the Technical Appendix (Built Heritage Statement), that the moderate adverse effect on 19 heritage assets resulting from the Development represents a small proportion of the total number of heritage assets affected by the proposed Development, being 142 altogether. The impact should, therefore, be considered alongside the cumulative enhancement brought about by the proposals whereby the architecture and history of several key buildings of very high importance (including Norwich Cathedral and St Augustine's Church) will be strongly reinforced and celebrated, placing the identified adverse effects within a positive overall context. The extent of any adverse effects on built heritage resulting from the development should likewise be evaluated in light of the cumulative heritage benefit secured through the proposals, which is considerable and includes:

- The reinstatement of urban grain, built form and historic connectivity between St Augustine's Street and Magdalen Street via the proposed Botolph Street and from Edward Street to St Crispins Road via the proposed St Georges Street. This will result in a positive transformation and radical improvement of the local townscape and the legibility of the historic street layout in this part of the city.
- Framed views towards St Augustine's Church tower from Anglia Square along Botolph Street and the reinforcement of other identified positive vistas within the Anglia Square Character Area.
- Improved connectivity and increased footfall arising from the new development will allow people to better experience this part of the Conservation Area.
- Greatly improved public realm, open spaces, street furniture, provision of trees and biodiversity.
- The opening up of strategic or significant views of the Cathedral Spire from the North west / Aylsham Road & St Augustine Street and also from Anglia Square following the removal of Sovereign House and cinema building.
- The replacement of the multi-storey car park and Magdalen Street frontage buildings with new buildings of high quality design for the improvement of local views and townscape (including views of Norwich Castle) and the enhancement of the setting of listed and locally listed buildings along Magdalen Street.
- Prominent views from St Augustine's Street, Edward Street and Cowgate are all identified as negative vistas and will be notably enhanced by the development proposals.
- Re-cladding and re-modelling of Gildengate House will improve its appearance in context of views from the Magdalen Street area and southern and eastern approaches to the Site.

- Improvements to the area below St Crispins flyover, subject to a separate application.

14.61 Whilst the table above is self-explanatory, in terms of the overall effects, it should be noted there would be significant social – economic benefits as a result of the Development.

14.62 In conclusion, the implementation of mitigation measures to reduce the significance of potential impacts has allowed for some beneficial environmental effects to be identified, such as the economic benefits of job creation during the operation of the Proposed Development which are considered a major positive effect.

14.63 Overall, the significant adverse environmental effects associated with the Proposed Development can be minimised to an acceptable level by the application of appropriate mitigation measures.