16. Assessment summary and mitigation implementation

16.1 Introduction

16.1.1 This chapter of the ES provides a summary of the proposed mitigation and residual effects predicted following their implementation. This chapter does not provide a summary of the ES. A non-technical summary (NTS) is provided under separate cover.

16.1.2 With the benefit of BCP Council's scoping opinion (**ES Appendix 5.2**) and the feedback from the consultation undertaken in relation to the Proposed Development, the Applicant has refined its proposals through consideration of environmental issues and prepared and submitted a planning application. Detailed technical studies have informed the design and assessment process, assisting the Applicant in preparation of the refined development proposal.

16.1.3 The ES has identified the likely significant effects, both beneficial and adverse, of the Proposed Development, the mitigation measures proposed to reduce the likely significant adverse effects and any anticipated residual effects once the mitigation measures have been taken into account. The Proposed Development incorporates elements of 'inherent mitigation' that are built into the Proposed Development by virtue of factors including design and location.

16.1.4 Additional mitigation comprises measures that do not form part of the Proposed Development itself and tend not to be shown in the planning application drawings, but would be provided by means of implementation and operational safeguards and commitments enforceable through the conditions and legal agreements as part of any future planning consent.

16.2 Air quality

16.2.1 A Construction Environmental Management Plan (CEMP), which will include a Dust Management Plan (DMP) will be subject to a planning condition, which will secure mitigation for construction related effects. The Outline CEMP is contained in **ES Appendix 3.2**.

16.2.2 At the operational phase, a suitably worded planning condition will reduce the impact upon human and ecological receptors by ensuring a sufficiently high chimney (110m) above FFL for the EfW CHP Facility to aid dispersion and minimise impact at ground level.

16.2.3 A condition of the Environmental Permit will set the emission limits of ammonia to minimise airborne ammonia concentrations, nutrient nitrogen deposition and acidification impacts at habitat sites. This will ensure that these effects are not significant.

16.2.4 Residual effects following the consideration of mitigation are shown in **Table 16-1**.

Table 16-1: Residual effects – air quality

Receptor	Residual effect	Significant?
Construction phase		
Exposure to construction dust – human receptors	Negligible	Not significant
Exposure to construction dust – ecological receptors	Negligible	Not significant
Operational phase		
Exposure to airborne pollutants from the EfW CHP Facility – human receptors	Negligible	Not significant
Exposure to traffic emissions – human receptors	Negligible	Not significant
Exposure to airborne pollutants – statutory and non-statutory sites	Predicted impacts less than 1% and 10% of critical levels	Not significant
Nutrient nitrogen deposition during normal operation – statutory and non-statutory sites	None	Not significant
Degradation of habitats at local designation through nitrogen deposition from the emergency diesel generator - significant at a Site level.	Small positive effect at site level only	Not significant
Acidification impacts - potential for reversible habitat degradation through increased acid deposition - significant at a County (for SAC/SPA/Ramsar) and Local level (for SSSIs).	None	Not significant

16.3 Climate change and greenhouse gases

16.3.1 The operation of the EfW CHP Facility has identified a number of potentially significant effects. However, in any event, with or without the Proposed Development residual waste arisings will continue and need to be suitably managed in accordance with the waste hierarchy. This is likely to have been at another similar UK energy-from-waste facility, with Bridgwater or Avonmouth being representative examples. In that case, it is likely that a similar moderate adverse effect on climate change would also occur in that future baseline scenario if the Proposed Development did not go ahead.

16.3.2 The main further mitigation measures recommended for the Proposed Development to reduce its greenhouse gas emissions impact are:

- to manage its nitrous oxide emissions effectively in operation;
- to secure further heat export opportunities where possible (and subject to the balance of electrical generation efficiency); and
- to provide carbon capture and use or sequestration where possible in future, subject to development of carbon transport and sequestration network infrastructure.

16.3.3 The latter two of these measures do not lie entirely within the control of the Applicant, requiring wider infrastructure investment, but are likely to be supported during the Proposed Development's lifetime to meet the Applicant's national net zero carbon goals. To enable

future carbon capture at the EfW CHP Facility Site, the Applicant has reserved land, the 'future environmental improvements area', to install the necessary plant and equipment.

16.3.4 With the addition of carbon capture and sequestration in future, the Proposed Development could play a part in reducing atmospheric CO_2, which could lead to a beneficial effect that would be significant.

16.3.5 Residual effects following the consideration of mitigation are shown in **Table 16-2**.

Table 16-2: Residual effects – climate change and greenhouse gases

Receptor	Residual effect	Significant?
Construction phase		
Direct and indirect greenhouse gas emissions of the Proposed Development in relation to atmospheric greenhouse gases	Potentially minor adverse	Potentially not significant
Operational phase		
Direct and indirect greenhouse gas emissions of the Proposed Development in relation to atmospheric greenhouse gases	Minor to moderate adverse without CCUS Negligible to beneficial with CCUS	Potentially significant
Change in atmospheric greenhouse gases compared with future baseline scenario	Moderate adverse baseline and hence little net change	Potentially significant

16.4 Ecology and nature conservation

16.4.1 A CEMP is to be prepared and will be implemented during the entirety of the construction stage, the Outline CEMP is set out in **ES Appendix 3.2**. Details of a sensitive temporary lighting strategy at the chosen TCC for the full duration of the TCC will also be covered in this document.

16.4.2 Ecological Construction Method Statement (ECMS) – an ECMS for each component of the Proposed Development will set out in detail the measures to be implemented to protect Important Ecological Features (IEFs) during the construction phase, including update surveys prior to commencement of works. It is proposed that the implementation of the ECMS will be overseen by an appointed Ecological Clerk of Works (ECoW), whose scope and remit will be set out within the ECMS. A detailed Arboricultural Method Statement (AMS) will be included and set out measures to protect trees during the construction phase. The ECMS (and AMS) and appointment of the ECoW, can be secured by way of a suitably worded planning condition.

16.4.3 Sensitive external lighting scheme – to be designed to avoid impacts on nocturnal wildlife, particularly bats and nightjar and secured by way of planning condition.

16.4.4 Landscape, Ecology and Arboricultural Management Plan (LEAMP) – enhancement and creation of habitats of landscape, ecological and arboricultural value within nearby land outside of the Proposed Development Boundary will be undertaken to offset the small amount of unavoidable habitat losses within it and ensure an overall net gain in biodiversity is achieved. A Landscape, Ecology and Arboricultural Management Framework document accompanies the planning application (**ES Appendix 8.5**) and sets out the broad principles for inclusion within the LEAMP.

16.4.5 Contributions to monitoring and management of air quality impacts – an additional mitigation package is proposed to address potential exceedances of relevant acid deposition screening thresholds across the BCP Council area which includes Dorset Heaths SAC/SPA/Ramsar site. Namely a financial contribution to be delivered via a Biodiversity Enhancement Contribution and a Trickle Fund, in addition to a Monitoring and Supportive Management Plan. These measures are to be secured by a planning obligation, with the Section 106 agreement, which forms an appendix to the **Planning Statement**.

16.4.6 Adjustment to HSA boundary – a small part of the DNC Compound (approximately 850m^2) will encroach within area designated as HSA. It has therefore been agreed with Natural England that to mitigate this loss, the existing HSA boundary will be redrawn to include additional adjacent land which will serve the same function. As such, an area of approximately 8,650m^2 has been identified which would provide a net increase in the HSA of 7,800m^2 or 17%. Since this land is within the Proposed Development Red Line Boundary, the extended HSA could be secured by a suitably worded planning condition, the full details of which will be agreed with the LPA and Natural England.

16.4.7 Residual effects following the consideration of mitigation are shown in **Table 16-3**.

Table 16-3: Residual effects – ecology and nature conservation

Receptor	Residual effect	Significant?
Construction Phase		
Statutory Designated Sites - Indirect, temporary habitat damage/ degradation/disturbance	None	Not Significant
Non-Statutory Designated Sites - Direct, temporary habitat loss and damage in Frogmoor Wood SNCI	None	Not Significant
Species – Birds, Bats, Reptiles	None	Not Significant
Habitats – Woodland and Semi-Improved Grassland	None	Not Significant
Operational Phase		
Statutory Designated Sites – Potential for reversible habitat degradation through increased acid deposition	None	Not Significant
Non-Statutory Designated Sites – Potential for reversible habitat degradation through increased acid and nitrogen deposition	None	Not Significant
Species – Displacement of nocturnal species due to artificial lighting	None	Not Significant
Habitats – Degradation of habitats through nitrogen deposition from the emergency diesel generator	Small positive effect at a Site level only	Not Significant

16.5 Geology, hydrogeology and ground conditions

16.5.1 An intrusive geo-environmental ground investigation has been completed across the EfW CHP Facility Site, with soil sampling, ground gas and groundwater level monitoring.

16.5.2 A remediation strategy would be prepared and agreed in consultation with the EA and local authority. This would detail all remediation or mitigation works necessary to break any contaminant linkages to future Receptors, such as use of appropriate soils in landscaped areas.

16.5.3 In addition, precautions would be taken during demolition and construction to minimise the exposure of workers and the general public to potentially harmful substances or ground contamination. These precautions would be set out in the method statements for the contractors undertaking the works, and are set out in the Outline CEMP (**ES Appendix 3.2**) submitted alongside the application, and would likely include measures such as:

- stockpiling of soils on plastic sheeting with bunds, and the use of hoarding around the perimeter of the Proposed Development to contain dust or surface run-off from exposed soils and stockpiles;
- using dust screens and covers and the appropriate location of dusty materials storage;
- appropriate storage of fuels in bunded tanks with drip trays, and construction chemicals in COSHH storage containers; and
- Damping down of exposed soils during dry weather.

16.5.4 Residual effects following the consideration of mitigation are shown in **Table 16-4**.

Table 16-4: Residual effects – geology, hydrogeology and ground conditions

Receptor	Residual effect	Significant?
Construction Phase		
Construction Workers – Exposure to potential contamination	Insignificant	Not significant
Surrounding Site Users – Exposure to potentially contaminated dust or run-off	Insignificant	Not significant
Proposed New Structures – Instability during excavation works; chemical attack to new foundations and services.	Insignificant	Not significant
Proposed New Soft Landscaping – New plants up taking potential contamination in soil	Insignificant	Not significant
Existing Structures Adjacent to the Proposed Development – Chemical attack to structures	Insignificant	Not significant
Secondary A Aquifer Underlying the Proposed Development – Rainfall driven migration of potential contamination to aquifer	Insignificant	Not significant
Operational Phase		
Future Site Users – Potential contamination within ground; ground gas risk	Insignificant	Not significant
Surrounding Site Users – Dust emissions from previously unsurfaced ground at the EfW CHP Facility Site	Long-term, local and of minor	Not significant

Receptor	Residual effect	Significant?
	beneficial significance.	
Existing Structures Adjacent to the Proposed Development – Rainfall-driven migration of potential contamination to site surroundings	Insignificant	Not significant
Secondary A Aquifer Underlying the Proposed Development – Rainfall-driven migration of potential contamination to underlying aquifer	Insignificant	Not significant

16.6 Historic environment

16.6.1 Due to the limited nature of the potential impact to sensitive built heritage assets, it is not considered that further mitigation measures which could be implemented to further reduce any negative effects. The height of the chimney, and the associated building, has been reduced as far as possible as part of the inherent design mitigation, taking into account the required functions of the EfW CHP Facility as well as consideration of impacts on other Receptors outside of the historic environment.

16.6.2 A programme of archaeological fieldwork mitigation might be required where there is the potential to encounter archaeological remains. It is deemed that the route of the CHP Connection and DNC Corridor to Magna Business Park has the highest potential for encountering archaeological features and due to the nature of the proposed works, is the most sensitive to intrusive groundworks. Should archaeological features be encountered during the construction phase, the impact on these features could be mitigated by a programme of works to be agreed with the County Archaeologist. This may involve investigation during groundworks.

16.6.3 Consultation with the County Archaeologist, which followed the production of the Heritage Statement (including assessment of the potential for archaeology across the Proposed Development and review of previous archaeological investigation undertaken in the vicinity), concluded that the area of the Red Line Boundary was a complex site of previous investigation, quarrying and land alteration, with some details not known or difficult to determine.

16.6.4 In summary, there is potential for archaeology within the Proposed Development, albeit higher potential to the north. The County Archaeologist suggested the imposition of a programme of works condition, to be informed once details of the construction methods were known.

16.6.5 Residual effects following the consideration of mitigation are shown in **Table 16-5**.

Table 16-5: Residual effects – historic environment

Receptor	Residual effect	Significant?
Construction phase		
Bowl barrows cemetery and four other bowl barrows on Canford Heath – Change to setting	Minor Adverse	Not Significant

Receptor	Residual effect	Significant?
Bowl barrow on Canford Heath 650m south of southern corner of New Covert – Change to setting	Minor Adverse	Not Significant
Bowl barrow on Canford Heath 730m south east of Alhambra – Change to setting	Minor Adverse	Not Significant
Archaeology – Invasive groundworks	Minor Adverse	Not Significant
Operational Phase		
Bowl barrows cemetery and four other bowl barrows on Canford Heath – Change to setting	Minor Adverse	Not Significant
Bowl barrow on Canford Heath 650m south of southern corner of New Covert – Change to setting	Minor Adverse	Not Significant
Bowl barrow on Canford Heath 730m south east of Alhambra – Change to setting	Minor Adverse	Not Significant
Archaeology – No change	N/A	N/A

16.7 Hydrology

16.7.1 At the construction phase water efficiency measures would be incorporated into the Proposed Development to minimise demand of potable water as far possible. These measures are set out in the Outline CEMP (**ES Appendix 3.2**) which will be secured through a suitably worded planning condition. A further foul water capacity appraisal and detailed process review will be required at the construction phase to ensure that foul drainage capacity is sufficient.

16.7.2 A maintenance programme to prevent drainage component build up and reduced operability as set out in **ES Appendix 11.1** will be secured for the operational phase of the Proposed Development. A further foul water capacity appraisal and detailed process review will be required at the operational phase to ensure that foul drainage capacity is sufficient. Water efficiency measures will be incorporated into the design of the Proposed Development to minimise demand as far as possible.

16.7.3 Residual effects following the consideration of mitigation are shown in **Table 16-6**.

Table 16-6: Residual effects – hydrology

Receptor	Residual effect	Significant?
Construction phase		
Groundwater flow and flooding – secondary aquifer	Minor adverse	Not significant
Surface water drainage and flood risk – commercial properties/ construction site	Insignificant	Not significant
Operational phase		
Tidal and fluvial flood risk – commercial properties	Insignificant	Not significant

Receptor	Residual effect	Significant?
Groundwater flood risk – secondary aquifer	Insignificant	Not significant
Surface water flood risk – commercial properties	Minor beneficial	Not significant
Sewer surcharging flood risk – private drainage infrastructure in rural areas	Insignificant	Not significant
Change in potable water demand – private water supply infrastructure in rural areas	Insignificant	Not significant
Change in foul water drainage capacity – private drainage infrastructure in rural areas	Insignificant	Not significant

16.8 Landscape and visual

16.8.1 The Proposed Development includes embedded mitigation, as described in **ES Chapter 3: Description of the Proposed Development**, to reduce the likely impacts and effects on landscape and visual Receptors. No additional mitigation is considered necessary in this case, due to the scale and massing of the main components of the Proposed Development. The EfW CHP Facility Site already sits within an enclosed landscape which comprises mature landscape features which are to be retained.

16.8.2 Residual effects following the consideration of mitigation are shown in **Table 16-7**.

Table 16-7: Residual effects – landscape and visual

Receptor	Residual effect	Significant?
Construction phase		
The EfW CHP Facility Site	Minor/Negligible Adverse	Not Significant
DNC area	Minor Adverse	Not Significant
CHP Connection Route	Moderate/Minor Adverse	Not Significant
TCC1	Moderate/Minor Adverse	Not Significant
TCC2	Moderate Adverse	Significant
Heath/Farmland Mosaic LCT	Moderate/Minor Adverse	Not Significant
North Poole Heath/Farm Fringe LCA	Minor/Negligible adverse	Not Significant
Photoviewpoint EDP 1 – Bridleway 118	Moderate Adverse	Significant

Receptor	Residual effect	Significant?
Photoviewpoint EDP 2 – A341 Magna Road	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 3 – Stour Valley Way	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 4 – Footpath 38	Minor Adverse	Not Significant
Photoviewpoint EDP 5 – Stour Valley Way	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 6 – Ferndown, Stour and Forest Trail	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 7 – Footpath 2	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 8 – Footpath 10	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 9 – B3073	No Effect	Not Significant
Photoviewpoint EDP 10 – Bridleway 23/Canford Heath OAL	Moderate Adverse	Significant
Photoviewpoint EDP 11 – Bridleway 16	No Effect	Not Significant
Photoviewpoint EDP 12 – Footpath 5/Corfe Hills OAL	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 13 – Stour Valley Way	Negligible Adverse	Not Significant
Photoviewpoint EDP 14 – Bridleway 25/King Down Drove	Negligible Adverse	Not Significant
Residential Group A – Canford Meadows	Moderate/Minor Adverse	Not Significant
Residential Group B – Bearwood and Bear Cross	Minor Adverse	Not Significant
Residential Group C - Knighton	Minor Adverse	Not Significant
Residential Group D – Hampreston	Minor Adverse	Not Significant
Residential Group E – Oakley and Merley	No Effect	Not Significant
Residential Group F – Broadstone, Corfe Mullen and Canford Heath	No Effect	Not Significant
Canford Park SANG	Minor Adverse	Not Significant
Knighton Heath and Dudsbury Golf Clubs	Minor/Negligible Adverse	Not Significant
Operational phase		

Receptor	Residual effect	Significant?
The EfW CHP Facility Site	Negligible Adverse	Not Significant
DNC area	Minor Adverse	Not Significant
CHP Connection Route	Minor Adverse	Not Significant
TCC1	Negligible	Not Significant
TCC2	Moderate/Minor Adverse	Not Significant
Heath/Farmland Mosaic LCT	Moderate/Minor Adverse	Not Significant
North Poole Heath/Farm Fringe LCA	Minor/Negligible Adverse	Not Significant
Photoviewpoint EDP 1 – Bridleway 118	Moderate Adverse	Significant
Photoviewpoint EDP 2 – A341 Magna Road	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 3 – Stour Valley Way	Moderate Adverse	Significant
Photoviewpoint EDP 4 – Footpath 38	Minor Adverse	Not Significant
Photoviewpoint EDP 5 – Stour Valley Way	Moderate Adverse	Significant
Photoviewpoint EDP 6 – Ferndown, Stour and Forest Trail	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 7 – Footpath 2	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 8 – Footpath 10	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 9 – B3073	No Effect	Not Significant
Photoviewpoint EDP 10 – Bridleway 23/Canford Heath OAL	Major/Moderate Adverse	Significant
Photoviewpoint EDP 11 – Bridleway 16	No Effect	Not Significant
Photoviewpoint EDP 12 – Footpath 5/Corfe Hills OAL	Moderate/Minor Adverse	Not Significant
Photoviewpoint EDP 13 – Stour Valley Way	Negligible Adverse	Not Significant
Photoviewpoint EDP 14 – Bridleway 25/King Down Drove	Negligible Adverse	Not Significant

Receptor	Residual effect	Significant?
Residential Group A – Canford Meadows	Moderate Adverse	Significant
Residential Group B – Bearwood and Bear Cross	Minor Adverse	Not Significant
Residential Group C - Knighton	Minor Adverse	Not Significant
Residential Group D – Hampreston	Minor Adverse	Not Significant
Residential Group E – Oakley and Merley	No Effect	Not Significant
Residential Group F – Broadstone, Corfe Mullen and Canford Heath	No Effect	Not Significant
Canford Park SANG	Minor Adverse	Not Significant
Knighton Heath and Dudsbury Golf Clubs	Minor/Negligible Adverse	Not Significant

16.9 Noise and vibration

16.9.1 As a result of the assessment and embedded design measures, no additional mitigation measures in relation to noise and vibration have been identified. However, it should be noted that the construction measures set out within the Outline CEMP (**ES Appendix 3.2**) will ensure that noise and vibration at the construction phase is controlled and managed.

16.9.2 Residual effects following the consideration of mitigation are shown in **Table 16-8**.

Table 16-8: Residual effects – noise and vibration

Receptor	Residual effect	Significant?
Construction phase		
Construction noise related effects on receptors R1-R22	Neutral - slight	Not significant
Construction vibration related effects on receptors R1-R22	Neutral - slight	Not significant
Construction traffic related effects on receptors R1-R22	Neutral - slight	Not significant
Operational phase		
Operational noise related effects on receptors R1-R22	Neutral - slight	Not significant
Operational traffic related effects on receptors R1-R22	Neutral - slight	Not significant

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16.10 Population and health

16.10.1 As a result of the assessment no additional mitigation measures in relation to population and health have been identified. However, it should be noted that the construction measures set out within **ES Appendix 3.2** will ensure that noise and dust at the construction phase is controlled and managed.

16.10.2 At the operational stage an **Employment and Skills Strategy** (ESS) will be prepared which will provide small beneficial effects to population receptors and is submitted as part of this planning application.

16.10.3 Residual effects following the consideration of mitigation are shown in **Table 16-9**.

Table 16-9: Residual effects – population and health

Receptor	Residual effect	Significant?
Construction phase		
Health effects from changes in local air quality	Negligible	Not significant
Health effects from changes in noise exposure	Negligible	Not significant
Health effects from changes in transport nature and flow rate	Negligible	Not significant
Health effects from changes in socio-economic factors	Negligible	Not significant
Operational phase		
Health effects from changes in local air quality	Negligible	Not significant
Health effects from changes in noise exposure	Negligible	Not significant
Health effects from changes in transport nature and flow rate	Negligible	Not significant
Health effects from changes in socio-economic factors	Negligible	Not significant

16.11 Traffic and transport

16.11.1 A CEMP, which will include a Construction Traffic Management Plan (CTMP) will be subject to a planning condition, which will secure mitigation for construction related effects. The Outline CEMP is provided in **ES Appendix 3.2**.

16.11.2 A Staff Travel Plan (STP) (**ES Appendix 15.2**) will be implemented through planning condition to monitor and encourage sustainable travel behaviours once the EfW CHP Facility is in operation. An Operational Traffic Management Plan (OTMP) will also be subject to a planning condition and will seek to manage traffic during the operational period of the EfW CHP Facility.

16.11.3 Residual effects following the consideration of mitigation are shown in **Table 16-10**.

Table 16-10: Residual effects – traffic and transport

Receptor	Residual effect	Significant?
Construction Phase		
Potential impacts of overall construction traffic upon Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear & Intimidation, Accidents and Safety	Negligible	Not Significant
Potential impacts of construction HGVs upon Severance, Pedestrian Delay, Pedestrian Amenity and Fear & Intimidation	Negligible	Not Significant
Potential impacts of construction HGVs upon Driver Delay, Accidents and Safety	Negligible	Not Significant
Operational Phase		
Potential impacts of overall development traffic upon Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear & Intimidation, Accidents and Safety	Negligible	Not Significant
Potential impacts of development HGVs upon Severance, Pedestrian Delay, Pedestrian Amenity and Fear & Intimidation	Negligible	Not Significant
Potential impacts of development HGVs upon Driver Delay and Accidents and Safety	Minor adverse/ Negligible	Not Significant

16.12 Cumulative and interactive effects

16.12.1 Each technical chapter of the ES has assessed the potential effects the Proposed Development is likely to have with other existing or approved developments (cumulative schemes) in the Study Area.

16.12.2 In-combination or intra-project (interactive) effects have also been considered, these are effects of the Proposed Development that in isolation would not be considered significant but together may produce a significant effect.

Cumulative effects

16.12.3 A list of schemes were identified through planning applications and site allocations and this list was used by the technical consultant team to assess whether the Proposed Development would have a combined impact with any of the defined schemes.

16.12.4 The location that cumulative effects are generally felt depends on the source of the effect. For example, transport related cumulative effects are likely going to impact the local road network, whereas landscape-related cumulative effects could cover anywhere within sight of the source of the effect.

16.12.5 Residential developments have been considered as part of the cumulative assessment, which would equate to an additional population of approximately 1,226 people. This increase in population would not change the results or conclusions for the construction and operational phases of the Proposed Development when considered in isolation. Similarly, while the addition of two Energy Recovery Facilities would result in minor changes to air

quality, this would also not change the results or conclusions for the construction or operational phases of the Proposed Development when considered in isolation.

16.12.6 The assessment found that there would be no significant cumulative effects.

Interactive effects

16.12.7 Interactive effects relate to multiple effects from a single development, which may, when experienced together, give rise to a potentially significant impact upon a receptor.

16.12.8 An analysis has been undertaken into specific receptors, or receptor groups, to identify any predicted residual effects common to a receptor across more than one assessment within the preceding chapters of this ES. Where one receptor, or group of receptors, are predicted to experience multiple effects, consideration has been given to the interaction of these effects and whether significant interactive effects are likely to arise as a result. An example would be where a local resident is affected by dust, noise and a loss of visual amenity during the construction of a scheme, with the result being a greater impact than each individual effect alone.

16.12.9 For some environmental effects, no interactions with other impacts can occur and therefore no interactive effects are considered likely to arise. For example, visual impacts do not interact with impacts on sub-surface land contamination. For other environmental effects it is apparent that interactions could occur and impact in different ways upon an individual receptor. Interactive effects are more likely to arise when the receptor or receptor group is more sensitive to change. Typical examples include ecological and human receptors.

16.12.10 The assessment of interactive effects has been undertaken in two stages.

- The identification and collation of any receptors within the technical assessments predicted to experience a residual effect (significant or otherwise) as a result of the Proposed Development; and
- Consideration of the potential interactive effects on the identified receptors from multiple effects.

Receptor collation

16.12.11 The identified residual effects, as set out within the individual technical chapters of the ES, have been reviewed against the receptors they affect. Where there is more than one effect on a particular receptor, there is a requirement to determine whether there is the potential for interactions. If there is the potential for effect interactions then consideration has been given as to whether this is likely to result in a combined significant effect.

16.12.12 Where possible, to assist the consideration of possible interactive effects, receptors which share the same characteristics, sensitivities or qualifying features (such as residential properties), have been grouped together into a single receptor type.

Potential for Interactive effects

16.12.13 There is no established EIA methodology for assessing and quantifying the combined effects of individual impacts arising from a proposed development on sensitive receptors. The assessment of potential interactive effects has therefore been based upon professional judgement, taking into account receptor sensitivity and the defined residual effects identified within each technical assessment.

16.12.14 For the purposes of the interactive effects assessment, only residual effects which are classified as being of minor, moderate, or major have been considered. Negligible residual

effects have been excluded from the assessment as, by virtue of their definition, they are considered to be imperceptible to an environmental resource or receptor.

16.12.15 Where a receptor group is predicted to experience a of range effects varying in magnitude, the worst case (i.e., greatest adverse impact) has been considered.

16.12.16 During the construction phase, multiple residual impacts are identified for occupiers of existing dwellings in proximity to the Proposed Development. These have been identified in relation to landscape and visual, and noise and vibration impacts. Residential receptors in residential Group A – Canford Meadows (to the south-east of the EfW CHP Facility Site) would experience visual impacts resulting in moderate to minor adverse effect. Due the proximity of these residential properties to the CHP EfW Facility Site, they could also experience slight noise impacts during the construction process.

16.12.17 Other noise receptors in the vicinity of the EfW CHP Facility Site are also predicted to experience slight adverse effects during construction. These are predominantly residential receptors, but also include Bearwood Primary & Nursey School (R5) and some commercial receptors (which are considered to be less sensitive). With regards to LVIA, other residential groups (B-D) would experience minor adverse effects as well as some PRoW within the vicinity of the EfW CHP Facility Site experiencing moderate to minor visual effects. There is potential for some of these effects to be experienced by the same receptors. In these instances awareness of the developing scheme during the construction process may increase if both visual and audible impacts are experienced.

16.12.18 However, the given the magnitude of these impacts and the temporary nature of the construction phase, these potential interactive effects are not considered to be significant. Furthermore, through implementation of the CEMP (Outline CEMP presented in **ES Appendix 3.2**) and standard best practice constriction methods, any potential interactive effects on the sensitive receptors will be minimised.

16.12.19 During the operational phase, multiple impacts are predicted for two receptors groups; Occupiers of existing dwellings/properties in proximity to the EfW CHP Facility Site and ecological habitats and species.

16.12.20 With regards to nearby residential properties, landscape and visual, and noise and vibration impacts have been identified. However, with regards to the noise impacts, these are only slight in nature. As such, it is not considered that these impacts would result in any significant adverse interactive effects in combination with the identified visual impacts of the Proposed Development.

16.12.21 Within the air quality and ecology assessment a minor positive effect at a site level has been identified with regards to habitat degradation through nitrogen deposition, where enhancement of retained habitats and sensitive long-term management of new habitats is proposed. A slight noise impact (through disturbance) has been identified during operation on an ecological receptor (noise receptor R22). However, given the scale and beneficial nature of some of these impacts, significant interactive effects on ecological receptors are not considered likely.

16.13 Summary of mitigation commitments

16.13.1 A summary of the mitigation measures identified through the ES is provided in **Table 16-11** overleaf. This table details the measures proposed and the securing mechanism. This table does not define general legislative requirements of relevance to the Proposed Development as it is assumed that these will be complied with alongside the measures set out in **Table 16-11**.

16.13.2 The summary of proposed mitigation measures is provided to assist BCP Council in formulating the conditions and clauses of the legal agreement, to ensure that the measures contained and assessed in the ES are implemented. A draft section 106 agreement and suggested planning conditions are set out in the appendices of the **Planning Statement**.

Table 166-21 Summary of mitigation commitments

	Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g., planning condition /legal agreement)	To be delivered by	Auditable by
Construction Phase					
Ecology	Statutory Designated Sites	CEMP, ECMS and AMS incorporating measures to prevent and reduce impacts.	Planning condition	Applicant	BCP Council/ Natural England
	Non-Statutory Designated Sites	CEMP, ECMS and AMS incorporating measures to prevent and reduce impacts. New planting to offset small tree losses. Adjustment to HSA boundary	Planning condition	Applicant	BCP Council
	Habitats	CEMP, ECMS and AMS incorporating measures to prevent and reduce impacts. New planting and enhancement to offset small habitat losses and deliver BNG of at least 25%.	Planning condition Section 106 agreement	Applicant	BCP Council
	Species	CEMP, ECMS and AMS incorporating measures to prevent and reduce impacts. New planting and enhancement to offset small habitat losses.	Planning condition	Applicant	BCP Council
Geology, Hydrology and Ground Conditions	All Receptors	Remediation strategy to be prepared detailing all required measures.	Secured by Planning Condition	Applicant/ EPC Contractor	BCP Council
	Construction workers, surrounding site users.	Contractor to prepare CEMP with details of how impacts to all Receptors will be managed	Secured by Planning Condition	Applicant/ EPC Contractor	BCP Council

	Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g., planning condition /legal agreement)	To be delivered by	Auditable by
	Future site users, plants installed in new landscaping	New soft landscaping to be installed in certified clean topsoil	Required by remediation strategy	Applicant/ EPC Contractor	Applicant/ EPC Contractor
	All Receptors	Validation report to be prepared recording all measures required by the remediation strategy and works undertaken to meet these requirements.	Secured by Planning Condition	Applicant/ EPC Contractor	BCP Council
Historic Environment	Archaeology	Programme of archaeological works, to be agreed. To enhance understanding and record features	Planning condition	Applicant/ EPC Contractor	BCP Council's archaeology advisor
Hydrology	Change in Potable Water Demand	To ensure potable water capacity is sufficient during construction.	Water efficiency measures incorporated into the Proposed Development	Applicant/ EPC Contractor	Applicant/ EPC Contractor
	Change in Foul Water Drainage Capacity	To ensure foul water capacity is sufficient during construction.	Further capacity appraisal and a detailed process review to understand the scope of any necessary improvement works.	Applicant/ EPC Contractor	BCP Council
Transport	Potential impacts of construction HGVs upon Driver Delay and Accidents and Safety	CTMP to manage traffic during the construction period.	Planning Condition	Applicant	BCP Council

	Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g., planning condition /legal agreement)	To be delivered by	Auditable by
Climate Change	Atmospheric GHGs	Lifecycle assessment and carbon reduction plan during detailed design can identify opportunities to prevent and reduce embodied carbon, and could include offsetting remaining embodied carbon.	A Carbon Management Plan secured as part of the Site Materials Waste Management Plan, referred to in the **Outline CEMP Appendix 3.2** by planning condition.	Applicant	BCP Council/ Environment Agency
Operation Phase					
Air Quality	Human and habitat receptors	Reduce impact by ensuring sufficiently high chimney (110m) for the EfW CHP Facility to aid dispersion and minimise impact at ground level.	Planning Condition	Applicant/ EPC Contractor	BCP Council
	Habitat receptors	Reduce emissions of ammonia to minimise airborne ammonia concentrations, nutrient nitrogen deposition and acidification impacts at habitat sites. Proposed reduction from 10mg/Nm^3 to 5mg/Nm^3.	Secured by Environmental Permit	Applicant/ EPC Contractor	Environment Agency
Ecology	Designated Sites	Contributions to management and monitoring of designated sites and supporting habitats across BCP Council area.	Section 106 agreement	Applicant	BCP Council/ Natural England
	Habitats	LEAMP setting out suitable habitat management to offset and enhance.	Planning condition	Applicant	BCP Council
	Species	Sensitive lighting strategy	Planning condition	Applicant/ EPC Contractor	BCP Council

	Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g., planning condition /legal agreement)	To be delivered by	Auditable by
Geology, Hydrology and Ground Conditions	All receptors	Implementation of requirements of Environmental Permit	Secured by Environmental Permit	Applicant/ EPC Contractor	Environment Agency
Hydrology	Surface Water Flood Risk	Prevent drainage component build up and reduced operability.	A maintenance programme to be included post planning	Applicant	BCP Council
	Change in Potable Water Demand	To ensure potable water capacity is sufficient during operation.	Water efficiency measures incorporated into the Proposed Development	Applicant/EPC Contractor	Applicant/ EPC Contractor
	Change in Foul Water Drainage Capacity	To ensure foul water capacity is sufficient during operation.	Further capacity appraisal and a detailed process review to understand the scope of any necessary improvement works.	Applicant/EPC Contractor	BCP Council
Traffic and Transport	Potential impacts of overall development traffic upon Driver Delay, Road Safety, Pedestrian Delay and Amenity, Fear and Intimidation and Severance	STP to monitor and encourage sustainable travel behaviours.	Planning Condition	Applicant	BCP Council

	Identified receptor	Type and purpose of additional mitigation measure (prevent, reduce, offset, enhance)	Means by which mitigation may be secured (e.g., planning condition /legal agreement)	To be delivered by	Auditable by
	Potential impacts of development HGVs upon Driver Delay and Accidents and Safety	OTMP to manage traffic during the operational period.	Planning Condition	Applicant	BCP Council
Climate Change	Atmospheric GHGs	Close monitoring and operational control of N_2O emissions can reduce these to the lowest end of the typical BAT range.	Requirement to apply BAT under the Environmental Permit.	Applicant	Environment Agency via the Environmental Permit
		Exporting additional energy via further CHP opportunities could offset GHG emissions from conventional heat generation in the future baseline.	Five-yearly CHP opportunities monitoring and reporting to BCP, secured by planning condition, and delivery of further CHP if commercially viable.	Applicant and third parties (heat network)	BCP Council
		Certain third-party reprocessing techniques for IBA and APCR can provide carbonation (enhancing atmospheric carbon drawdown) and provide a produce for re-use, offsetting emissions from primary material production in the future baseline.	Not secured – dependent on commercial market for third-party IBA and APCR reprocessor.	Applicant, contractually via third parties	n/a