13. SUMMARY AND RESIDUAL EFFECTS

Introduction

13.1 This chapter summarises the mitigation measures and residual effects identified in each of the technical assessments included in the ES, which has been prepared to accompany an outline planning application for the employment led redevelopment with commercial and residential uses on land at Lancashire Central development site, Cuerden.

Mitigation Measures

13.2 The Development has been subject to an iterative design process. As this process progressed measures have been incorporated into the development parameters in order to avoid, reduce or offset significant environmental effects. The measures incorporated into the Development parameters are set out in Chapter 3 of this ES and include:

- Provision of landscape buffers on the boundary of the Site; and
- limiting the height of the built form to reduce visual and cultural effects on receptors on Stoney Lane and Old School Lane;

13.3 Where this has not been possible, further mitigation measures have been proposed and are set out in Table 13.1 along with the requisite mechanism for securing the proposed mitigation.

Table 13.1: Schedule of Mitigation

Effect	Mitigation	Mechanism for securing Mitigation
Socio-Economics		
Completed Development		
Education	• Engage in early discussions with LCC/education officials to understand if existing infrastructure can accommodate the identified changes and the extent to which any financial contributions are required.	S106 agreement
Health	• Engage in early discussions with the local health commissioners to understand if existing infrastructure can accommodate the identified changes and the extent to which any financial contributions are required	
Landscape and Views		
Construction Phase		
Landscape – TPO (Borough) and Veteran Trees (UK)	• Retain and protect in accordance with arboricultural recommendations where possible	Planning conditions
Landscape – LCA1		
Landscape – LCA2		
Landscape – LCA3		
Views – Viewpoint 1		

Effect	Mitigation	Mechanism for securing Mitigation
Views – Viewpoint 2		
Views – Viewpoint 3		
Views – Viewpoint 4		
Views – Viewpoint 5		
Views – Viewpoint 6		
Views – Viewpoint 7		
Views – Viewpoint 8		
Views – Viewpoint 9		
Views – Viewpoint 10		
Views – Viewpoint 11		
Views – Viewpoint 12		
Views – Viewpoint 13		
Views – Viewpoint 14		
Views – Viewpoint 15		
Completed Development		
Landscape – TPO (Borough) and Veteran Trees (UK)	• Retain and protect in accordance with arboricultural recommendations where possible	Planning conditions
Landscape – LCA1	• Landscape proposals with appropriate management and establishment	Planning conditions
Landscape – LCA2		
Landscape – LCA3		
Views – Viewpoint 1		
Views – Viewpoint 2		
Views – Viewpoint 3		
Views – Viewpoint 4		
Views – Viewpoint 5		
Views – Viewpoint 6		
Views – Viewpoint 7		
Views – Viewpoint 8		
Views – Viewpoint 9		
Views – Viewpoint 10		
Views – Viewpoint 11		
Views – Viewpoint 12		
Views – Viewpoint 13		
Views – Viewpoint 14		
Views – Viewpoint 15		
Built Heritage		
Construction Phase		
Loss of setting which contributes to the value of Grade II Listed Building The Old School House	• Measures applied through the implementation of the CEMP to reduce visual intrusion and impacts through noise and vibration.	Planning conditions
Loss of setting which contributes to the value of the Undesignated Lostock Hall (now St Catherine's Hospice)		
Transport and Access		
Construction Phase		
Additional goods vehicles on the local highway network;	• Measures within CMP including timing and routing strategy.	Planning conditions
Potential additional delay due to new construction access junctions;	• Junctions to be designed to safety standards, and avoid causing undue delay to general traffic.	
Additional staff vehicles on the local	• Measures within CMP including encouraging non-car staff travel, car sharing, and shift timing to avoid peak	

Effect	Mitigation	Mechanism for securing Mitigation
highway network;	travel times.	
Potential diversions of vehicle routes and / or pedestrian routes in the area	• Suitable diversion routes which are safe and minimise additional travel times.	
Completed Development		
Additional Traffic Impact	• Package of highway mitigation as set out in this chapter and in TA.	Planning conditions
Additional pedestrian / cycle flows	• Active travel infrastructure measures on and off site, as set out in this chapter and in TA.	
Additional public transport usage	• Public transport promotion as set out in Travel Plan	
Noise		
Construction Phase		
Noise	• Mitigation measures as outlined in CEMP	Planning conditions
Vibration		
Traffic	• Preparation of a construction logistics plan,	
Completed Development		
Fixed mechanical plant and building services	• Compliance with plant noise limits	Reserved matters applications
Noise Breakout from Industrial, Storage and Commercial Uses	• Provision of façade providing adequate acoustic performance.	
Air Quality		
Construction Phase		
Nuisance Dust	• A range of environmental management controls would be developed and set out in a CEMP	Planning conditions
Construction Vehicle Exhaust Emissions	• Not Required – Good practice measures to control construction traffic would be proposed	
Ecology		
Construction Phase		
Priority hedgerow habitat impact at the Parish level	• Retention of all 'Important' hedgerows • No net loss of linear meterage	Reserved matters applications / planning conditions
Priority Pond habitat	• Creation of ponds	
Species poor semi improved grassland outside Lancashire Grassland Network	• Species rich grassland creation	
Species poor semi improved grassland inside Lancashire Grassland Network	• Species rich grassland creation	
Common Toad	• Creation of ponds. Works undertaken in accordance with a detailed method. Timing constraints.	
Bats	• Significant linear commuting features are the tree/hedge lines along Stoney Lane and Old School lane which are to be retained. • No confirmed roosts present but pre-commencement surveys and Ecological Clerk of Works to oversee soft felling of trees. • New habitat creation and sensitive lighting to prevent habitat severance and bat boxes installed. • Bat sensitive location-specific lighting design avoiding spill onto flight lines, foraging habitat, commuting features	
Breeding birds	• Timing of works to avoid breeding season. • Provision of nest boxes during construction and operation. Partial replacement of breeding habitat.	

Effect	Mitigation	Mechanism for securing Mitigation
Completed Development		
Cuerden Valley Park & River Lostock BHS	• Provision of financial contribution to enable managers to implement long-term sensitive habitat protection measures.	S106 agreement

13.4 Following implementation of the mitigation measures the residual effects of the Development are set out in Table 13.2.

Table 13.2: Significance Table

Stage	Effect	Residual Significance
Socio-Economics		
Construction	Construction employment	Minor beneficial
Completed Development	Operational Employment	Major beneficial
	Population	Negligible
	Household Expenditure	Negligible
	Housing Stock	Moderate – minor beneficial
	Education	Negligible
	Health	Negligible
Landscape and Views		
Construction	Landscape – TPO (Borough) and Veteran Trees (UK)	No change neutral
	Landscape – LCA1	Moderate adverse
	Landscape – LCA2	Moderate adverse
	Landscape – LCA3	Major-moderate adverse
	Views – Viewpoint 1	Moderate-major adverse
	Views – Viewpoint 2	Major-moderate adverse
	Views – Viewpoint 3	Minor-negligible neutral
	Views – Viewpoint 4	Minor-moderate adverse
	Views – Viewpoint 5	Minor neutral
	Views – Viewpoint 6	Minor neutral
	Views – Viewpoint 7	Negligible neutral
Construction	Views – Viewpoint 8	Moderate adverse
	Views – Viewpoint 9	Minor adverse
	Views – Viewpoint 10	Negligible neutral
	Views – Viewpoint 11	Minor neutral
	Views – Viewpoint 12	Moderate neutral
	Views – Viewpoint 13	Moderate-major adverse
	Views – Viewpoint 14	Major adverse
	Views – Viewpoint 15	Moderate-major neutral
Completed Development	Landscape – TPO (Borough) and Veteran Trees (UK)	No change neutral
	Landscape – LCA1	Moderate adverse
	Landscape – LCA2	Moderate adverse
	Landscape – LCA3	Major-moderate adverse
	Views – Viewpoint 1	Moderate adverse
	Views – Viewpoint 2	Moderate adverse
	Views – Viewpoint 3	Minor-moderate adverse
	Views – Viewpoint 4	Minor-moderate adverse
	Views – Viewpoint 5	Minor-moderate adverse
	Views – Viewpoint 6	Minor-moderate adverse
	Views – Viewpoint 7	Minor adverse
	Views – Viewpoint 8	Moderate adverse
	Views – Viewpoint 9	Moderate adverse
	Views – Viewpoint 10	Minor neutral
	Views – Viewpoint 11	Minor-moderate neutral
	Views – Viewpoint 12	Moderate-major neutral

Stage	Effect	Residual Significance
	Views – Viewpoint 13	Moderate-major adverse
	Views – Viewpoint 14	Moderate-major adverse
	Views – Viewpoint 15	Moderate neutral
Built Heritage		
Construction	Loss of setting which contributes to the value of Grade II Listed Building The Old School House	Moderate Adverse
	Loss of setting which contributes to the value of the Undesignated Lostock Hall (now St Catherine's Hospice)	Negligible Adverse
Completed Development	Loss of setting which contributes to the value of Grade II Listed Building The Old School House	Moderate Adverse
	Loss of setting which contributes to the value of the Undesignated Lostock Hall (now St Catherine's Hospice)	Negligible Adverse
Transport and Access		
Construction	Additional goods vehicles on the local highway network;	Negligible
	Potential additional delay due to new construction access junctions;	Negligible
	Additional staff vehicles on the local highway network;	Negligible
	Potential diversions of vehicle routes and / or pedestrian routes in the area	Negligible
Completed Development	Additional Traffic Impact	Negligible
	Additional pedestrian / cycle flows	Negligible
	Additional public transport usage	Negligible
Noise and Vibration		
Construction Phase	Noise	Minor Adverse (insignificant)
	Vibration	Negligible (insignificant)
	Traffic	Negligible (insignificant)
Completed Development	Fixed mechanical plant and building services	Negligible (insignificant)
	Noise Breakout from Industrial, Storage and Commercial Uses	Negligible (insignificant)
	HGV Movements	Negligible (insignificant)
	Road Traffic Noise	Minor Adverse (insignificant)
Air Quality		
Construction Phase	Nuisance Dust	Negligible
	Construction Vehicle Exhaust Emissions	Negligible
	Construction Plant Emissions	Negligible
Completed Development	Nitrogen Dioxide	Negligible
	Particulate Matter (PM_{10} and $PM_{2.5}$)	Negligible
Ecology		
Construction Phase	Priority hedgerow habitat impact at the Parish level	Significant negative impact at Borough level.
	Priority Pond habitat	Slight positive. Not significant.
	Species poor semi improved grassland outside Lancashire Grassland Network	Significant negative impact at Site level.
	Species poor semi improved grassland inside Lancashire Grassland Network	Significant negative impact at Borough level.
	Common Toad	Not significant
	Bats	Not significant.
	Breeding birds	negative impact. Significant.
Completed Development	Cuerden Valley Park & River Lostock BHS	Slight positive. Not significant.

Interactive Effects

13.5 Regulation 4(2) states that an ES must include a description of the aspects of the environment likely to be significantly affected by the Development and the interrelationship between these effects. There is no published methodology for determining the significance of interactive or synergistic effects. Combining effects with respect to one environmental discipline with another has to be qualitative and is necessarily based on judgment. Therefore, a matrix system has been used to indicate where such effects would likely occur for the construction and operational phases, highlighting where effects occur to a common receptor. The findings of this exercise are set out in Table 13.3 below.

Table 13.3: Interactive Effects

Effect	Local Population	Landscape and Views	Users of the Local Road Network	Biodiversity
Construction Phase				
Views of vehicles and machinery being used during the construction period	*	*	*	
Disruption to users of the local road network			*	
Construction dust	*	*		*
Construction noise (plant and machinery)	*	*		*
Creation of construction employment	*			
Operational Phase				
Views of the Development	*	*	*	
Effects to the Highway network	*		*	
New housing opportunities	*			
Operational phase traffic emissions	*			*

*indicates where an effect may occur.

13.6 Appropriate mitigation during the construction phase has been identified in the ES as necessary, such as best practice measures to reduce or eliminate potential adverse environmental effects of construction as far as possible. Furthermore, the Construction Methodology and Phasing Chapter (Chapter 5) proposes a programme which will ensure that the Development would be implemented in the most efficient manner. This includes measures set out and secured through the implementation of a CEMP for the Development (see Chapter 5 for further details). Relevant legislative requirements would also need to be adhered to.

Cumulative Effects Summary

13.7 Each of the technical assessments considers the likely significant cumulative effects of the Development with the cumulative schemes set out in Chapter 2.

13.8 The technical assessments identified the following significant beneficial cumulative effects:

- Major beneficial effects on operational employment;
- Major beneficial effects on population; and
- Major beneficial effects on housing stock.

13.9 The technical assessments identified no significant adverse cumulative effects.

Conclusions

13.10 In summary, the Development, which includes the mitigation incorporated into the Development Parameters and the additional mitigation which will be secured through planning conditions and the detailed design (to be addressed at the reserved matters stages), will result in the following significant beneficial residual effects on the environment:

- Minor beneficial effects on construction employment;
- Major beneficial effects on operational employment; and
- Moderate to minor beneficial effects through housing provision.

13.11 The ES has also identified the following significant adverse residual effects on the environment:

- Major to moderate adverse effects on landscape character during the construction and operation;
- Moderate to major adverse effects on views 14 during the construction and operation; and
- Moderate adverse effects on loss of setting which contributes to the value of Grade II Listed Building The Old School House during the construction and operation;
- Significant negative effects on priority hedgerow habitats;
- Significant negative effects on semi improved grassland; and
- Significant negative effects on breeding birds.