

21 INTRA-DEVELOPMENT CUMULATIVE EFFECTS

21.1 INTRODUCTION

This chapter of the ES provides an assessment of the potential for intra-development cumulative effects.

21.2 INTRA-DEVELOPMENT CUMULATIVE EFFECTS

The Institute of Environment Management and Assessment (IEMA) (1) Guidance identifies two types of cumulative effects:

- Inter-project (or 'inter-development') effects – incremental changes caused by other existing and/or approved development schemes occurring together with the proposed development and the cumulative effects combining to worsen the effect of a particular impact; and
- Intra-project (or 'intra-development') effects – those effects that occur as a result of impact interaction between different environmental topics within the same project. For example, a project might affect bird species as a result of direct loss of habitat and by noise and light disturbance. Each of these when considered in isolation may have a limited effect but taken together the sum is greater than the parts.

The cumulative schemes considered relevant to this EIA are identified within Chapter 2: *EIA Methodology*. The inter-development effects of these schemes have been assessed within each individual technical chapter, as appropriate. Intra-development effects have subsequently been assessed within this chapter.

The assessment of cumulative intra-development effects considers the combination of identified significant effects of more than one technical assessment category which have the potential to affect the same sensitive receptor.

All residual effects, both those deemed to be significant (Major/Moderate) and those of lesser significance (Minor) have been considered. This is because, in aggregate, several minor effects could lead to the sensitive receptors experiencing an overall effect that is greater than the sum of its parts. However, Negligible effects (which also includes 'neutral' or 'no impact' assessments) have not been listed as these are considered unlikely to result in significant effects even in aggregate. The methodology employed in the terrestrial ecology chapter only differentiates between significant and non-significant residual effects. As such, only significant residual effects have been considered for this topic in this chapter.

Residual effects of both an adverse and beneficial nature are considered as part of the assessment. When fully and thoroughly considered with all aspects shown, if a receptor has an effect identified from only one topic then the overall effect is considered to remain that identified. If several topics identify effects for a single receptor then they have been considered and the residual effect adjusted according to the collective weight of the effects' significance and nature (adverse/beneficial).

For some environmental aspects, no interactions with other aspects can occur and so no combined cumulative effects could arise. Where this is the case, the assessment states that there is no potential for effect interactions.

Based on the methodology detailed within this chapter, **Table 21.1** and **Table 21.2** present the potential for interactions of individual effects during the construction and operational phases respectively.

All chapters consider the effects of the proposed scheme against both the current baseline and the future baseline. The significance results used here generally relate to the comparison against the current baseline, which is considered the most robust approach. However, proposed receptors in the immediate surrounding area within the future baseline have also been considered to ensure that the assessment is comprehensive.

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Table 21.1
Intra-development Cumulative Effects Assessment – Construction Phase

SENSITIVE RECEPTOR/RECEPTOR GROUP	CONSTRUCTION RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
Pedestrians: Existing	<u>Transportation</u> Effects of construction traffic on pedestrian amenity — Minor Adverse	No	No
Existing and proposed surrounding receptors (noise chapter references: R01-R11, PR1-PR11)	<u>Noise & Vibration</u> Construction noise effects — Minor Adverse	No	No
Nelson Dock	<u>Water Resources & Flood Risk</u> Disturbance of sediments, possibly contaminated at a low level, due to raking of BMD bed — Minor Adverse	No	No
Stanley Half-tide Dock	<u>Water Resources & Flood Risk</u> Disturbance of sediments, possibly contaminated at a low level, due to raking of BMD bed — Minor Adverse Migration of fines suspended sediment in excess water pumped into SHTD during BMD dock infill process — Minor Adverse	No	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
Fish and Shellfish	<u>Aquatic Ecology</u> Entrainment — Minor Adverse	No	No
NCA 58: Merseyside Conurbation; The Waterfront and Its Fringes City Centre Character Area; Main Office Area City Centre Character Area; WHS SPD Character Area 3 — Stanley Dock Conservation Area; WHS SPD Character Area 4 — Castle Street Conservation Area; Residential Docks Townscape Character Area; Industrial Docks Townscape Character Area; Ten Streets and Wellington Park Townscape Character Area; Vauxhall Residential Character Area; Kirkdale Residential Character Area; Everton Residential Character Area	<u>Townscape and Visual</u> Change to townscape character due to demolition and construction activities — Negligible to Major Adverse	No	No
Views of the site from the surrounding area (Melrose Road, Commercial Road, Regent Road, Everton Valley/ St Domingo Road junction, Blackstone Street Boundary Street, Everton Park, Bascule Bridge, Waterloo Road, Tunnel vent on Waterloo Road, Waterloo Warehouse/ Waterloo Road, Great Howard Street/ Old Hall Street junction, Princes Parade, Princes Dock footbridge New Quay, Pier Head Ferry Terminal, Georges Pier Head, Pier Head Plaza, Salthouse Quay, Albert Dock, Woodside Ferry Terminal, Seacombe Ferry Terminal, Wallasey Town Hall, Magazine Promenade, Fort Perch Rock, Trafalgar Dock, South-Western edge of Trafalgar Dock, Alexandra Tower, Bidston Hill, Anglican Cathedral, Metropolitan Cathedral of Christ the King, Holt Hill)	<u>Townscape and Visual</u> Change to view due to visibility of the proposed development — Negligible to Moderate Adverse	No	No
Bramley-Moore Retaining Dock Walls	<u>Built Heritage</u> Physical changes to and effects on the setting of heritage asset— Major Adverse	No	No
Regent Road Dock Wall	<u>Built Heritage</u> Physical changes to and effects on the setting of heritage asset — Moderate Adverse	No	No
Hydraulic Engine House	<u>Built Heritage</u>	No	No

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SENSITIVE RECEPTOR/RECEPTOR GROUP	CONSTRUCTION RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
Stanley Dock Conservation Area	Commitment to repair, restore and convert heritage asset — Major Beneficial	No	No
	<u>Built Heritage</u> Physical changes to elements of the heritage asset and effects on its setting — Major Adverse		
Liverpool Maritime Mercantile City World Heritage Site	<u>Built Heritage</u> Physical changes to and effects on the setting of heritage assets that contribute to the WHS — Major Adverse	No	No
Labour Market & Employment, Labour Market & Skills	<u>Socio-Economics</u> Generation of construction employment — Major Beneficial Generation of training and apprenticeship opportunities — Moderate Beneficial	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect on the labour market. Considering the collective weight of the effects’ significance and nature, a Moderate to Major Beneficial effect is anticipated.
Local Economy	<u>Socio-Economics</u> Generation of GVA — Moderate Beneficial	No	No

Table 21.2
Intra-Development Cumulative Effects Assessment – Operational Phase

SENSITIVE RECEPTOR/RECEPTOR GROUP	OPERATIONAL RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
Transport network users: parking, bus, rail, taxi, pedestrians & cyclists	<u>Transportation</u> Effects of operational traffic on operation and safety (matchday/event day) — Minor Adverse	No	No
Pedestrians: existing and proposed	<u>Transportation</u> Crowd disaster and violence (matchday/event day) — Minor Adverse	No	No
76 Boundary Street (noise chapter ref: R01/TR02)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
2 St. Albans Court (noise chapter ref: R02/TR03)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
30 Snowdon Lane (noise chapter ref: R03/TR04)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.

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SENSITIVE RECEPTOR/RECEPTOR GROUP	OPERATIONAL RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
31 Houlgrave Road (noise chapter ref: R04/TR05)	Stadium noise (concert) — Minor Adverse <u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
52 Colin Drive (noise chapter ref: R05/TR06)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
Titanic Hotel, Stanley Dock, Regent Road (noise chapter ref: R06/TR09)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Negligible to Moderate Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Negligible to Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year, a Minor Adverse effect is anticipated.
27 Egremont Promenade (noise chapter ref: R07)	<u>Noise & Vibration</u> Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
40 Egremont Promenade (noise chapter ref: R08)	<u>Noise & Vibration</u> Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
Mariners’ Park Care Home, Royden Avenue (noise chapter ref: R09)	<u>Noise & Vibration</u> Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
62 Radnor Drive (noise chapter ref: R10)	<u>Noise & Vibration</u> Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor Adverse effect is anticipated.
62 Regent Road (noise chapter ref: R11/TR10)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor to Moderate Adverse Change in noise level due to stadium noise (match-day prior to match/during match) — Minor Adverse Noise intrusion due to stadium noise (match-day prior to match/during match) — Moderate Adverse Stadium noise (concert) — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year, a Minor Adverse effect is anticipated.

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SENSITIVE RECEPTOR/RECEPTOR GROUP	OPERATIONAL RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
Liverpool Waters Scheme Block E-06 north (noise chapter ref: PR1)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Moderate to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-06 east (noise chapter ref: PR2)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-07 (noise chapter ref: PR3)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Moderate to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse <u>Daylight, Sunlight & Overshadowing</u> Reduction in internal daylight levels — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-08 (noise chapter ref: PR4; lighting chapter ref: PR7)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse <u>Daylight, Sunlight & Overshadowing</u> Reduction in internal daylight levels — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-04 west (noise chapter ref: PR5)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-04 north (noise chapter ref: PR6; lighting chapter ref: PR9)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Moderate to Moderate to Major Adverse Stadium noise (concert) — Moderate to Major Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-05 (noise chapter ref: PR7)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor to Moderate Adverse Stadium noise (concert) — Moderate to Major Adverse <u>Daylight, Sunlight & Overshadowing</u> Reduction in internal sunlight levels — Minor Adverse	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-03 (noise chapter ref: PR8)	<u>Noise & Vibration</u>	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature,

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	Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor to Moderate Adverse Stadium noise (concert) — Moderate to Major Adverse <u>Daylight, Sunlight & Overshadowing</u> Reduction in internal sunlight levels — Minor Adverse		including the fact that noise intrusion from stadium noise on a matchday would only occur up to 28 days per year and noise from concerts would only occur up to four times a year, a Moderate Adverse effect is anticipated.
Liverpool Waters Scheme Block E-02	<u>Daylight, Sunlight & Overshadowing</u> Reduction in internal sunlight levels — Moderate Adverse	No	No
Proposed Stanley Dock Apartments (noise chapter ref: PR9)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Minor Adverse Stadium noise (concert) — Minor Adverse	No	No
Proposed Bramley Hotel (Regent Road/Blackstone Street) (noise chapter ref: PR10) (lighting chapter ref: PR11)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match/during match) — Moderate Adverse	No	No
Proposed Lightbody Street Residential Development (noise chapter ref: PR11)	<u>Noise & Vibration</u> Noise intrusion due to stadium noise (match-day prior to match) — Minor Adverse Noise intrusion due to stadium noise (match-day during match) — Moderate Adverse Stadium noise (concert) — Minor Adverse	No	No
92 Boundary Street (noise chapter ref: TR01)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse	No	No
5 O'Reilly Court (noise chapter ref: TR07)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse	No	No
10 Jack McBain Court (noise chapter ref: TR08)	<u>Noise & Vibration</u> Operational traffic noise effects (non-matchday, conference, short/long-term, 2023/2028) — Minor Adverse	No	No
Onsite - Area A: thoroughfares	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Moderate Beneficial to Minor Adverse	No	No
Onsite - Area B: thoroughfares	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Minor Beneficial	No	No
Onsite - Area B: entrances	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial	No	No
Onsite - Area C: thoroughfares	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
Onsite - Area C: entrances	<u>Wind</u> Wind comfort conditions that are windier than the target comfort conditions — Minor Adverse	No	No
Onsite - Area D1: thoroughfares	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
Onsite - Area D2: thoroughfares	<u>Wind</u>	No	No

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SENSITIVE RECEPTOR/RECEPTOR GROUP		INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
Onsite - Area E: thoroughfares	Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area F1: thoroughfares	Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area F2: thoroughfares	Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area F2: Ground Level Amenity - Seating	Wind comfort conditions that are windier/calmer than the target comfort conditions — Moderate Beneficial to Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area H1: Ground Level Amenity Areas — Mixed Use	Wind comfort conditions that are windier than the target comfort conditions — Negligible to Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area G: thoroughfares	Wind comfort conditions that are windier than the target comfort conditions — Negligible to Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area H1: Ground Level Amenity Areas — Mixed Use	Wind comfort conditions are suitable for the target comfort conditions (with access to be managed when trigger conditions met) — Minor Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area H2: thoroughfares	Wind comfort conditions that are windier than the target comfort conditions — Negligible to Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area H2: entrances	Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area I2: thoroughfares & entrances	Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area J1: Ground Level Amenity Areas — Mixed Use	Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial	No	No
	<u>Wind</u>		
Onsite - Area J1: Ground Level Amenity - Seating	Wind comfort conditions that are windier than the target comfort conditions — Minor Adverse to Negligible	No	No
	<u>Wind</u>		
Onsite - Area J2: thoroughfares	Wind comfort conditions that are windier than the target comfort conditions — Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area J2: entrances	Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
	<u>Wind</u>		
Onsite - Area K: thoroughfares	Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Minor Adverse	No	No
	<u>Wind</u>		
Onsite - Area L: thoroughfares	Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
	<u>Wind</u>		
	Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
	<u>Wind</u>		

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Onsite - Area L: entrances	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial	No	No
Onsite - Area M: thoroughfares	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Minor Adverse	No	No
Onsite - Area N1: thoroughfares	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Moderate Beneficial to Negligible	No	No
Onsite - Area N2: entrances	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial	No	No
Onsite - Area O: entrances	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial	No	No
Onsite - Area P1: entrances	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial	No	No
Onsite - Area P1: Ground Level Amenity Areas — Mixed Use	<u>Wind</u> Wind comfort conditions that are windier than the target comfort conditions — Minor Adverse to Negligible	No	No
Onsite - Area P2: thoroughfares	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Moderate Beneficial to Minor Adverse	No	No
United Utilities Land: UU1	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
United Utilities Land: UU2	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Moderate Adverse	No	No
United Utilities Land: UU3	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Moderate Adverse	No	No
United Utilities Land: UU4	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Moderate Beneficial to Moderate Adverse	No	No
Regent Road: RR4	<u>Wind</u> Wind comfort conditions that are calmer than the target comfort conditions — Minor Beneficial to Negligible	No	No
Nelson Dock: ND1	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Minor Adverse	No	No
Nelson Dock: ND2	<u>Wind</u> Wind comfort conditions that are windier/calmer than the target comfort conditions — Minor Beneficial to Minor Adverse	No	No

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SENSITIVE RECEPTOR/RECEPTOR GROUP	OPERATIONAL RESIDUAL EFFECTS	INTRA-DEVELOPMENT CUMULATIVE EFFECT POTENTIAL?	POTENTIAL FOR INTRA-DEVELOPMENT CUMULATIVE EFFECT INTERACTION?
River Mersey 15-160m from the site; Wellington Dock 8-80m from the site; Nelson Dock 10-50m from the site; Bat Roost within the Hydraulic Tower	<u>Lighting</u> Light emissions (event day/non-event day) — Negligible to Minor Adverse	No	No
57 Regent Road	<u>Lighting</u> Light emissions (event day) — Minor Adverse	No	No
NCA 58: Merseyside Conurbation; The Waterfront and Its Fringes City Centre Character Area; Main Office Area City Centre Character Area; WHS SPD Character Area 3 — Stanley Dock Conservation Area; WHS SPD Character Area 4 — Castle Street Conservation Area; Residential Docks Townscape Character Area; Industrial Docks Townscape Character Area; Ten Streets and Wellington Park Townscape Character Area; Vauxhall Residential Character Area; Kirkdale Residential Character Area; Everton Residential Character Area	<u>Townscape and Visual</u> Change to townscape character due to visibility of the proposed development — Minor Adverse to Major Beneficial	No	No
Views of the site from the surrounding area (Melrose Road, Commercial Road, Regent Road, Everton Valley/ St Domingo Road junction, Blackstone Street Boundary Street, Everton Park, Bascule Bridge, Waterloo Road, Tunnel vent on Waterloo Road, Waterloo Warehouse/ Waterloo Road, Great Howard Street/ Old Hall Street junction, Princes Parade, Princes Dock footbridge New Quay, Pier Head Ferry Terminal, Georges Pier Head, Pier Head Plaza, Salthouse Quay, Albert Dock, Woodside Ferry Terminal, Seacombe Ferry Terminal, Wallasey Town Hall, Magazine Promenade, Fort Perch Rock, Trafalgar Dock, South-Western edge of Trafalgar Dock, Alexandra Tower, Bidston Hill, Anglican Cathedral, Metropolitan Cathedral of Christ the King, Holt Hill)	<u>Townscape and Visual</u> Change to view due to visibility of the proposed development — Moderate Adverse to Moderate Beneficial	No	No
Labour Market & Employment	<u>Socio-economics</u> Generation of operational employment — Minor Beneficial Generation of GVA — Moderate Beneficial	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Minor to Moderate Beneficial effect is anticipated.
Local Economy	<u>Socio-economics</u> Generation of additional wage income — Moderate Beneficial Generation of additional expenditure — Moderate Beneficial Increase in marketing and sponsorship revenue — Moderate Beneficial Generation of societal value — Moderate Beneficial Preservation of social and heritage value — Moderate Beneficial	Yes	These effects are considered to have the potential to interact to produce an intra-development cumulative effect. Considering the collective weight of the effects’ significance and nature, a Moderate Beneficial effect is anticipated.

INTRA-DEVELOPMENT CUMULATIVE EFFECTS

21.3 SUMMARY

From the intra-development cumulative effects assessment, it can be seen that there is the potential for both adverse and beneficial combined effects arising on individual receptors or receptor groups and, in some cases, there is the potential for those effects to interact with one another to produce intra-development cumulative effects. The anticipated intra-development cumulative effects range from **Moderate Adverse** to **Moderate to Major Beneficial**.

21.4 WORKS CITED

1. Institute of Environmental Management and Assessment. The State of Environmental Impact Assessment Practice in the UK. s.l. : IEMA, 2011.