

Chapter 11: Climate Change.

Appendix 11.1 – Embodied carbon appraisal results.

Enabling Works: estimated embodied carbon from demolition of existing buildings.

Table 1 Estimated embodied carbon from demolition of existing buildings

Total floor area	Average demolition impact rate	Total demolition impact	
m²	kgCO ₂ e/m²	kgCO ₂ e/m²	tCO ₂ e/m²
7,084	3.4	24,085	24.09

Proposed Development: embodied carbon emissions for lifecycle stages A1-A3.

Table 2 Summary of upfront carbon for detailed application plots A-C from LCA assessment

Plot	Building use type	Lifecycle Stage tCO ₂ e/m²			A1-A3 embodied carbon tCO ₂ e
		A1-A3	A4	A5	
A	Community Hub	1,933	240	167	2,340
B	Retail Hub	1,329	164	118	1,611
C	Market Hall	769	86	73	928
		4,031	490	358	4,879

Table 3: Summary of A1-A3 embodied carbon emissions for the outline elements and Plot G.

Plot	Building use type	Assumed RICS 2014 carbon factor		GIA m²	A1-A3 embodied carbon	
		Use type	kgCO ₂ e/m²		kgCO ₂ e	tCO ₂ e
D	Residential	Medium rise apartment (6-10 storey)	860	4,505	3,874,300	5,592.29
	Retail	Retail mall	935	214	200,080	
	Miscellaneous	Medium rise apartment (6-10 storey)	860	1,765	1,517,900	
E	Residential	Medium rise apartment (6-10 storey)	860	3,389	2,914,540	4,794.92
	Retail	Retail mall	935	361	337,535	
	Miscellaneous	Medium rise apartment (6-10 storey)	860	1,794	1,542,840	
F	Residential	Medium rise apartment (6-10 storey)	860	4,422	3,802,920	5,820.78
	Retail	Retail mall	935	325	303,875	
	Miscellaneous	Medium rise apartment (6-10 storey)	860	1,993	1,713,980	
G	MSCP	Depot/open storage	410	8,640	3,542,400	3,542.40
				27,408	19,750,380	19,750.38

Outline Development: estimated embodied carbon emissions for lifecycle stages A4 and A5.

Table 4 Summary of A4 and A5 carbon emissions

A4 Transport (estimated as 10% of upfront carbon)	A5 Construction				A4 and A5 tCO ₂ e
	Floor area	One Click Carbon factor			
tO ₂ e/m²	m²	kgCO ₂ e/m²	kgCO ₂ e	tCO ₂ e	
2,465.04	27,408	30.34	831,559	831.56	2,806.60

Figure 1: Proposed Development: estimated embodied carbon split per use type (A1-A3 only).

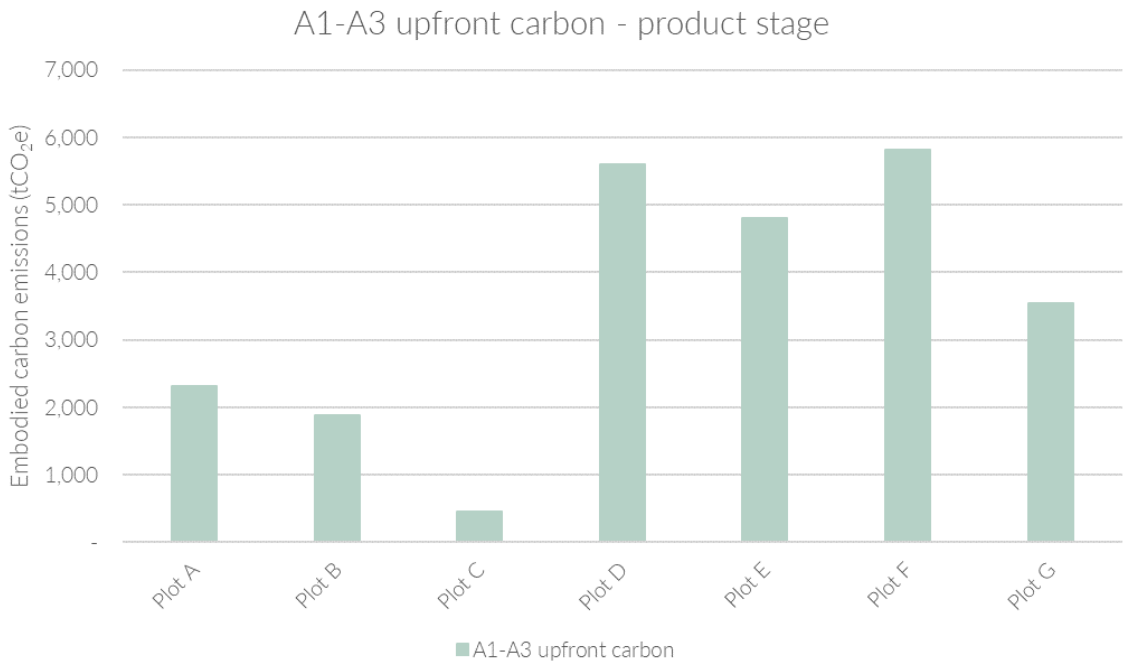


Figure 2: The Proposed Development illustrative embodied carbon.

