

E2.38

ES Appendix 15.2 - GHG Assessment Results

Authored by Expedition

November 2025

**THE CROWN
ESTATE**

East Hemel

Appendix 15.2: GHG Assessment Results

Embodied Carbon Emissions - BaU

Table 1: Embodied Carbon Results

Use Class Type	Construction Phase	GIA (m ²)	Upfront Carbon [A1-A5] (tCO ₂ e)	In-use, End-of-Life Carbon [B1-5, C1-4] (tCO ₂ e)
Residential	By 2044	440,000	374,000	154,000
Retail	By 2044	2,294	1,950	459
Medical centre	By 2044	882	838	397
Community hall	By 2044	1,329	1,263	598
Indoor sports	By 2044	1,008	958	454
School	By 2044	2,142	1,607	536
Logistics	By 2044	93,849	89,157	42,232
Business, Research & Development	By 2044	38,826	36,885	17,472
Mixed Industrial	By 2044	28,695	27,260	12,913

Table 2: Construction Emissions Results

	Area [m ²]	Volume [m ³]	[tCO ₂ e]
Demolition	5,210	-	190
Earthworks (Cut & Fill)	-	327,000	6,056

Table 3: Infrastructure Emissions Results

Infrastructure	A1-A5 [tCO ₂ e]
Access	5,916
Utilities	1,429
Surface water drainage	1,325

Operational Carbon Emissions

Energy

Table 4: Operational Energy Results

Years of Full Operation	B6 emissions for the Development [tCO ₂ e]
2044	709
2045	659
2046	645
2047	446
2048	433
2049	275
2050	209
2051	209
2052	209
2053	209
2054	209
2055	209
2056	209
2057	209
2058	209
2059	209
2060	209
2061	209
2062	209
2063	209
2064	209
2065	209
2066	209
2067	209
2068	209
2069	209
2070	209
2071	209
2072	209
2073	209
2074	209
2075	209
2076	209
2077	209
2078	209
2079	209
2080	209
2081	209
2082	209

Years of Full Operation	B6 emissions for the Development [tCO ₂ e]
2083	209
2084	209
2085	209
2086	209
2087	209
2088	209
2089	209
2090	209
2091	209
2092	209
2093	209
2094	209
2095	209
2096	209
2097	209
2098	209
2099	209
2100	209
2101	209
2102	209
2103	209
2104	209
2105	209

Table 5: Existing Properties Operational Energy and Embodied Carbon Emissions Modules B1-5, C1-4

Use Type	Year	Buildings' In-use and End-of-Life embodied carbon emissions (B1-5, C1-4) [tCO ₂ e]	Energy (B6) [tCO ₂ e]
Residential	2025	220	110

Water

Table 6: Operational Water Results

Water Use	Water use emissions [tCO ₂ e]	Waste Water use emissions [tCO ₂ e]
The Development	5,910	4,744

Transport

Table 7: Transport Results

Year	Petrol [tCO ₂ e]	Diesel [tCO ₂ e]	Electricity [tCO ₂ e]	HGV2 - Diesel [tCO ₂ e]
2045	2,659	602	41	26,282
2046	2,502	452	26	26,297
2047	2,502	452	28	26,308
2048	2,502	452	28	26,321
2049	2,346	452	30	26,334
2050	2,346	453	30	26,346
2051	2,346	453	28	26,358
2052	2,189	678	45	26,160
2053	2,032	536	47	26,160
2054	1,876	394	48	26,160
2055	1,720	252	49	26,160
2056	1,563	111	50	26,160
2057	1,407	0	55	26,160
2058	1,251	0	55	26,160
2059	1,094	0	56	26,160
2060	938	0	56	26,160
2061	782	0	57	26,160
2062	782	0	57	26,160
2063	782	0	57	26,160
2064	782	0	57	26,160
2065	0	0	60	26,160
2066	0	0	60	26,160
2067	0	0	60	26,160
2068	0	0	60	26,160
2069	0	0	60	26,160
2070	0	0	60	26,160
2071	0	0	60	26,160
2072	0	0	60	26,160
2073	0	0	60	26,160
2074	0	0	60	26,160
2075	0	0	60	26,160
2076	0	0	60	26,160
2077	0	0	60	26,160
2078	0	0	60	26,160
2079	0	0	60	26,160
2080	0	0	60	26,160
2081	0	0	60	26,160
2082	0	0	60	26,160
2083	0	0	60	26,160

Year	Petrol [tCO ₂ e]	Diesel [tCO ₂ e]	Electricity [tCO ₂ e]	HGV2 – Diesel [tCO ₂ e]
2084	0	0	60	26,160
2085	0	0	60	26,160
2086	0	0	60	26,160
2087	0	0	60	26,160
2088	0	0	60	26,160
2089	0	0	60	26,160
2090	0	0	60	26,160
2091	0	0	60	26,160
2092	0	0	60	26,160
2093	0	0	60	26,160
2094	0	0	60	26,160
2095	0	0	60	26,160
2096	0	0	60	26,160
2097	0	0	60	26,160
2098	0	0	60	26,160
2099	0	0	60	26,160
2100+	0	0	60	26,160

Waste

Table 8: Waste Results

Waste Group	General [tCO ₂ e]
Household Residual Waste	15,624
Organic	9,376
Commercial and industrial	25,390
Plastic	1,468

Carbon Sequestration

Table 9: Sequestration Results

Habitat	Sequestered Carbon [tCO ₂ e]
Natural & semi natural	12,210
Parks and gardens	510
Greenspaces	960
Allotment	270
Sports	594
SANGs	9,240
Arable land	6,212