

**A57 Link Roads
TR010034**

**6.5 Environmental Statement
Appendix 14.1 Carbon Assessment**

APFP Regulation 5(2)(a)

Planning Act 2008 Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

Appendix 14.1 Carbon Assessment

2020 Jul - Sep - Bulk Materials

Mark page as complete

Add new row:

Total CO2e	15,360.698	Tonnes
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Converter:		
Miles	=	km
1.00	=	1.61

Material / Product						
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	This Return tCO2e
Asphalt	General Asphalt	tonnes	48482.0	0.076	tCO2e/t	3684.632
Fill and aggregate	General fill/aggregate	tonnes	160992.0	0.005	tCO2e/t	837.158
Ready mix concrete	General	m3	12620.0	0.107	tCO2e/t	3240.816
Reinforcement steel	Steel bar and rod	tonnes	1224.0	1.400	tCO2e/t	1713.600
Ready mix concrete	C28/35	m3	1789.0	0.120	tCO2e/t	515.232

Assign % of total quantity to categories					
Not Allocated %	Fencing %	Drainage %	Road Pavements %	Civils Structures %	Waste %
100.00%					
100.00%					
100.00%					
100.00%					
100.00%					
100.00%					

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	1061.289
HGV	100.0	0.0001095	3524.174
HGV	100.0	0.0001095	663.015
HGV	100.0	0.0001095	26.794
HGV	100.0	0.0001095	93.988

Forecast
Next Return Quantity Forecast

2020 Jul - Sep - Earthworks

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	7,782.470	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Imported Soil	Stabilised soil - Cement, Fly Ash or GGBS	tonnes	75097.5	0.061	tCO2e/t	1.000	4580.948
Imported Soil	General soil/top soil	tonnes	33942.0	0.024	tCO2e/t	1.000	814.608
Site won soil/ muck shift	General soil	tonnes		0.000	tCO2e/t	1.000	

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO ₂ e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	1643.912
HGV	100.0	0.0001095	743.003

2020 Jul - Sep - Fencing, Barriers & Road Restraint Systems

 Mark page as complete

Add new row:

(excluding bulk materials)

Total CO2e	510.261	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Fence	Timber rail fence (all types, includes posts)	metres	1446.0	0.590	tCO2e/t	0.014	12.186
Fence	Steel/wire/chain fence (includes posts)	metres	10070.0	3.020	tCO2e/t	0.004	116.172
Road Restraint System/ Safety Barrier	Steel RRS barrier double sided	metres	264.0	1.540	tCO2e/t	0.036	14.449
Road Restraint System/ Safety Barrier	Pre-cast concrete step barrier	metres	1439.0	0.199	tCO2e/t	1.150	329.729

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	0.452
HGV	100.0	0.0001095	0.842
HGV	100.0	0.0001095	0.205
HGV	100.0	0.0001095	36.225

2020 Jul - Sep - Drainage

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	777.037	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Gullies	Precast concrete gully pots	no.	156.0	0.578	tCO2e/t	0.465	41.928
Headwalls	Brick (includes mortar)	no.	24.0	0.237	tCO2e/t	0.003	0.016
Plastic pipework (HDPE)	600mm diameter	metres	11500.0	2.520	tCO2e/t	0.020	593.545
Precast concrete inspection chambers	1000mm diameter, 1.2m - 3m depth	no.	193.0	0.201	tCO2e/t	1.753	68.040
Channel & slot drains	Precast concrete channel (heavy duty)	metres	1960.0	0.180	tCO2e/t	0.150	52.920

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	1.588
HGV	100.0	0.0001095	0.001
HGV	100.0	0.0001095	5.156
HGV	100.0	0.0001095	7.406
HGV	100.0	0.0001095	6.436

2020 Jul - Sep - Road Pavements

(excluding bulk materials)

 Mark page as complete

Add new row:

Total CO2e	119.696	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Kerb	Pre-cast concrete 125x255mm	metres	8552.0	0.180	tCO2e/t	0.073	112.835

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	50.0	0.0001095	6.861

2020 Jul - Sep - Street Furniture & Electrical Equipment

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	401.969	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Variable Message Signs (VMS)	AMI (advanced motorway indicator)	no.	312.0	5.590	tCO2e/t	0.100	174.408
Marker posts/signs	Aluminium marker sign	no.	28.0	9.160	tCO2e/t	0.010	2.565
Variable Message Signs (VMS)	MS4 Sign	no.	3.0	5.590	tCO2e/t	0.725	12.158
Road lighting and columns	Aluminium columns 10m	no.	138.0	9.160	tCO2e/t	0.142	179.499
Road lighting and columns	LED light	no.	292.0	9.160	tCO2e/t	0.012	32.097

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO ₂ e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	0.683
HGV	100.0	0.0001095	0.006
HGV	100.0	0.0001095	0.048
HGV	100.0	0.0001095	0.429
HGV	100.0	0.0001095	0.077

2020 Jul - Sep - Civils Structures & Retaining Walls

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	6,334.163	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Piling	Pre-cast concrete piles	tonnes	30288.0	0.180	tCO2e/t	1.000	5451.840
Piling	In-situ concrete piles	tonnes					
Formwork / Shuttering	Plywood	m3	362.0	1.100	tCO2e/t	0.540	215.028

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	100.0	0.0001095	663.015
HGV	100.0	0.0001095	4.279

2020 Jul - Sep - Fuel, Energy & Water

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	7,293.801	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Site offices, site vehicles and plant energy	Diesel	Litres	2100000.0	3.802	kgCO2e/kg	0.001	6680.310
Site offices, site vehicles and plant energy	Electricity	kWh	1200000.0	0.494	kgCO2e/kWh	0.001	593.112
Water	Mains	Litres	48000.0	0.000	kgCO2e/l	0.001	0.017
Water	Transported (Tanker)	Litres	100000.0	0.000	kgCO2e/l	0.001	0.034

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	50.0	0.0001095	19.234
HGV	50.0	0.0001095	1.095

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