

Designer Embodied Carbon (EC) Calculation - Civil & Electrical
Build Table Most Contributing Materials 1%- Embodied Carbon A1-5
Project Name: Higher Walton - Landscaping Cable Replacement
Project Scope: 33kV Single Core Cable (400mm2 CU XLPE, Route Length 2274m)
Calculation Date: 19/09/2024
Project Code: 50018473
Project Completed in Financial Year: FY24
Estimated Cost of Cable Works (£) (To Excludes VAT): £421,911.00

Table with columns: Roadway, CH Start (m), CH End (m), Substation Ground, Footpath Approval, Road Type 1, Road Type 2, Road Type 3, Verge / Soft Landscaping, Surface, Total, CROSS SECTION, USE, COMMENTS. Rows include Ground of Higher Walton Substation, Land adjacent to Higher Walton Substation, Highgate Lane, Blackburn Road, Kittingbourne Bow, Cottage Lane, School Lane, Station Road.

Road & Cable Calculations Table (Type 1)
Columns: Cable Type & Excavation, Cable/Duct Number, Units values to input to conversion to tonnes (eg), Conversion to tonnes, Quantity (t), ECF kg(CO2e)/kg, Embodied Carbon (CO2e) (t), Total EC (CO2e) (t), Notes / Comments. Rows include Asphalt, Ready mix concrete 3240, Engineering MOT, Aggregate, Sand, Waste material content, Soil assumed 5% cement content, Cable Ducts PVC weight, Cable 33kV (New), Cable 6.6/11kV (New).

Road & Cable Calculations Table (Type 2)
Columns: Cable Type & Excavation, Cable/Duct Number, Units values to input to conversion to tonnes (eg), Conversion to tonnes, Quantity (t), ECF kg(CO2e)/kg, Embodied Carbon (CO2e) (t), Total EC (CO2e) (t), Notes / Comments. Rows include Asphalt, Ready mix concrete 3240, Engineering MOT, Aggregate, Sand, Waste material content, Soil assumed 5% cement content, Cable Ducts PVC weight, Cable 33kV (New), Cable 6.6/11kV (New).

Road & Cable Calculations Table (Type 1&2)
Columns: Cable Type & Excavation, Cable/Duct Number, Units values to input to conversion to tonnes (eg), Conversion to tonnes, Quantity (t), ECF kg(CO2e)/kg, Embodied Carbon (CO2e) (t), Total EC (CO2e) (t), Notes / Comments. Rows include Asphalt, Ready mix concrete 3240, Engineering MOT, Aggregate, Sand, Waste material content, Soil assumed 5% cement content, Cable Ducts PVC weight, Cable 33kV (New), Cable 6.6/11kV (New).

Important note: All materials calculated in above sheets, includes only imported materials.
Key: A1-5 Calculation based on Embodied Carbon Factors (ECF) to Extract & Manufacture the material Calculated as: Tonnes x ECF kg(CO2e)/kg = Embodied Carbon (CO2e) Sourced from:
Key: A4 Calculation based on kg of CO2e produced by Distance travelled in km, ECF based on: Tonnes x ECF kg(CO2e)/kg = Embodied Carbon (CO2e) Sourced from:
Key: A5e Calculation based on the Waste Factor (WF) of Materials. So brick has a waste factor of 20% (Steel 1% etc...). Material WF x Material ECF x Distance travelled = Distance to be added to transport material taken to landfill (CO2) + CO2 used for processing disposal (CO2) = A5e / Example, assumed waste of concrete is: 0.85 x (A1+A2+A3+A4+C2+C3+C4) = A5e / Sourced from:
Note: Typical assumed content stage A1-5 of build is 50% to 700kg(CO2e) per £100,000 to £100,000 to £100,000 = A1-5 / Sourced from:
Reference note: Calculations & Embodied Carbon factors for materials listed in the table are sourced from the Bria (ICE) & Besha.
Calculator for Cable & Ducts notes: Without adding in cable lengths in meters, the calculation must include cable numbers for the table to calculate the embodied carbon factor.

