Statement of Verification

BREG EN EPD No: 000764 Issue: 01

This is to verify that the Environmental Product Declaration provided by:

Philip Grahame International Ltd

are in accordance with the requirements of:

EN 15804:2012+A2:2019

and

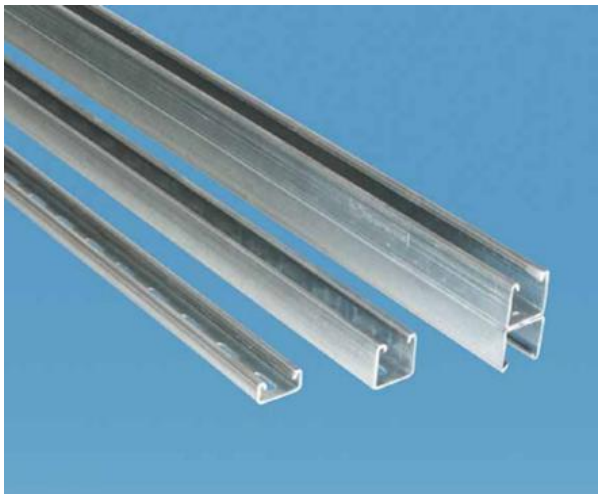
BRE Global Scheme Document SD207

This declaration is for:
1 kg of galvanised steel Channel Support System for the use in load bearing frameworks and the support of electrical installations and cable.

Company Address

Philip Grahame Ltd
Unit 7 Lonebarn Link
Springfield Business Park
Chelmsford
CM2 5AR

PHILIP GRAHAME
Member of NIEDAX GROUP



Signed for BRE Global Limited — Hayley Thomson, Operator

Date of this Issue	Date of First Issue	Expiry Date
20 February 2026	20 February 2026	19 February 2031

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Environmental Product Declaration

EPD Number: 000764

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2025 Product Category Rules (PN 514 Rev 3.2) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019
Commissioner of LCA study	**LCA consultant/Tool**
Philip Grahame Ltd Unit 7 Lonebarn Link Springfield Business Park Chelmsford CM2 5AR	Francis Yu/ LINA A2
Declared/Functional Unit	**Applicability/Coverage**
1 kg of galvanised steel Channel Support System for the use in load bearing frameworks and the support of electrical installations and cable.	Product Average.
EPD Type	**Background database**
Cradle to Gate with Module C and D	Ecoinvent 3.8

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☒Internal ☐ External
(Where appropriate [b])Third party verifier: Regina Poveda
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance

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Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site

Howard Street,
Hill top,
West Bromwich,
B70 0ST

Storage site

Unit 7 Lonebarn Link,
Springfield Business Park,
Chelmsford,
CM2 5AR

Construction Product:

Product Description

In building electrical wiring, channel support systems are used to provide mechanical support for cables, cable trays, cable baskets, cable trunking, and cable ladder systems utilised in power distribution and communication wiring.

The flexibility of channel support components enables the construction of load-bearing frameworks, trapeze systems, and cantilever arms that accommodate a wide range of electrical installations. These systems can easily support cable containment on both vertical and horizontal runs.

The typical channel support system consists of a steel channel section (strut), steel brackets, channel nuts, and set screws. The load-bearing capacity of the system is determined through a combination of engineering calculations and load tests, as defined in BS 6946.

This Environmental Product Declaration (EPD) covers six types of channel support system products designed for various cable types and applications: Standard Channels (CH101, CH103, CH104, and CH105) and Slotted Channels (CH150 and CH151). Each product is available in 3-metre and 6-metre lengths. On a kg basis, the six products are identical in terms of product composition and manufacturing process.

See below diagrams demonstrating each product:

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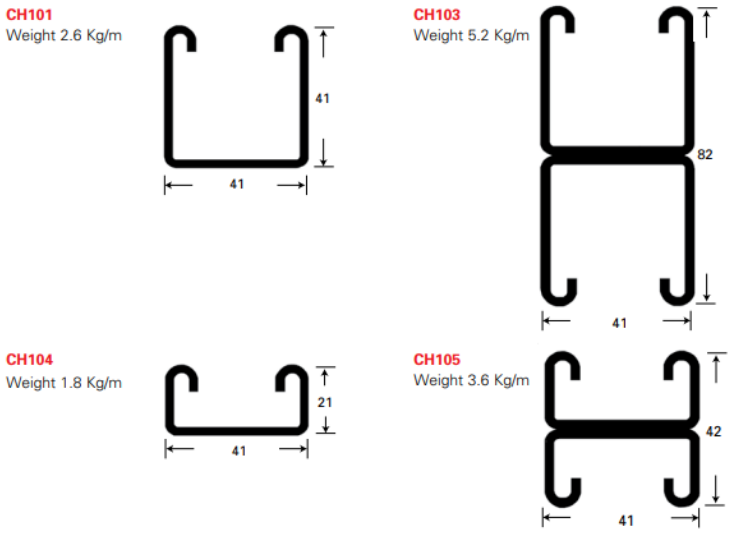
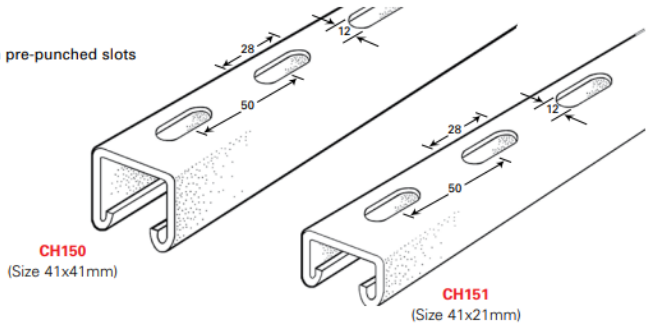


Slotted Channel

Channels are available with pre-punched slots to facilitate easy fixing.



The specifications included in the EPD are as follows:

Product Code	Channel size (mm)	Thickness	Channel Coil width	Product Weight (kg)
CH101/3/G	41x41	2.5	132.5	7.5
CH103/3/G	41x82	2.5	132.5	15.0
CH104/3/G	41x21	2.5	91.5	5.2
CH105/3/G	41x42	2.5	91.5	10.3
CH150/3/G	41x41	2.5	132.5	7.1
CH151/3/G	41x21	2.5	91.5	4.8
CH101/6/G	41x41	2.5	132.5	15.0
CH103/6/G	41x82	2.5	132.5	30.0
CH104/6/G	41x21	2.5	91.5	10.3
CH105/6/G	41x42	2.5	91.5	20.7
CH150/6/G	41x41	2.5	132.5	14.3
CH151/6/G	41x21	2.5	91.5	9.7

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Technical Information

Property	Value, Unit
BS 6946:1988 Metal channel cable support systems for electrical installations	Conforms

Note: The technical information is gathered from the product specification document, please contact Philip Grahame for details

Main Product Contents

Material/Chemical Input	%
Pre-Galvanised sheet steel	100

Manufacturing Process

Philip Grahame channel support system is manufactured from either pre-galvanised steel to BS EN 10346 or uncoated mild steel to BS EN 10130. The requirements of BS6946 state that the minimum yield strength must be 250N/mm2. In this EPD, only pre-galvanised steel is modelled.

All steel used for the manufacture of Channel Support Systems is purchased from Tata Steel UK. To reduce scrap, steel is purchased in coil form from Tata with the width of the coil cut precisely to the product width. Tata manufacture the wide coil in Ijmuiden, Netherlands, and then transport large wide coil by sea and rail to their Steelpark Headquarters in the Midlands, where it is processed into the customers required widths.

Precision slitting of the master coil into final width coils to suit customer requirements is carried out on 3 slitting lines. Tata Steel use their own transport fleet to deliver full 24 tonne loads of coils direct to West Bromwich where the coils are section rolled into the channel profile. The coils are simply steel banded and loaded onto flatbed lorries for forklift unload.

All manufacture is carried out at a manufacturing facility in West Bromwich, Midlands. The complete

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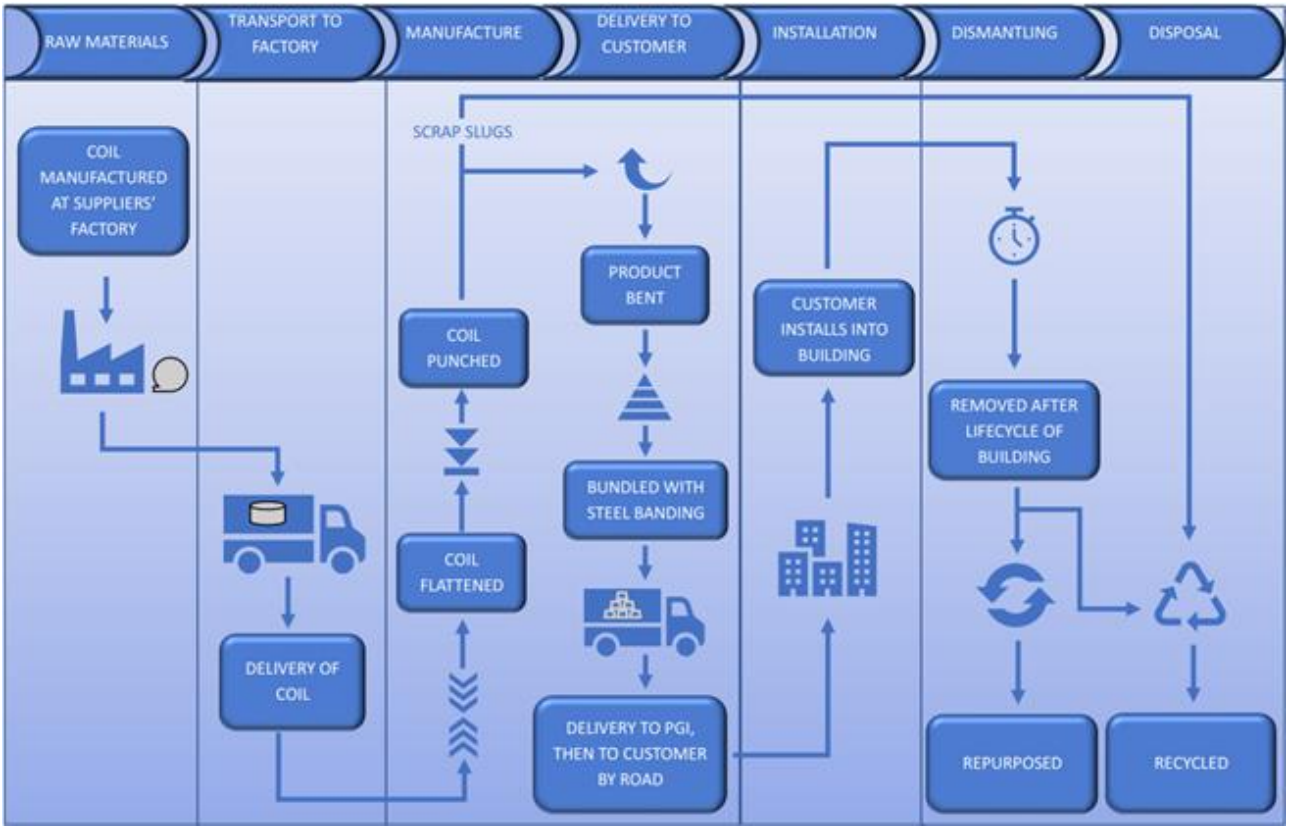
manufacturing facility is controlled by a BS EN ISO 9001 Quality management system.

All Channel Support Systems are produced in 3 metre, or 6 metre lengths from coils that are the precise width of the product.

Heavy goods vehicles are used to transport full loads of product from West Bromwich to Philip Grahame International in Essex, where it is stored until delivery is required by the end user.

Philip Grahame delivers direct to end users through their own fleet of vehicles. A FORS Silver accredited fleet of vehicles have the latest Euro classification engines to allow entry into inner-city low emission zones. There are 10 HGV and LGV vehicles so that the appropriate vehicle can be selected for any delivery route. All vehicles are equipped with satellite tracking and full vehicle telematics to ensure efficient route planning and also to monitor driving standards. A multi-drop delivery service is operated so that the environmental impact can be reduced for each delivery.

Process flow diagram



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Construction Installation

For the installation of the product, only standard tools are required. Module A5 is not measured in this EPD as it's not a part of the scope.

Use Information

Under normal conditions of use the product requires no servicing or maintenance throughout the life of the product. Module B is not measured in this EPD as it's not a part of the scope.

End of Life

Channel support system installations are essentially a kit of parts and can easily be dismantled and reused. Bolted connections allow components to be removed in prime condition and easily reused. It means that parts of channel support system installations can be continually reused, when this is not possible, they can easily be recycled. Steel product that requires no pre-processing to meet its end-of-life state. Industrial average end-of-life data of steel waste has been used according to BRE PCR PN 514 Rev 3.2, i.e. 95% of waste to recycling, 5% of waste to landfill.

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Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1 kg of galvanised steel Channel Support System for the use in load bearing frameworks and the support of electrical installations and cable.

System boundary

This is a cradle-to-gate with module C&D LCA, reporting all production life cycle stages of modules A1 to A3 and end-of-life stages C1-C4 and D. This LCA has been assessed in accordance with the modular approach as defined in EN15804:2012+A2:2019 and BRE Product Category Rules (PN 514 Rev 3.2).

Data sources, quality and allocation

Specific primary data derived from Philip Grahame's production process at the manufacturing facility at Howard Street, Hill top, West Bromwich, B70 0ST and at its warehouse at Unit 7 Lonebarn Link, Springfield Business Park, Chelmsford, CM2 5AR, has been modelled using the LINA A2 LCA and the ecoinvent 3.8 database. In accordance with the requirements of EN15804:2012 + A2:2019, the most current available data has been used. The manufacturer-specific data from Philip Grahame covers a period of one year (01/01/2023 – 31/12/2023). Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e., raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conformed to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804:2012+A2:2019.

This LCA is for 1kg of galvanised steel channel support system. The sites manufacture other products in addition to galvanised steel channels. The only raw material is pre-galvanised steel, and it has been allocated by proportion of actual usage, which is 1.3% of total usage by mass. Allocation by mass has been used to calculate all energy, waste, water usage and discharge for the manufacturing site (West Bromwich site), according to the provisions of the BRE PCR PN514 Rev 3.2 and EN 15804:2012+A2:2019. In addition, as there is no data available from the warehouse, so the same 1.3% mass allocation has been assumed to energy, waste, water usage and discharge for the general office operation at the warehouse (Chelmsford site). Site wide values for energy, water and wastewater have been taken from bills. Production waste consists of pieces cut from the sheet steel and the actual amount of waste generated is recorded. Total non-production waste is estimated and allocated by mass to the channel product.

Quality Level	Geographical representativeness	Technical representativeness	Time representativeness
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e. identical technology).	Less than 3 years difference between the reference year according to the documentation, and the time period for which data are representative.

Specific UK datasets have been selected from the ecoinvent LCI for this LCA. The quality level of geographical and technical representativeness is therefore very good. The quality level of time representativeness is very good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 3 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

Location -based approach has been used for the electricity. Both West Bromwich and Chelmsford sites use the consumption mix for the production and for the storage. UK 2022 Consumption mix dataset is used for electricity with an emissions factor of 0.239kgCO2e/kWh. No natural gas is used for this product at the two sites.

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Cut-off criteria

All processes associated with the manufacturing of the product have been included. All inputs of raw materials, transport, energy, water use/discharge and waste have been
included. The manufacturing process does not create any significant direct emissions to air, water or soil, therefore, these are not measured. Upstream extraction and /or processing of inputs are included within the use of the background datasets within LINA.

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LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	2.60E+00	2.58E+00	1.03E-02	2.46E-03	1.47E-07	3.40E-02	1.26E-03
	Transport	A2	6.43E-02	6.42E-02	9.74E-05	3.85E-05	1.36E-08	6.67E-04	6.19E-06
	Manufacturing	A3	1.85E-02	1.80E-02	4.09E-04	1.57E-05	1.74E-09	6.34E-05	2.40E-06
	Total (Consumption grid)	A1-3	2.68E+00	2.67E+00	1.08E-02	2.51E-03	1.62E-07	3.47E-02	1.27E-03
95% to recycling, 5% to landfill Scenario									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.06E-02	3.06E-02	2.61E-05	1.20E-05	7.08E-09	1.24E-04	1.97E-06
	Waste processing	C3	5.47E-02	5.47E-02	1.93E-05	5.46E-06	1.17E-08	5.68E-04	1.69E-06
	Disposal	C4	2.64E-04	2.63E-04	2.61E-07	2.49E-07	1.07E-10	2.48E-06	2.41E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.96E-01	-9.98E-01	3.13E-03	-2.83E-04	-3.99E-08	-3.62E-03	-3.94E-04

GWP-total = Global warming potential, total;
GWP-fossil = Global warming potential, fossil;
GWP-biogenic = Global warming potential, biogenic;
GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
AP = Acidification potential, accumulated exceedance; and
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			EP-marine	EP-terrestrial	POCP	ADP-mineral& metals	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m^3 world eq deprived	disease incidence
Product stage	Raw material supply	A1	3.50E-03	1.25E-01	1.16E-02	9.79E-05	2.88E+01	1.28E+00	4.19E-07
	Transport	A2	1.81E-04	1.99E-03	5.47E-04	2.06E-07	9.37E-01	5.60E-03	4.79E-09
	Manufacturing	A3	2.40E-05	2.49E-04	6.67E-05	9.39E-08	4.31E-01	1.81E-03	1.02E-09
	Total (Consumption grid)	A1-3	3.70E-03	1.27E-01	1.22E-02	9.82E-05	3.02E+01	1.29E+00	4.24E-07
95% to recycling, 5% to landfill Scenario									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.74E-05	4.09E-04	1.25E-04	1.06E-07	4.62E-01	2.08E-03	2.64E-09
	Waste processing	C3	2.52E-04	2.76E-03	7.58E-04	2.81E-08	7.50E-01	1.73E-03	1.52E-08
	Disposal	C4	8.61E-07	9.42E-06	2.74E-06	6.01E-10	7.35E-03	3.37E-04	4.99E-11
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.59E-04	-9.12E-03	-5.02E-03	-7.53E-07	-1.01E+01	-7.16E-02	-6.68E-08

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
EP-terrestrial = Eutrophication potential, accumulated exceedance;
POCP = Formation potential of tropospheric ozone;
ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;
ADP-fossil = Depletion potential of the stratospheric ozone layer;
WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
PM = Particulate matter.

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U^{235} eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	1.51E-01	1.03E+02	1.87E-08	1.01E-07	9.31E+00
	Transport	A2	5.62E-03	7.29E-01	3.28E-11	7.05E-10	5.48E-01
	Manufacturing	A3	1.27E-02	2.32E-01	8.74E-12	1.48E-10	1.50E-01
	Total (Consumption grid)	A1-3	1.70E-01	1.04E+02	1.87E-08	1.02E-07	1.00E+01
95% to recycling, 5% to landfill Scenario							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.38E-03	3.61E-01	1.17E-11	3.78E-10	3.18E-01
	Waste processing	C3	3.38E-03	4.39E-01	1.70E-11	3.18E-10	9.55E-02
	Disposal	C4	3.27E-05	4.64E-03	1.18E-13	3.05E-12	1.54E-02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.79E-02	-2.99E+01	-5.34E-09	-2.05E-08	-1.97E+00

IRP = Potential human exposure efficiency relative to U235;
ETP-fw = Potential comparative toxic unit for ecosystems;
HTP-c = Potential comparative toxic unit for humans;
HTP-nc = Potential comparative toxic unit for humans; and
SQP = Potential soil quality index.

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	2.54E+00	0.00E+00	2.54E+00	2.85E+01	0.00E+00	2.85E+01
	Transport	A2	1.04E-02	0.00E+00	1.04E-02	8.10E-01	0.00E+00	8.10E-01
	Manufacturing	A3	8.91E-02	2.48E-03	9.16E-02	5.46E-01	4.95E-03	5.51E-01
	Total (Consumption grid)	A1-3	2.64E+00	2.48E-03	2.64E+00	2.98E+01	4.95E-03	2.98E+01
95% to recycling, 5% to landfill Scenario								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.51E-03	0.00E+00	6.51E-03	4.54E-01	0.00E+00	4.54E-01
	Waste processing	C3	4.20E-03	0.00E+00	4.20E-03	7.36E-01	0.00E+00	7.36E-01
	Disposal	C4	6.27E-05	0.00E+00	6.27E-05	7.22E-03	0.00E+00	7.22E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.08E-01	0.00E+00	-2.08E-01	-1.00E+01	0.00E+00	-1.00E+01

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
PERM = Use of renewable primary energy resources used as raw materials;
PERT = Total use of renewable primary energy resources;
PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
PENRM = Use of non-renewable primary energy resources used as raw materials;
PENRT = Total use of non-renewable primary energy resource

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	3.95E-01	0.00E+00	0.00E+00	3.17E-02
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.39E-04
	Manufacturing	A3	9.73E-05	3.29E-07	0.00E+00	1.05E-04
	Total (Consumption grid)	A1-3	3.95E-01	3.29E-07	0.00E+00	3.19E-02
95% to recycling, 5% to landfill Scenario						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	5.15E-05
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	4.28E-05
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	7.88E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-1.74E-03

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	9.19E-01	4.61E+00	6.59E-05
	Transport	A2	9.49E-04	1.47E-02	5.61E-06
	Manufacturing	A3	6.75E-04	1.07E-02	3.51E-06
	Total (Consumption grid)	A1-3	9.20E-01	4.64E+00	7.50E-05
95% to recycling, 5% to landfill Scenario					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	5.10E-04	9.05E-03	3.13E-06
	Waste processing	C3	9.88E-04	6.92E-03	5.18E-06
	Disposal	C4	7.65E-06	1.08E-04	4.82E-08
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.22E-02	-1.90E+00	-1.07E-05

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

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LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	5.70E-06	2.44E-09	2.63E-04	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	5.70E-06	2.44E-09	2.63E-04	0.00E+00	0.00E+00
95% to recycling, 5% to landfill Scenario								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

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Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
C1 – Deconstruction	Channel Support installations are essentially a kit of parts and can easily be dismantled and reused. Bolted connections allow components to be removed in prime condition and easily reused. It means that parts of Channel Support installations can be continually reused, when this is not possible, they can easily be recycled due to the material used. 100% recovery rate has been assumed for the waste product from the demolition site.		
C2 – Transport from site to pre-processing facility or landfill	184km by road has been modelled for module C2 as a typical distance from the demolition site to factory.		
	Diesel/ 16-32 t lorry	kg/km	0.3
	Distance	km	184
	Capacity utilisation (incl. empty returns)	%	26
	Weight of transported products	Kg/unit	1.007
C3 - Pre-processing of uninstalled product	The Channel Support System produced by Philip Grahame is made entirely of 100% pre-galvanised steel. An industrial average end-of-life scenario of steel waste has been used according to BRE PCR PN 514 Rev 3.2, i.e. 95% of steel waste to recycling. Pre-processing has not been included in Module C3 because it is assumed to be very small and effectively negligible.		
	95% of steel goes waste to recycling	kg	0.95
C4 - Disposal	An industrial average end-of-life scenario of steel waste has been used according to BRE PCR PN 514 Rev 3.2, i.e. 5% of steel waste to landfill.		
	5% of steel goes waste to landfill	kg	0.05
Module D	Benefits and loads beyond the system boundary (Module D) accounts for the environmental benefits and loads resulting from the steel that is used as a raw material in steel making process via EAF or BOF and that is collected for recycling at end of life. These benefits and loads are calculated by excluding the pre-existing recycled steel that is used in the primary process. 1 kg of product at the end of life, becomes 0.95 kg of scrap steel and as a small percentage will have lost due to wear, this 95% of the product will be recycled. In order to calculate the benefits of the product at Module D, the pre-existing recycled content will be excluded, and the benefits will be calculated for virgin steel. According to the ecoinvent 3.8 database, hot-dipped galvanized steel sheet already includes 37.8% recycled material. Therefore, only 62.2% of the virgin material can be considered as Benefits and Loads Beyond the System Boundary. Consequently, 0.95*62.2%=0.5909kg of steel will be recycled.		
	Benefits due to steel waste to recycling	kg	0.5909

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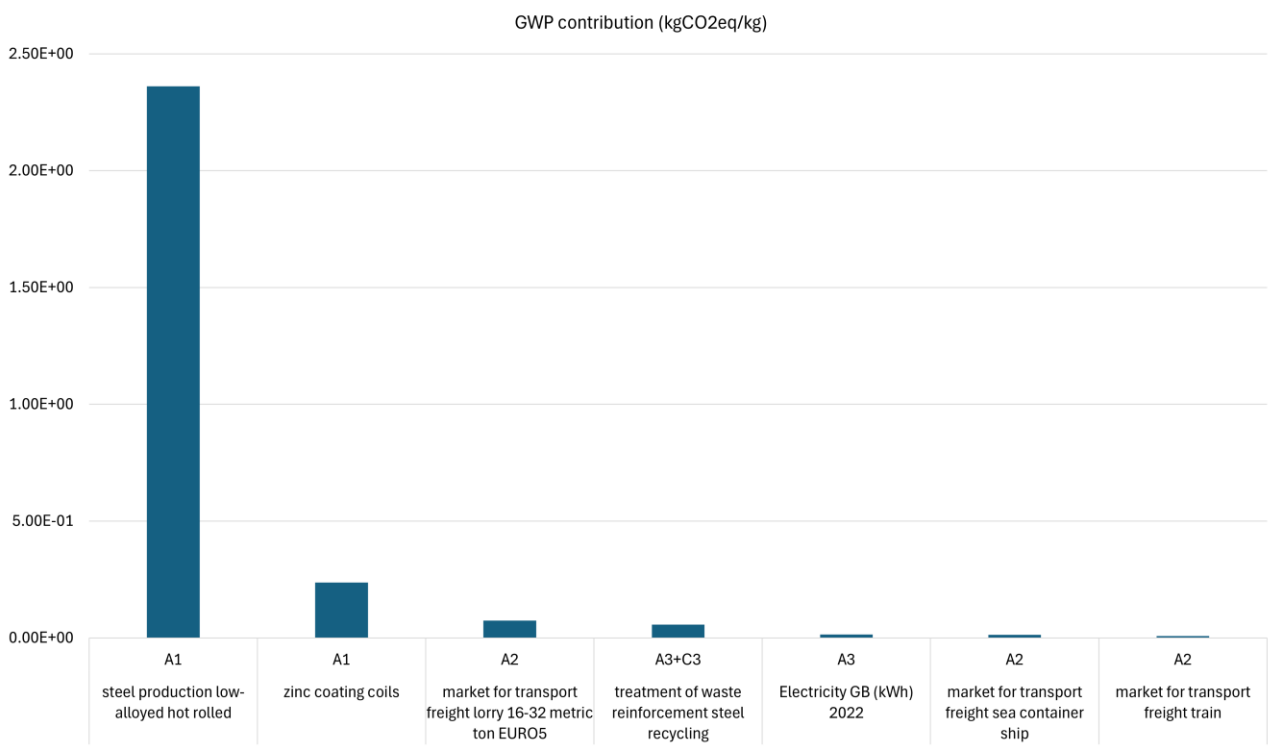
Interpretation

Out of the total mass of input materials, galvanised steel represents 100% of the total input raw materials. The bulk of the environmental impacts and primary energy demand are attributed to the manufacturing phase, covered by information modules A1-A3 of EN15804:2012+A2:2019. As a result, galvanised steel production contributes the most on GWP and overall environmental impacts.



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Example Calculation

The LCA results listed in the tables above are for 1 kg of galvanised steel Channel Support System. The end user can therefore use these results to calculate impact profiles for other product variants with specific weights listed in the table below. The LCA results for each EN15804 indicator will need to be multiplied by the conversion factors. Ref: Figure 1.

Product Code	Product Weight (kg) i.e. Conversion factor
CH101/3/G	7.5
CH103/3/G	15.0
CH104/3/G	5.2
CH105/3/G	10.3
CH150/3/G	7.1
CH151/3/G	4.8
CH101/6/G	15.0
CH103/6/G	30.0
CH104/6/G	10.3
CH105/6/G	20.7
CH150/6/G	14.3
CH151/6/G	9.7

Figure 1

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