



Statement of Verification

BREG EN EPD No: 000807

Issue: 01

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

SRC Group

are in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

One tonne of recycled sand, aggregate, sub-base

One tonne of recycled clay, subsoil, topsoil

Company Address

SRC Group
Crown Business Centre
Old Ipswich Road
Ardleigh, Colchester
England CO7 7QR



Signed for BRE Global Limited

Hayley Thomson

Operator

13 July 2026

Date of this Issue

13 July 2026

Date of First Issue

12 July 2031

Expiry Date



This Statement of Verification is issued subject to terms and conditions (for details visit www.greenbooklive.com/terms).

To check the validity of this statement of verification please, visit www.greenbooklive.com/check or contact us.

BRE Global Ltd., Garston, Watford WD25 9XX
T: +44 (0)333 321 8811 F: +44 (0)1923 664603 E: Enquiries@breglobal.com





Environmental Product Declaration

EPD Number: 000807

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Global 2025 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.2
Commissioner of LCA study	LCA consultant/Tool
SRC Group Crown Business Centre Old Ipswich Road Ardleigh, Colchester England CO7 7QR	LCA consultant: EcoReview Ireland LCA tool: Open LCA
Declared/Functional Unit	Applicability/Coverage
One tonne of recycled sand, aggregate, sub-base One tonne of recycled clay, subsoil, topsoil	Product Average.
EPD Type	Background database
Cradle to Gate with options	Ecoinvent v 3.11
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: Kim Allbury	
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	

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 sites

Martells, Colchester, Essex [recycled aggregates and clay]
 Barking, Outer London Borough [recycled aggregates]
 Highwood, Essex [recycled aggregates and clay]
 Cavenham, Suffolk [recycled aggregates and clay]
 Crown, Colchester, Essex [recycled aggregates and soil]
 Dollymans, Essex [recycled aggregates and clay]
 Wembley, Brent, Greater London [recycled aggregates]
 Wetherden, Suffolk [recycled aggregates and clay]

Construction Product:

Product Description

The recycled materials are manufactured at the eight SRC recycling plants noted above. The materials are aggregates and clays that arise from construction demolition wastes, and non-hazardous soil and granular excavation waste. The recycled materials produced by SRC at these sites are aggregates of a wide variety of sizes and gradings, as well as clays and soils.

Technical Information

Property	Value, Unit
Properties of recycled sand, aggregate and sub-base will vary according to the feedstock raw material types, particle sizes and particle shapes	N/A
Properties of recycled clay, subsoil and topsoil products will vary according to the feedstock raw material types, particle sizes and clay mineralogy.	N/A

The recycled sand, aggregates and sub-base are produced in accordance with WRAP Protocol and SRC's Factory Protocol to comply with BS EN 12620 'Aggregates for Concrete' and Specification for Highway Works, Series 500, 600 and 800 [6], and BS EN 13242 Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction.

The recycled clay, subsoil and topsoil is produced in accordance with SRC's Factory Protocol to comply with Specification for Highway Works series 600 cohesive fill material.





Main Product Contents

Material/Chemical Input	%
Construction and demolition wastes and non-hazardous soil and granular excavation waste.	100

Manufacturing Process

Construction, demolition waste and other soil / stone waste streams are delivered to the recycling plant sites. Materials are segregated on site and diverted into the various recycling processes as per below and demonstrated in the process flow diagram:

Hardcore / Concrete / Demolition rubble - through the dry crushing and screening process

Granular Soils - through the soil washing process

Subsoil / Topsoil - dry screened to remove oversize

Dry Crushing and Screening Process:

Hardcore / Concrete / demolition rubble has the metals removed and fed to a crusher to reduce their size and create smaller particle material. The crushed material is then screened into final products specification which is typically a subbase product.

The subsoil and topsoil products are dry processed through a screen only to remove any oversize. Oversize from this goes to the soil washing process.

Soil Washing Process:

The granular soil is fed into the soil washing plant process. This material initially goes over a dry screen to remove any oversize which is then sent to the dry crushing and screening process. The < 63mm material progresses into the washing process where it has metals removed, scrubbed to break down any clay balls, lightweights / organics removed, silts / clays removed and finally rinsed and sized into the various single size sand and aggregate products and stockpiled. The silts and clays in the water fraction are treated with flocculant to settle any suspended solids from the water. The solids are then pumped to the filter press under high pressure and pressed into a dry formed cake which is the recycled clay product. The clean water is recirculated within the system to the wash plant.

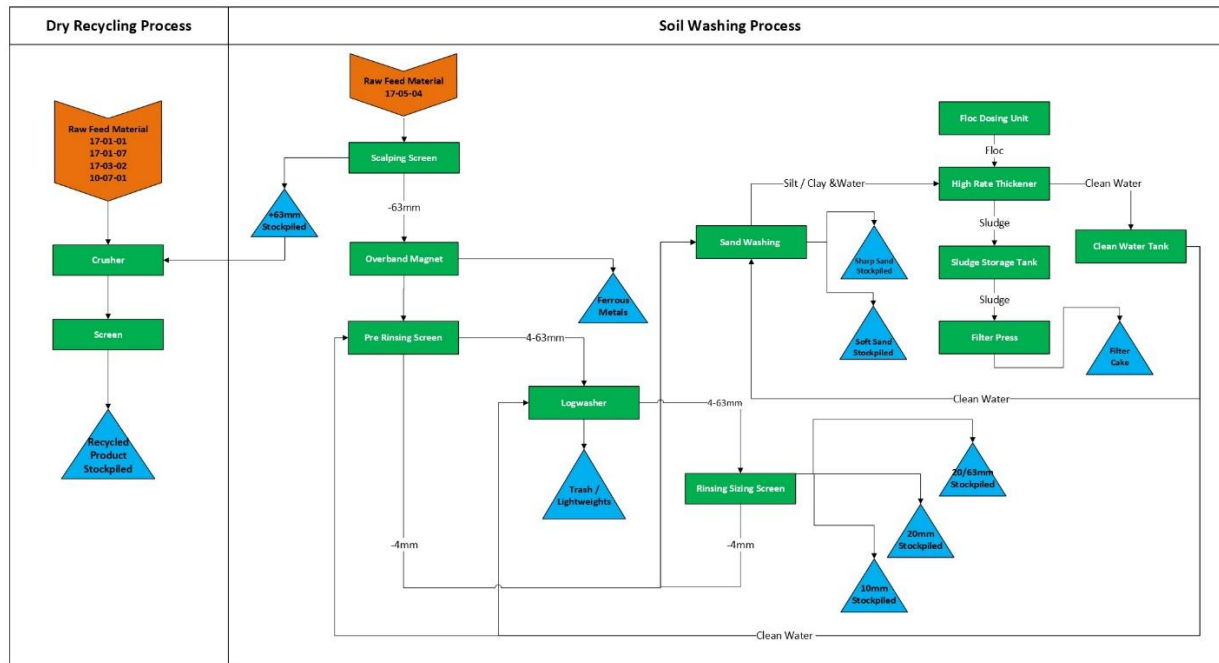
End of waste:

The materials reach the end-of-waste stage after the crushing, screening, washing, sorting and (in the case of silt/clay) removal from settlement tanks - at the point the material is dispatched from the production site. Thus these activities (crushing, screening, washing, sorting, stockpiling, and removal from settlement tanks) do not contribute to the A3 stage impacts, and the A3 stage impacts are zero".

Thus the end-of-waste point of the raw material is reached at the point within the SRC recycling processing when the aggregates and clays have met the technical requirement set out in the UK Environment Agency and WRAP Quality Protocol for Aggregates from Inert Waste (EoW Criteria for Production of Aggregates from Inert Waste), and are dispatched from the site for a certain use.

Note that the machinery that is used for screening and sorting is the same that also stockpiles the recycled material. Stockpiling conveyor belts are an integral part of the screening/sorting plant equipment, and the stockpiling process is considered to be pre-EoW. Stockpiling does not require separate plant/equipment such as trucks or loading shovels

Process flow diagram



Construction Installation

There are no impacts in the installation phase

Use Information

The use phase is not covered in this LCA modelling

End of Life

In the C1 phase it is assumed that a small amount of energy is used for the deconstruction phase, representing excavation of the aggregate/sand material from its use as granular fill. This is diesel consumption of 0.3 litre per tonne of product used by the earth-moving plant equipment

Transport to recycling (C2 phase) is taken to be 23.2 km.

For the recycled aggregates, in the end-of-life phase, it is assumed that 100% of the material is recycled (C3 phase), and zero material goes to landfill. For the recycled clay soil, it is assumed that this is neither recycled nor landfilled at the end of life, as once used, the clay soil becomes an intrinsic part of the natural soil system, permanently.



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

One tonne of recycled aggregate or clay

System boundary

Cradle to gate with options

Data sources, quality and allocation

Specific primary data has been taken from the SRC recycling plants. In accordance with EN 15804 +A2, data from the most recent full calendar year has been used, being 2025.

The background dataset is taken from Ecoinvent v3.11 (2024). These datasets are complete within the context used and conform to the system boundary and criteria for the exclusion of inputs and outputs according to the requirements of EN 15804 +A2.

100% of the materials produced at the SRC recycling plants are covered by this EPD.

Allocation of impacts to products are made on a mass basis, per tonne of product.

The dataset is representative for the production processes used in 2025, in the country of production, United Kingdom. The data Quality Level, according to Table E.1 of EN 15804 +A2, Annex E, is as follows:

Geographical representativeness: Very Good.

Technical representativeness: Very Good.

Time representativeness: Very Good

Cut-off criteria

The source of default unit processes or activities is the Ecoinvent database version 3.11, system model "Allocation, cut-off by classification". The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF 3.1.

All relevant inputs and outputs – such as emissions, energy and materials - have been taken into account in this LCA. And in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process. Long term emissions have been excluded from the study.

End-of-Waste Criteria - The end of waste criteria for recycled aggregates from inert waste, as per the UK Environment Agency and WRAP Quality Protocol for Aggregates from Inert Waste (EoW Criteria for Production of Aggregates from Inert Waste), is applied. This at the point where the material is "dispatched from the site for a certain use". The general cut-off criteria used are 1 % of renewable and non-renewable primary energy usage and 1 % of the total mass input of that unit process. The total of neglected input flows per module, are a maximum of 5 % of energy usage and mass.



LCA Results - Aggregates

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

Parameters describing environmental impacts - Recycled sand, aggregate and sub-base									
			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	0.00E+00	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	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	2.52E+00	2.51E+00	2.30E-03	1.24E-03	5.47E-08	5.49E-03	2.04E-05
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Recycling Scenario									
End of life	Deconstruction, demolition	C1	1.09E+00	1.09E+00	2.20E-04	1.11E-04	1.61E-08	9.72E-03	3.80E-06
	Transport	C2	4.29E+00	4.29E+00	3.93E-03	2.12E-03	9.33E-08	9.37E-03	3.48E-05
	Waste processing	C3	1.04E+01	1.04E+01	2.94E-02	1.13E-02	1.56E-07	7.62E-02	1.98E-04
	Disposal	C4	0.00E+00	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	0.00E+00

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

LCA Results (Aggregates)

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

Parameters describing environmental impacts - Recycled sand, aggregate and sub-base			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	0.00E+00	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	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	1.35E-03	1.41E-02	8.53E-03	8.21E-06	3.57E+01	1.48E-01	1.86E-07
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Recycling Scenario									
End of life	Deconstruction, demolition	C1	4.52E-03	4.95E-02	1.48E-02	3.88E-07	1.41E+01	3.97E-02	2.77E-07
	Transport	C2	2.31E-03	2.40E-02	1.45E-02	1.40E-05	6.09E+01	2.52E-01	3.18E-07
	Waste processing	C3	2.95E-02	3.21E-01	9.80E-02	2.47E-05	1.50E+02	2.20E+00	9.14E-06
	Disposal	C4	0.00E+00	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	0.00E+00

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.

LCA Results (Aggregates)

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

Parameters describing environmental impacts - Recycled sand, aggregate and sub-base							
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	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
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	1.81E-02	1.76E+01	1.15E-09	2.53E-08	2.16E+01
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND
100% Recycling Scenario							
End of life	Deconstruction, demolition	C1	2.35E-03	7.68E-01	1.10E-10	1.74E-09	9.39E-01
	Transport	C2	3.09E-02	3.01E+01	1.95E-09	4.32E-08	3.68E+01
	Waste processing	C3	1.89E-01	6.55E+01	4.47E-09	7.05E-08	1.19E+02
	Disposal	C4	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

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.

LCA Results (Aggregates)

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

Parameters describing resource use, primary energy - Recycled sand, aggregate and sub-base			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	5.61E-01	0.00E+00	5.61E-01	3.79E+01	0.00E+00	3.79E+01
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Recycling Scenario								
End of life	Deconstruction, demolition	C1	8.91E-02	0.00E+00	8.91E-02	1.49E+01	0.00E+00	1.49E+01
	Transport	C2	9.57E-01	0.00E+00	9.57E-01	6.47E+01	0.00E+00	6.47E+01
	Waste processing	C3	6.20E+00	0.00E+00	6.20E+00	1.60E+02	0.00E+00	1.60E+02
	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

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

LCA Results (Aggregates)

(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 - Recycled sand, aggregate and sub-base

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m ³
Product stage	Raw material supply	A1	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
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	4.79E-03
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
100% Recycling Scenario						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	1.22E-03
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	8.17E-03
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	5.68E-02
	Disposal	C4	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

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;

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



LCA Results (Aggregates)

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

Other environmental information describing waste categories - Recycled sand, aggregate and sub-base					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	2.27E-04	1.77E+00	1.17E-05
	Construction	A5	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
100% Recycling Scenario					
End of life	Deconstruction, demolition	C1	9.85E-05	9.55E-03	1.48E-06
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	8.17E-03	3.87E-04	3.02E+00
	Disposal	C4	5.68E-02	7.68E-04	1.39E+02
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00

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



LCA Results (Aggregates)

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

Other environmental information describing output flows – at end of life - Recycled sand, aggregate and sub-base

			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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Recycling 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	1.00E+03	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



LCA Results - Clays

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

Parameters describing environmental impacts - Recycled clay, subsoil and topsoil			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	0.00E+00	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	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	2.52E+00	2.51E+00	2.30E-03	1.24E-03	5.47E-08	5.49E-03	2.04E-05
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Recycling 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	0.00E+00	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	0.00E+00
	Disposal	C4	0.00E+00	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	0.00E+00

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

LCA Results (Clays)

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

Parameters describing environmental impacts - Recycled clay, subsoil and topsoil									
			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	0.00E+00	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	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	1.35E-03	1.41E-02	8.53E-03	8.21E-06	3.57E+01	1.48E-01	1.86E-07
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% Recycling 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	0.00E+00	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	0.00E+00
	Disposal	C4	0.00E+00	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	0.00E+00

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.

LCA Results (Clays)

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

Parameters describing environmental impacts - Recycled clay, subsoil and topsoil			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	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
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	1.81E-02	1.76E+01	1.15E-09	2.53E-08	2.16E+01
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND
100% Recycling Scenario							
End of life	Deconstruction, demolition	C1	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
	Waste processing	C3	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
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

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.

LCA Results (Clays)

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

Parameters describing resource use, primary energy - Recycled clay, subsoil and topsoil

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	5.61E-01	0.00E+00	5.61E-01	3.79E+01	0.00E+00	3.79E+01
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Recycling 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

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

LCA Results (Clays)

(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 - Recycled clay, subsoil and topsoil

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m ³
Product stage	Raw material supply	A1	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
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	4.79E-03
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
100% Recycling 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	0.00E+00
	Waste processing	C3	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
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

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;

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



LCA Results (Clays)

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

Other environmental information describing waste categories - Recycled clay, subsoil and topsoil					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	2.27E-04	1.77E+00	1.17E-05
	Construction	A5	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
100% Recycling Scenario					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

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



LCA Results (Clays)

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

Other environmental information describing output flows – at end of life - Recycled clay, subsoil and topsoil								
			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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% Recycling 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

Scenarios and additional technical information - Aggregates

Scenarios and additional technical information - Recycled sand, aggregate and sub-base			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Description of scenario		
	Fuel type / Vehicle type	Litre of fuel type per distance or vehicle type	Lorry 16-32 metric ton, EURO6
	Distance:	km	23.2
	Capacity utilisation (incl. empty returns)	%	70
	Bulk density of transported products	kg/m ³	1,500
A5 – Installation in the building	Description of scenario		
	Construction/installation on site assumes no ancillary materials or additional energy is required, and there are no material installation losses.	n/a	n/a
C1 to C4 End of life,	It is assumed that 100% of the aggregates are recycled at end of life.		
	C1 Demolition/deconstruction	diesel/tonne	0.3
	C2 Transport to recycling	km	23.2
	C3 Recycling	%	100
	C4 Disposal	%	0
Module D	Description of scenario		
	Products Recycled Content (post-consumer)	Kg	1,000
	Recovered for recycling	Kg	1,000
	Recovered for re-use	Kg	0
	Recovered for energy	Kg	0

Scenarios and additional technical information - Clays

Scenarios and additional technical information - Recycled clay, subsoil and topsoil			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Description of scenario		
	Fuel type / Vehicle type	Litre of fuel type per distance or vehicle type	Lorry 16-32 metric ton, EURO6
	Distance:	km	23.2
	Capacity utilisation (incl. empty returns)	%	70
	Bulk density of transported products	kg/m ³	1,500
A5 – Installation in the building	Description of scenario		
	Construction/installation on site assumes no ancillary materials or additional energy is required, and there are no material installation losses.	n/a	n/a
C1 to C4 End of life,	It is assumed that 100% of the aggregates are recycled at end of life.		
	C1 Demolition/deconstruction	n/a	0
	C2 Transport to recycling	km	0
	C3 Recycling	%	100
	C4 Disposal	%	0
Module D	Description of scenario		
	Products Recycled Content (post-consumer)	Kg	0
	Recovered for recycling	Kg	0
	Recovered for re-use	Kg	0
	Recovered for energy	Kg	0

Interpretation

As the raw material is burden free and the processing activities, including stockpiling, occur before the End of Waste state is reached, the impacts in the cradle to gate stage, i.e. A1-A3, are zero.

Over the life cycle of the sands and aggregates, the largest impact is the waste processing/sorting (C3) at end-of-life. Reprocessing (C2) and transport to site (A4) are the next largest impacts.

Module D benefits or loads are not applied to products that have a 100% pre-existing recycled content, so although the SRC recycled aggregate products are recycled at the end of their life, this is not designated as a benefit beyond the system boundary.

Silt/clays used are considered to be returned to the soil system upon their use, and thus are considered exempt from modules C and D. The reasoning is that they are essentially returned to nature, and are physically integrated with the natural soil system once they are used.

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

Environment Agency (EA), Northern Ireland Environment Agency (NIEA), and WRAP (Waste & Resources Action Programme). (2013). Quality Protocol: Aggregates from inert waste – End of waste criteria for the production of aggregates from inert waste. Published by Waste & Resources Action Programme (WRAP). Available at: www.wrap.org.uk.

BS EN 12620 'Aggregates for Concrete' and Specification for Highway Works, Series 500, 600 and 800.

BS EN 13242 Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction.

[Factory Production Control Manual, SRC Group, April 2024 (Internal document).

[PEF methodology final draft.pdf \(europa.eu\)](#).

BRE Global Product Category Rules (PCR) For Type III EPD of Construction Products to EN 15804+A2, PN 514 Rev 3.2.

European Commission JRC Technical Report, Supporting information to the characterisation factors of recommended EF Life Cycle Impact Assessment methods. Version 2, from ILCD to EF 3.0, 2018.