



BRE & SmartWaste. Introduction

The waste and environmental reporting tool from BRE

About BRE

BRE has been raising the standards of the built environment since 1921, and in the last few years has grown significantly, through the achievements of our people and the acquisition of businesses with beliefs and goals aligned with our own.

BRE is a profit-for-purpose organisation. Any profits from BRE's work go to the BRE Trust, which invests in research projects for the public benefit, or are invested in upgrading our research facilities at the BRE Science Park.

Influential but independent and with a heritage of scientific rigour for 100 years, we will play a key role over the next 100 years, as the world adapts to meet the challenges of climate change.



What does BRE do?



Our vision:

To be the world-leading
innovation, science, and data hub
for the built environment

Our mission:

To build a better world together



ESG impact

"With the built environment accounting for about 40% of total carbon emissions, both bank and non-bank lenders across Europe increasingly consider ESG credentials in their real estate lending."

"It is no longer enough for a borrower to simply claim to consider ESG requirements. Now, they have to evidence those claims."

(Knight Frank, [Trends in Global Real Estate Investment](#), 2022)

SmartWaste captures all site environment and ESG data in one easy to use cloud-based tool



Waste



Energy



Water



Materials



Transport



Pre-demolition



Biodiversity



Social Value

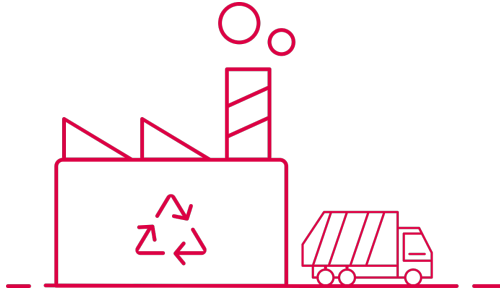


Incidents

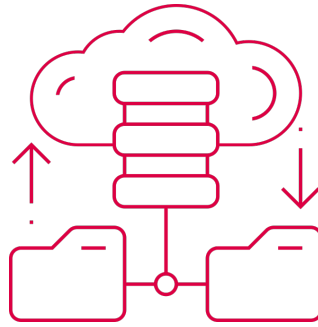


Project Management

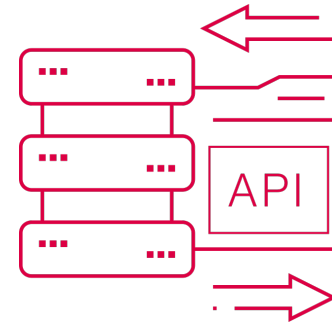
SmartWaste allows you to...



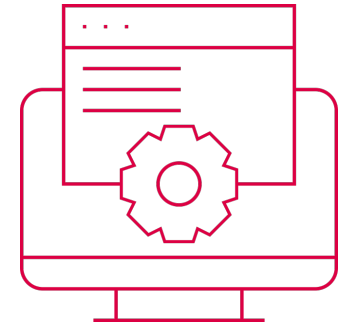
Demonstrate full waste compliance



Capture all site ESG data in one place



Link directly to supplier systems



Track against company KPIs



Reduce your impact and costs



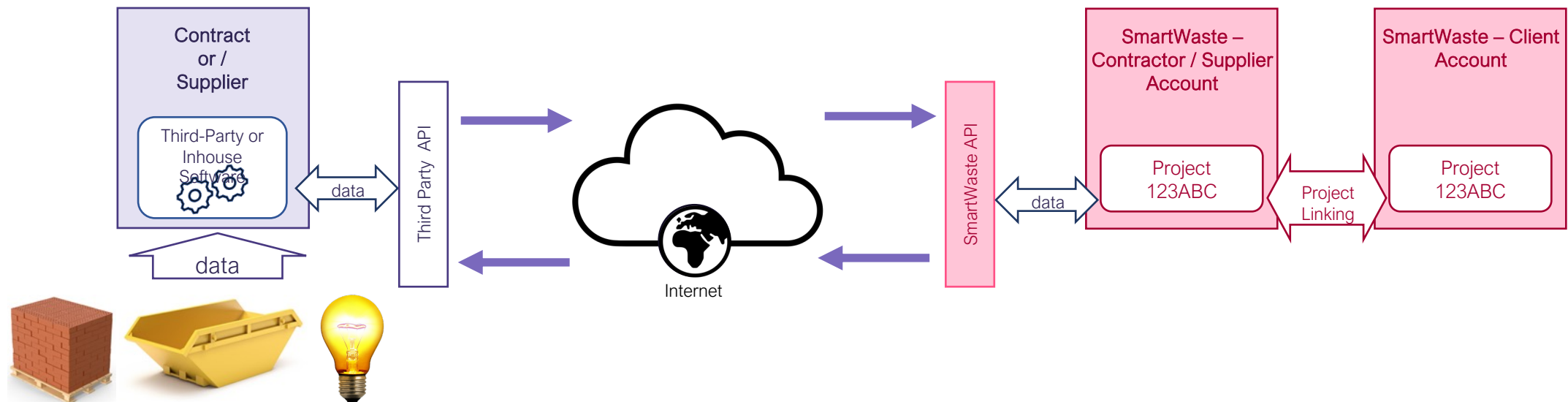
Report against key client requirements



Collect BREEAM evidence

SmartWaste has an API for system integration with your contractors and suppliers

- Waste contractors, material suppliers and energy brokers can use the SmartWaste API (Application Programming Interface) for seamless data transfer direct to your projects
- Instant real time data collection
- Improved data quality
- Reduces manual data entry



SmartWaste provides flexibility for capturing waste data

Dashboard Edit Project SWMP Assigning Add data Reporting Pre-demolition audit Upload

Project data

Project spend

Waste cost

Waste

Energy

Electricity

Natural gas

Fuel

Water

Water usage

Water discharge

Materials

Transport

Material Transport

Waste Transport

Staff Transport

Social value

Edit waste data

[Click here to bulk upload waste data](#)

Date of transfer ⓘ* 11/9/2023 (dd/mm/yyyy)

Waste management contractor - carrier ⓘ* ABZ Waste Ltd

Waste management contractor - destination ⓘ*

Total distance for all container(s) (Miles) 12.0 entered in Kms

Mode of Transport Road

Type of Vehicle HGV - Rigid (>17 tonnes)

Fuel Type

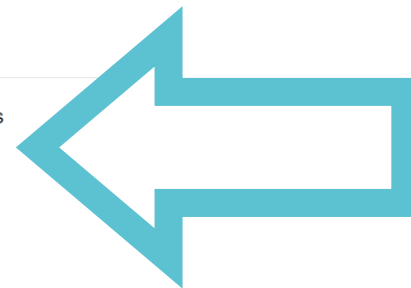
Fuel amount used (Ltr) ⓘ 6.78

Subcontractor Select

Waste Transfer Note (WTN) or consignment note number ⓘ* 12345

Container reference ⓘ

Container type * 16 cu yd skip (12.2 cu metre)



SmartWaste
online form



Excel
upload form



CSV (Excel)
upload form

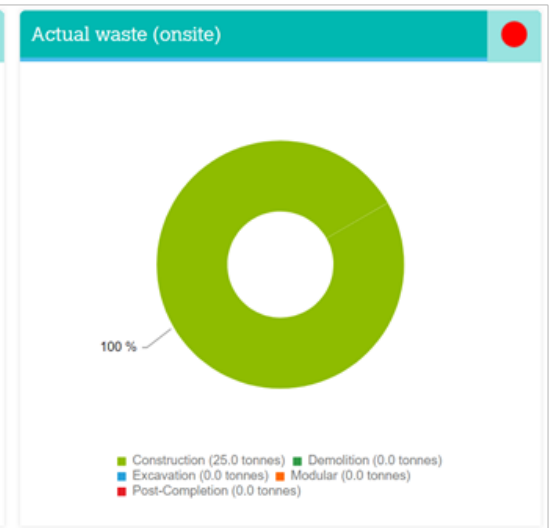
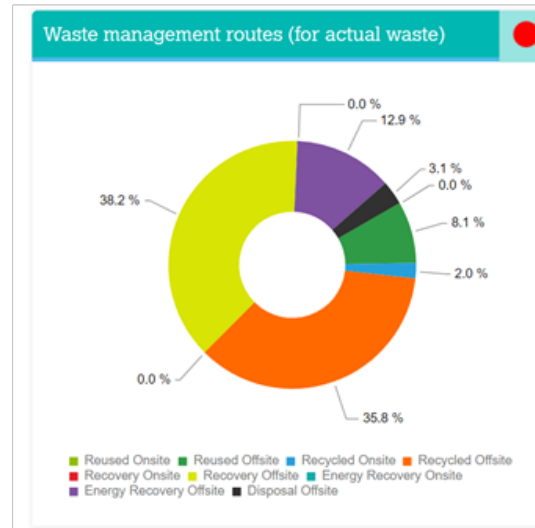
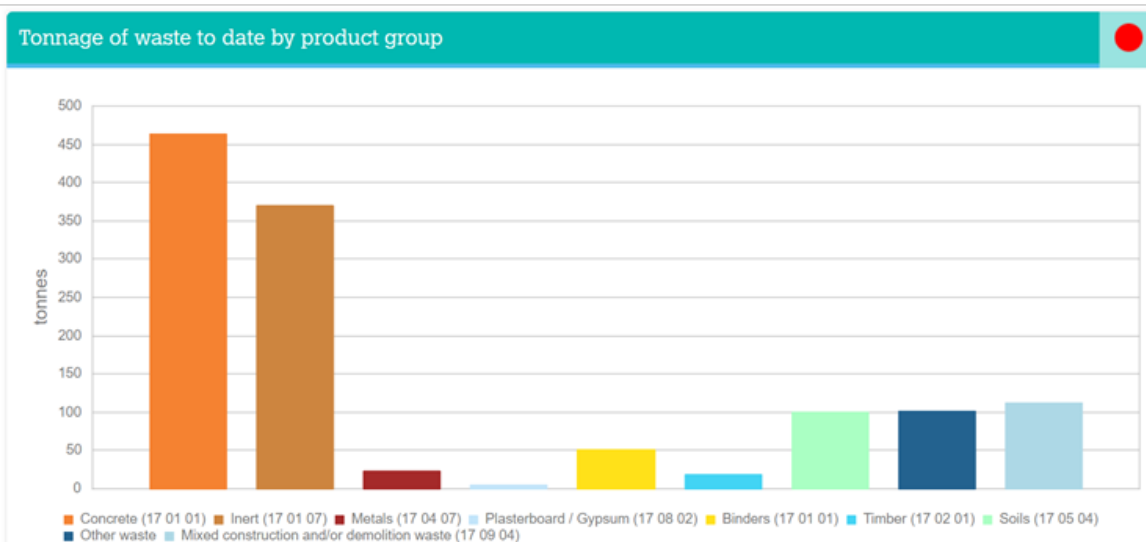


SmartWaste API

Comprehensive site waste data reports

Date of transfer	WTN	Carrier	Destination	Subcontractor	Construction Phase (Work package)	Number and size of containers	Segregated	Product	Tonnage	kgCO2e from waste management process
9/10/2020 R4 Recycling/redamation of metals	12353	Waste Company 01	Waste 1 Ltd - Material Recycling Facility, Watford (ABC)	Subcontractor 1	Construction	1 x 10 cu yd skip (7.6 cu metre)	✓ Recovery offsite	Metals (17 04 07)	5.000	5.04
16/9/2020	12360	Waste Company 01	Waste 1 Ltd - Material Recycling Facility, Watford (ABC)	Subcontractor 1	Construction	1 x 10 cu yd skip (7.6 cu metre)	✗ Recovery offsite	Mixed construction and/or demolition waste (17 09 04)	8.000	121.60
16/9/2020 Plasterboard recycling	12360	Waste Company 01	Waste 1 Ltd - Material Recycling Facility, Watford (ABC)	Subcontractor 1	Construction	1 x 10 cu yd skip (7.6 cu metre)	✗ Recycle offsite	Plasterboard / Gypsum (17 08 02)	2.200	46.90

Actual waste sent offsite						
	Total (t)	t/£100k	t/100m ²	Diverted from landfill (t)	Diverted from landfill (%)	
Construction		776.3	62.1	-	737.9	95.05
Demolition		436.9	35.0	-	436.9	100.00
Excavation		0.0	0.0	-	0.0	0.00
Modular		0.0	0.0	-	0.0	0.00
Post-Completion		3.2	0.3	-	3.2	100.00
Total (offsite):	1,216.4	97.3	-	1,178.0	96.84	
Total (offsite & onsite):	1,241.4	99.3	-	1,203.0	96.90	

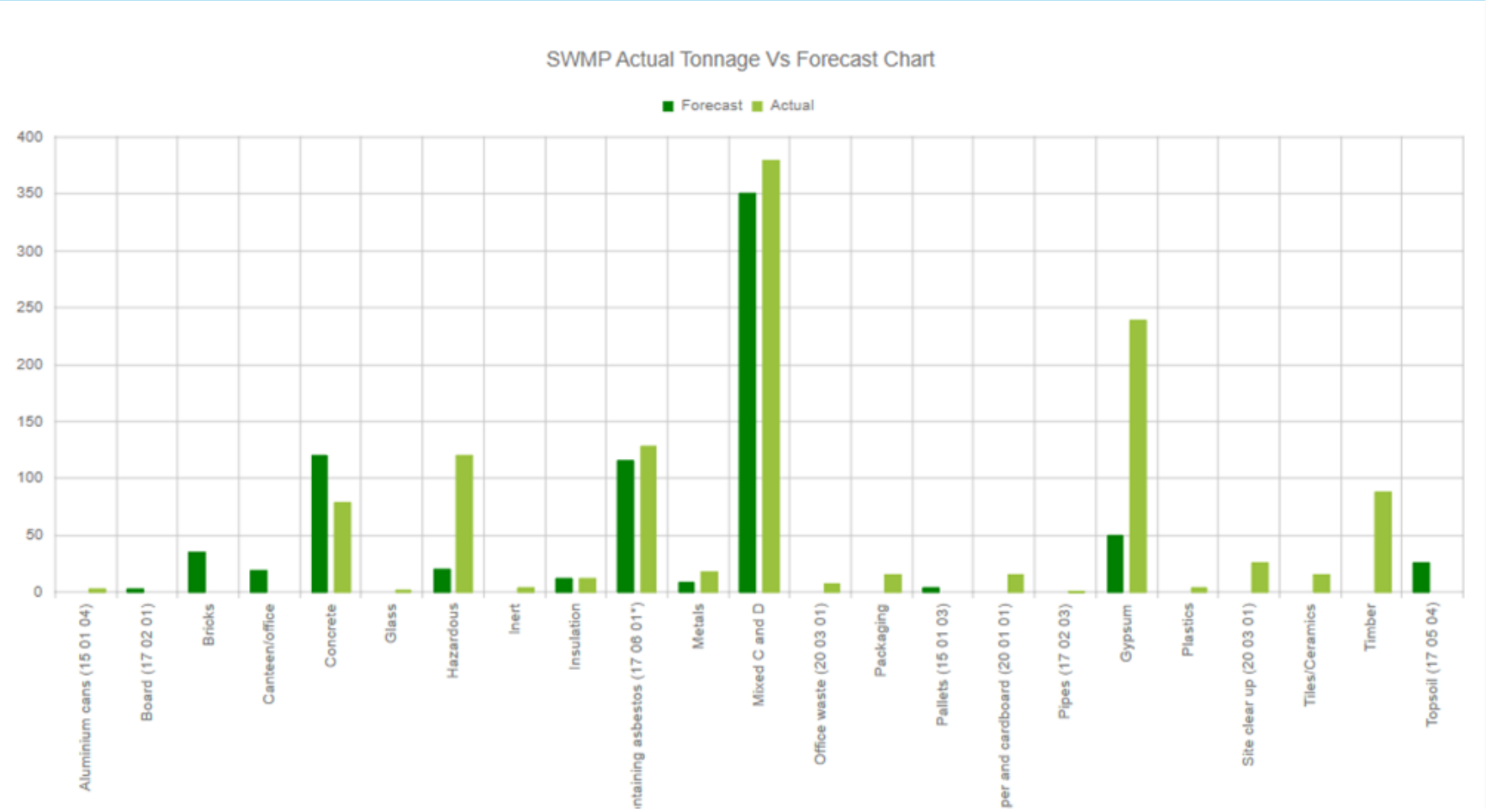


Compare actual waste versus forecast

- Dashboard
- Edit Project
- SWMP**
- Assigning
- Add data
- Reporting
- Pre-demolition audit

SWMP Home
Responsibilities
Waste min
Forecast
Options
D o C
Training
Actuals
Ongoing review
Review

SWMP Actual Tonnage Vs Forecast Chart



Waste benchmark calculator for project waste forecasts

Dashboard Edit Project **SWMP** Assigning Add data Reporting Pre-demolition audit

SWMP Home
Responsibilities
Waste min
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D o C
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Actuals
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Review

Forecast

For guidance around classifying different types of waste click [here](#)

Please estimate the types and amount of waste you expect to be generated:

Work Package	Subcontractor	Waste type	Waste Sub Type
Not specified	ABZ Joinery Ltd	Timber (17 02 01)	
Not specified	ABZ Dry Liners Ltd	Plasterboard / Gypsum (17 08 02)	
Not specified	ABZ Demolition Ltd	Mixed construction and/or demolition waste (17 09 04)	
Not specified	ABZ Demolition Ltd	Concrete (17 01 01)	
Not specified	ABZ Engineering Ltd	Soils (17 05 04)	
Total			

Waste benchmark calculator

The data used in the calculator is derived from projects on the SmartWaste system; BRE undertakes statistics for benchmarking purposes only. The benchmarks are based on completed new build projects and the construction phase waste. Benchmarks for soil are no longer available and soil waste arisings should be estimated based on site specific data.

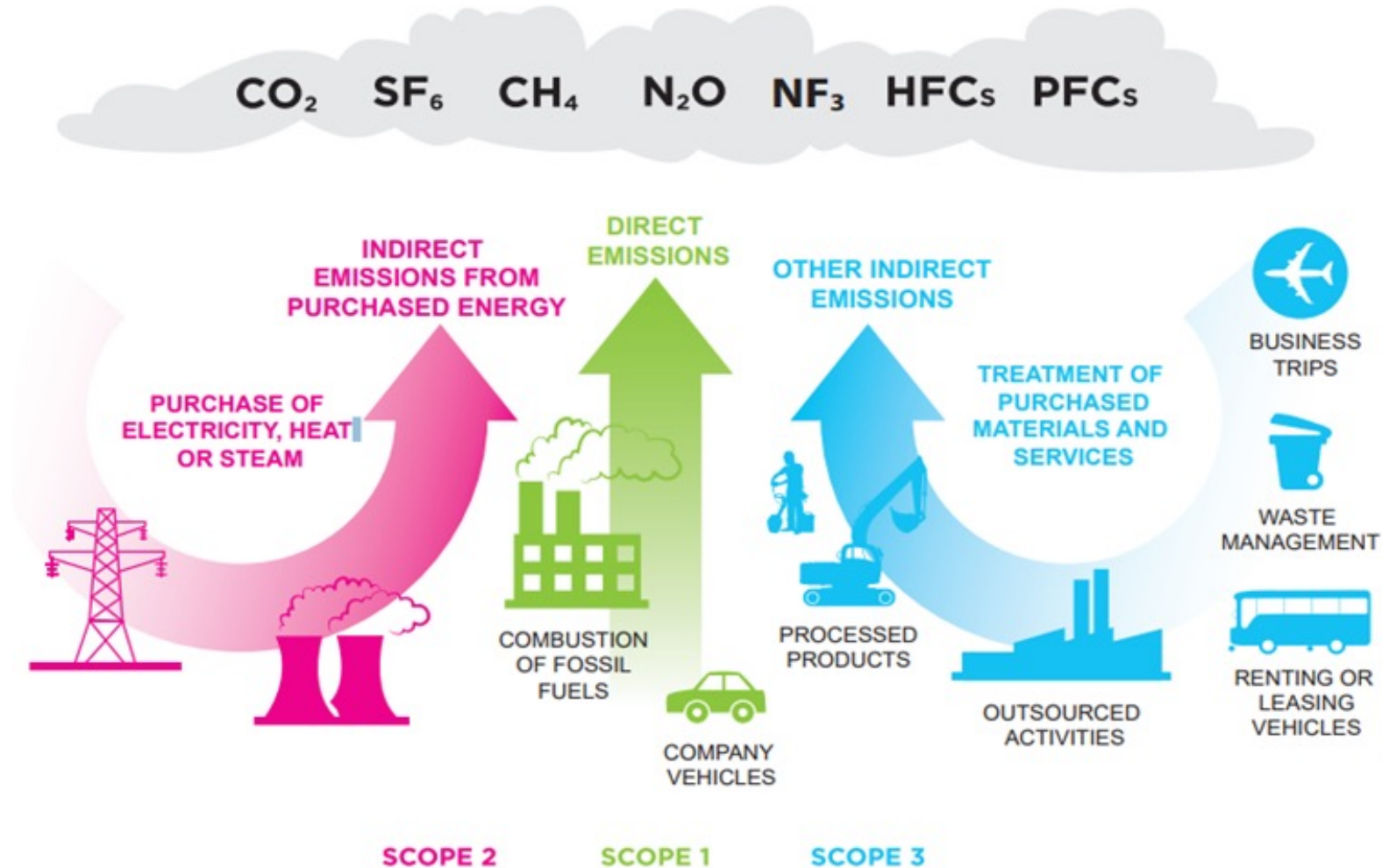
[Open benchmark calculator](#)

Waste Benchmark Calculator

These figures are calculated based on your floor area of 8000.0 m² and your project type of Residential
If you have not entered a floor area, this table will not be populated.

Product	Tonnes
Bricks (17 01 02)	89.20
Tiles and Ceramics (17 01 03)	6.38
Concrete (17 01 01)	120.71
Inert (17 01 07)	347.72
Insulation materials (non hazardous) (17 06 04)	6.14
Metals (17 04 07)	16.96
Packaging materials (15 01 06)	33.63
Plasterboard / Gypsum (17 08 02)	42.29
Binders (17 01 01)	1.54
Plastic (excluding packaging waste) (17 02 03)	22.66
Timber (17 02 01)	102.53
Floor coverings (soft) (20 01 11)	0.67
Electrical and electronic equipment (non hazardous) (20 01 36 or 16 02 14)	0.46
Bulky waste / Furniture (20 03 07)	0.14
Canteen/Office/Adhoc waste (20 03 01)	12.63
Liquids (16 10 02)	0.64
Oils (13 01 13*)	0.19
Bituminous mixtures (non hazardous e.g. asphalt) (17 03 02)	7.01
Hazardous waste*	7.36
Other waste	32.24
Mixed construction and/or demolition waste (17 09 04)	344.99

SmartWaste reports on your company scope 1, 2 and 3 carbon emissions



Record site fuel for Scope 1 & 3 carbon emissions reporting

Dashboard Edit Project SWMP Assigning Add data Reporting Pre-demolition audit Upload

Project data

Project spend

Waste cost

Waste

Energy

Electricity

Natural gas

Fuel

Water

Water usage

Water discharge

Add Fuel data for Commercial Office

Fuel Type Select ...
Gas Oil/Red Diesel
Petrol
Heating Oil
LPG
White Diesel
Biodiesel
HVO

Reporting period

Quantity ⓘ

Contractor ⓘ

Fuel Use *

Reference Number

Fuel delivery ticket

Any notes:

Fuel Type Gas Oil/Red Diesel ▾

Date from * 1/11/2021 (dd/mm/yyyy)

Date to * 10/11/2021 (dd/mm/yyyy)

Quantity ⓘ 1000.0 litres

Contractor ⓘ ABZ Demolition Ltd ▾

Fuel Use * Generator ▾

Reference Number

Fuel delivery ticket No file chosen

Upload additional evidence No file chosen

Any notes:
Sub contractor red diesel use - Scope 3 emissions

Capture electricity meter readings for Scope 2 and 3 carbon emissions reporting

The screenshot displays the SMARTWASTE software interface. At the top, there are navigation tabs: Dashboard, Edit Project, SWMP, Assigning, Add data, Reporting, and Pre-demolition audit Upload. On the left, a sidebar menu lists various categories, with 'Electricity' highlighted in a red box. The main content area is titled 'Electricity' and shows summary statistics: Total kg CO₂e: 63,860.9, Total kWh: 235,135.0, and Total Cost: £ 20,238.5. A blue button labeled 'Add electricity meter' with a plus icon is visible. Below this, a section titled 'North Gate Meter 1 Electricity Meter (kWh)' shows 'Use: Permanent supply' and 'Meter Reference ID Number: MPAN1167890'. A table lists reporting periods with usage, CO₂e, and cost data. A red box highlights an 'Edit Electricity data for Example Project 1' form, which includes fields for Meter (North Gate Meter 1), Date from (1/8/2021), Date to (31/8/2021), Reading (kWh) (Start: 210000.0, Finish: 235000.0), Usage (kWh) (25000.0), Supporting evidence (Choose file), and Upload additional evidence (Choose file).

Dashboard Edit Project SWMP Assigning Add data Reporting Pre-demolition audit Upload

Project data

Project spend

Waste cost

Waste

Energy

Electricity

Natural gas

Fuel

Water

Water usage

Water discharge

Materials

CCS

Transport

Material Transport

Waste Transport

Staff Transport

Biodiversity and Ecology

Project Management

Electricity

Total kg CO₂e: 63,860.9

Total kWh: 235,135.0

Total Cost: £ 20,238.5

Add electricity meter +

North Gate Meter 1 Electricity Meter (kWh)

Use: Permanent supply

Meter Reference ID Number: MPAN1167890

Reporting period	Usage (kWh)	kg CO ₂ e	Cost (£)	Evidence
1/8/2021 - 31/8/2021	25,000.0	7,282.5	3,750.00	
1/7/2021 - 31/7/2021	15,000.0	4,369.5	2,250.00	
1/6/2021 - 30/6/2021	6,000.0	1,747.8	900.00	
1/5/2021 - 31/5/2021	53,100.0	15,468.0	7,965.00	

Edit Electricity data for Example Project 1

Electricity

Meter: North Gate Meter 1

Date from *: 1/8/2021 (dd/mm/yyyy)

Date to *: 31/8/2021 (dd/mm/yyyy)

Reading (kWh) Start: 210000.0 - Finish: 235000.0 OR

Usage (kWh) 25000.00

Supporting evidence: Choose file No file chosen

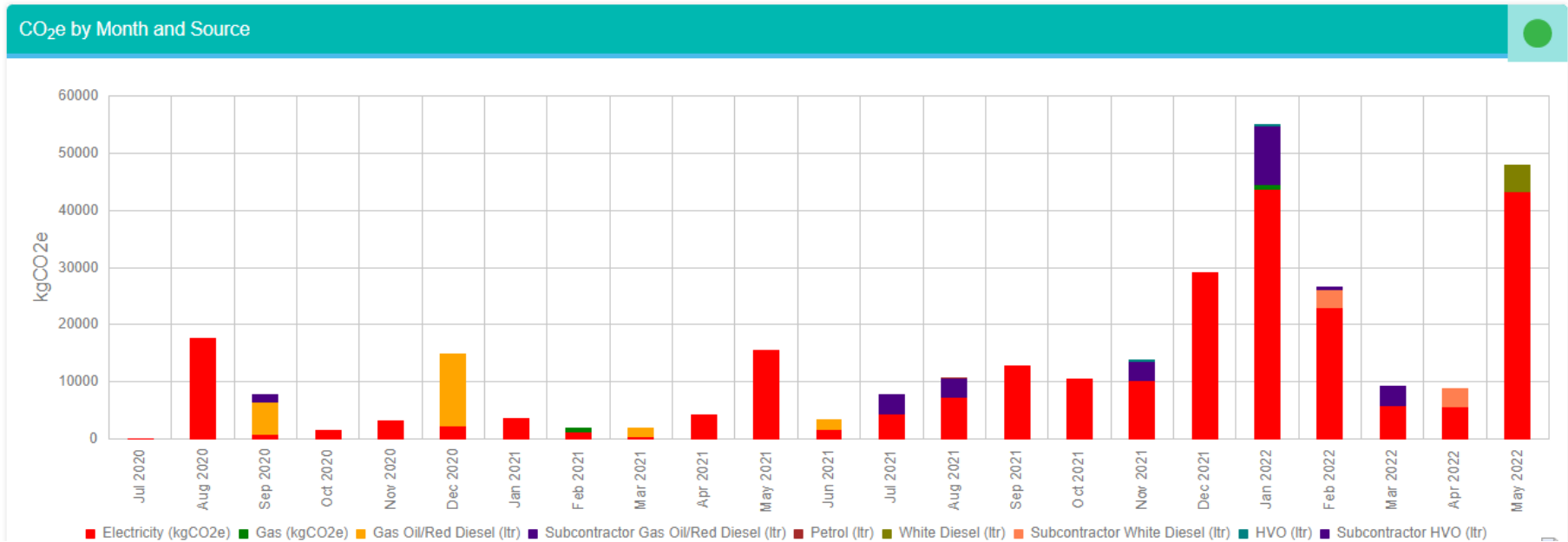
Upload additional evidence: Choose file No file chosen

Any notes:

Energy & carbon

- View project energy use and carbon emissions (kg/CO2e) -**electricity, gas** and **fuels**
- Includes energy carbon intensity metrics expressed in **kg/CO2e/£100K** (project spend/value) and **kg/CO2e/100m2** (floor area)

Energy use				
Electricity	867,135.0 kW h	247,962.5 kg CO2e	kg CO2e /£100k ⓘ	1,517.9
Natural Gas	7,200.0 kW h	1,440.3 kg CO2e	kg CO2e/100m ²	683.1
Fuel Litres	22,020.0 Litres	57,971.0 kg CO2e		
Fuel KGs	0.0 KGs	0.0 kg CO2e		
Total CO2e production		307,373.8 kg CO2e		



Full project and company carbon tabular data reports

Company Name	Project reference	Project Name	Total kgCO ₂ e from Waste Treatment	Total kgCO ₂ e from Energy Use	Total kgCO ₂ e from Materials Embodied Carbon	Total kgCO ₂ e from All Transport	Total kgCO ₂ e from Water	Total kgCO ₂ e
BRE SmartWaste Training Account (SB)	API	API Training Project	4,408.70	0.00	0.00	293.53	0.00	4,702.23
BRE SmartWaste Training Account (SB)	_0001	Building & Civils Training project	631.46	28,987.02	0.00	519.88	1,099.08	31,237.44
BRE SmartWaste Training Account (SB)	T009	Civil Engineering Project	4,997.61	12,895.27	25,704.15	6,372.34	160.30	50,129.68
BRE SmartWaste Training Account (SB)	*SPEN*	Civils Training Project	2,487.59	28,840.29	965,955.75	2,498.28	722.06	1,000,503.96
BRE SmartWaste Training Account (SB)	T001	Example Project 1	5,635.10	2,757.76	42,237.50	732.49	1,720.00	53,082.85
BRE SmartWaste Training Account (SB)	T002	Example Project 2	18.91	2,068.32	35,482.50	258.04	6.88	37,834.65
BRE SmartWaste Training Account (SB)	T002	Example Project 2	4,528.59	4,109.91	19,066.65	1,103.64	0.00	28,808.79
BRE SmartWaste Training Account (SB)	T003	Example Project 3	112,050.07	0.00	0.00	597.13	0.00	112,647.20
BRE SmartWaste Training Account (SB)	V001	Volume Example Project	0.00	1,378.88	375.00	167.96	0.00	1,921.84
Total kgCO ₂ e	-	-	134,758.03	81,037.46	1,088,821.55	12,543.28	3,708.32	1,320,868.65

Report across a range of social value metrics and calculate your positive project and company social value impact

Assign social value measures

- Amount (£) donated to local, charitable causes ⓘ
- Amount (£) spent with the local supply chain ⓘ
- Amount (£) spent by your supply chain with local Micro, Small and Medium Enterprises (MSMEs) ⓘ
- Amount (£) spent by your supply chain with local Voluntary, Community and Social Enterprises (VSCEs) ⓘ
- Car miles saved ⓘ
- Site visits ⓘ
- Hours volunteered ⓘ
- Weeks apprentices have worked ⓘ
- Armed forces veterans employed ⓘ
- Ex-offenders employed ⓘ
- Homeless people employed ⓘ
- Local people employed ⓘ
- Long-term unemployed people employed ⓘ
- Mothers returning to work employed ⓘ
- People with disabilities employed ⓘ

Add social value data

[Click here](#) to upload SmartWaste social value data entry form

Date from *

Date to *

Social Value Measure * ⓘ

Number of staff volunteering hours *

Date from	Date to	Labels	Social value measure	Value	Unit	Cost (£) ⓘ
01/07/2023	31/07/2023		Hours volunteered	75.00	Hours	1,125.00
01/06/2023	30/06/2023		Site visits	4	Visits	200.00
01/05/2023	31/05/2023		Amount (£) spent with the local supply chain	4,500.00	£	0.00
01/03/2023	31/03/2023		Amount (£) donated to local, charitable causes	3,000.00	£	1,500.00
01/01/2023	31/03/2023		Weeks apprentices have worked	12.00	Weeks	2,400.00

Upload your site ecological surveys and record ecology features and biodiversity action plans

Biodiversity and ecology feature	Plan Reference	Condition of Feature	Type of Biodiversity Impact	Have all appropriate actions for this feature been planned	Predicted Biodiversity Impact	Actual Impact	Number of actions	Number of actions completed	Created by company	Actions
<u>Statutory Protected Species: Badgers</u>	Badger Survey			No						View Delete
<u>Habitat Of High Conservation Value: Mature Trees</u>	Arboricultural Survey	Favourable	Potential Disturbance	No						View Delete
<u>Invasive Species: Japanese Knotweed</u>	Invasive Species Survey	Unfavourable Recovering	N/A	No						View Delete

Edit Biodiversity and ecology features

Biodiversity and ecology features

Plan Reference

Description of feature

Condition of Feature

Type of Biodiversity Impact

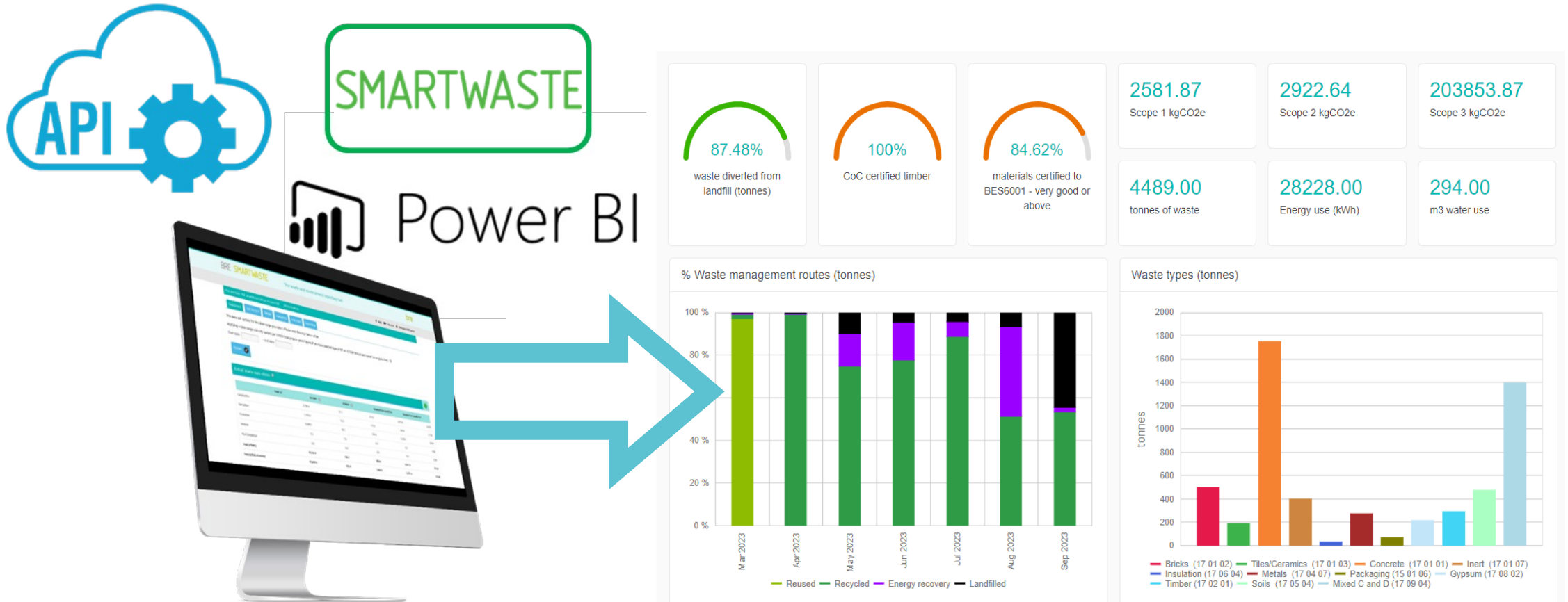
Number/m²

Have all appropriate mitigation actions for this

- Invasive Species: Japanese Knotweed
- Habitat Of High Conservation Value: Scrub
- Habitat Of High Conservation Value: Species Rich Grassland
- Habitat Of High Conservation Value: Heathland
- Statutory Protected Species: Amphibians
- Statutory Protected Species: Badgers
- Statutory Protected Species: Bats
- Statutory Protected Species: Crayfish
- Statutory Protected Species: Aquatic Invertebrate
- Statutory Protected Species: Otters
- Statutory Protected Species: Water voles
- Statutory Protected Species: Birds
- Statutory Protected Species: Reptiles
- Statutory Protected Species: Salmonid Fish
- Species Of High Conservation Value: Amphibians
- Species Of High Conservation Value: Aquatic Invertebrate
- Species Of High Conservation Value: Reptiles
- Species Of High Conservation Value: Fish
- Invasive Species: Himalayan Balsam
- Invasive Species: Japanese Knotweed

[Add](#)

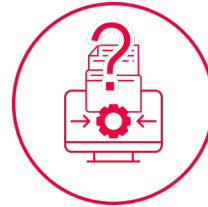
SmartWaste outbound API for powerful and flexible reporting capabilities with Microsoft Power BI integration



Potential effects of poor environmental reporting and inconsistent data capture...



Environmental & waste fines



Spend a lot more time, money, and resources on maintaining in-house IT systems



Project and company performance suffers leading to lower standards or becomes unmeasurable



Uncompetitive tenders due to inability to demonstrate clear environmental and sustainability credentials



Poor business readiness for future legislative changes and client requirements



Increased impacts and associated costs

What can SmartWaste do for your business...

- Cloud-based software to capture and report all your company ESG data
- Applicable to a wide variety of sectors including construction, infrastructure, property management, buildings in-use and manufacturing
- Automated data capture capabilities reducing costly data handling whilst increasing data quality and business confidence
- Integration with supply chain reporting systems
- Statutory and legislative reporting across waste, carbon and ESG
- Over 400 Key Performance Indicators which are continuously updated to meet your business and your client's reporting needs

What BRE do to support SmartWaste customers.

- Live demonstrations available for potential customers/ new users.
- User training for individuals and/or companies.
- Technical support helpline open usual UK business hours.
- Dedicated Account Manager
- Costs available on request for licences and training courses.
- Unlimited users for each licence.



Thank you and any questions?

To discuss SmartWaste further please contact:

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