

Sustainability & Environmental Management Report 2020–21

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Sustainability & Environmental Management Report

Message from our Executive Chairman



JBA's 2020-21 year has been hugely successful and was our 26th year of steady, sustainable growth. We continue to expand and develop our services and support an ever-wider range of quality clients in yet more countries. We've built further on our reputation as a leader in the fields of hydrology, software, engineering, environmental science, and landscape, whilst remaining an independent and 100% employee-owned company.

Across the Group, we've embraced the challenges to how we live and work due to the Covid-19 pandemic and have come through the year both stronger and healthier as a business. We now employ over 800 people and operate from 20 offices in the UK, Ireland, Romania, Cambodia, Singapore, and Australia, from where we work on projects all over the world.

As specialists in climate risk assessment and adaptation planning, we're at the forefront of applying the latest climate science to assess the impacts of climate change on the economy, society, and the environment. Climate change has been a constant and alarming news item throughout the year and we've continued to help our clients to understand and manage the climate and environmental impacts of their operations and activities.

We've also had a renewed focus on the sustainability performance of our own operations. Accountability is important at JBA and we're committed to working progressively to reduce our environmental impacts and taking meaningful action to cut our carbon emissions.

We published our Carbon & Resource Use Management Plan in October 2020, which set us priority areas for action, encompassing our resource use – the energy, water, and goods and services we use, and the waste we produce – and our carbon emissions. It also established our Group-wide objective to be a net zero carbon emissions business. To support this objective, we committed to establishing a science-based net zero emissions reduction target with the Science Based Targets Initiative (SBTi). By joining the SBTi, we'll ensure that our approach to reducing our emissions meets best practice and is aligned with climate science.

Our goal now is to reduce our carbon emissions as far and as fast as we reasonably can and get as close to zero emissions as possible. We've set ourselves a big challenge, but we have the commitment and enthusiasm needed to meet it. We've already begun to work differently, embracing agile working and further helping our staff to have a positive and sustainable work-life balance. We've made low carbon a positive choice and we've begun to embed a carbon conscious culture across JBA. We're currently finalising our 'Route Map to Net Zero', which we'll publish in Spring 2022, that sets out a raft of new sustainability initiatives we'll put in place to help us to achieve our net zero objective.

Environmental and social responsibility lie at the heart of JBA and are integral to our long-term success. It's always been our core aim to have a positive impact on our colleagues, clients, suppliers, and the local communities and environments in which we work. This means building partnerships, protecting the environment, and doing all we can to support the UN Sustainable Development Goals.

JEREMY BENN
Executive Chairman, JBA Group

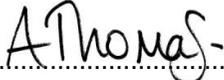
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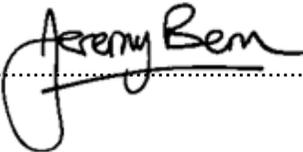
This report summarises the sustainability and environmental management performance of our operations during the period from 1 November 2020 to 31 October 2021. It includes the performance of all of the operating companies trading within the JBA Group. JBA Group accepts no responsibility or liability for any use made of this document.

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JBA has a Group-wide objective to be a net zero carbon emissions business.

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Abbreviations

BNG	Biodiversity Net Gain
CEEQUAL	Sustainability rating scheme for infrastructure projects
CIEEM	Chartered Institute of Ecology and Environmental Management
ClfA	Chartered Institute for Archaeologists
CO ₂ e	Carbon dioxide (CO ₂) equivalent
CSR	Corporate Social Responsibility
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EDI	Equality, Diversity, and Inclusion
EIA	Environmental Impact Assessment
EMS	Environmental Management System
FCERM	Flood & Coastal Erosion Risk Management
FTE	Full time equivalent
GHG	Greenhouse gas
IEMA	Institute of Environmental Management and Assessment
ISO	International Standards Organisation
JBA	JBA Group Limited
JBAB	JBA Bentley
JBP	Jeremy Benn Pacific
KWh	Kilowatt hours
MMA	Mekong Modelling Associates
NFM	Natural Flood Management
QMS	Quality Management System
SBTi	Science Based Targets initiative
SDG	Sustainable Development Goal
STEM	Science, Technology, Engineering, and Maths
UN	United Nations
WFD	Water Framework Directive
WWNP	Working With Natural Processes

 People and culture	 Environmental performance	 Services
Average no. of employees* 761 (+86)	Business miles travelled 855,119 (-25%)	No. of new external projects 1,483 (-85)
Average FTE employees* 700 (+73)	Measured energy consumed in our offices 755,285 kWh (-5.2%)	No. of clients commissioning new external projects** 610 (+28)
No. of new graduates 55 (+21)	Measured office energy from renewable sources 69% (+8%)	No. of internal project quality audits undertaken 52 (+24)
Employee gender split* 60.1 / 39.9 (% male / female)	Paper consumption 884 kg (-44.7%)	No. of approved suppliers 516 (+59)
Gender split (Technical Director level & above)* 74.8 / 25.2 (% male / female)	% waste recycled 77% (+12%)	% approved sole trader and SME suppliers 74.2% (+1.3%)
Gender split (divisional managers)* 83.3 / 16.6 (% male / female)	No. of environmental incidents, near misses or observations reported 23 (-43)	% suppliers given Good or Exceptional scores for Sustainability & Environmental performance 100%
Hours of formal training completed 16,270 hours (+816 hours)	Carbon footprint 3,232 tCO₂e	No. of industry environmental awards 2
No. of chartered professionals 158 (+34)	Per capita carbon footprint (market-based) 4.62 tCO₂e	No. of internal R&D projects 25
Average staff turnover rate 4.6% (+0.6%)	No. of internal office environmental audits conducted 11 (-1)	No. of permanent apprenticeships 23 (+5)

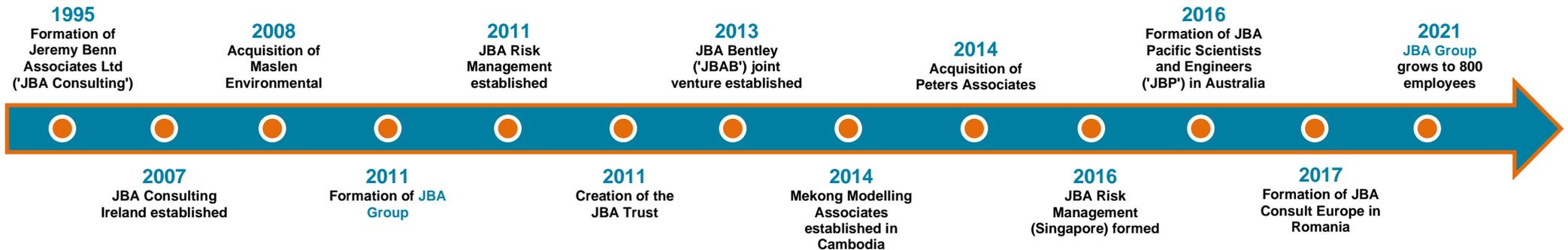
Comparison with 2019-20 year shown in brackets where applicable; * as of 31 October 2021; ** different regions within national public sector clients counted as separate clients

1. About JBA Group

Who we are

JBA is an environmental, engineering, and risk management group focused on helping improve the environment, business, and infrastructure. We started operating in 1995 with the purpose of creating a specialist consultancy offering an inter-disciplinary approach to our clients. In 2011, JBA restructured to form a new

group of companies, the **JBA Group**. The separate companies allow us to focus keenly on our specialist skills and expertise. Since then, the JBA companies have continued to develop, expand, and thrive, and today consists of 10 businesses offering a diverse range of consultancy services. We now employ over 800 staff in 20 offices located in the UK, Ireland, Romania, Australia, Singapore, and Cambodia, and work on projects all over the world.



JBA has always operated on a model of being entirely employee-owned and this has been a guiding principle since our foundation, underpinning our desire that JBA remain independent and that all our staff enjoy the rewards of our success.

JBA Consulting is the original multi-disciplinary consulting business established by Jeremy Benn in 1995. It has grown to be one of Europe's leading specialists in environmental engineering and environmental management, with a strong track record of major studies for national governments and international and national bodies such as the

European Investment Bank, European Commission, Defra, Environment Agency (EA), SEPA, and Natural Resources Wales. JBA Consulting has formed several subsidiary companies, including **JBA Isle of Man**, **JBA Pacific**, located in Brisbane, Australia, and **JBA Bentley** (JBAB), a joint venture with the contractor JN Bentley.

Established in 2011, **JBA Risk Management** is a global leader in flood risk management. Known as The Flood People®, their flood maps, catastrophe models and analytics are used by some of the world's largest insurers, reinsurers, financial institutions, property

companies, and governments. They're experts in translating complex, scientific data and using sophisticated models to provide cutting-edge flood risk intelligence.

JBA Risk Management has formed several subsidiary companies in [Singapore](#) and [California](#), USA, enabling it to offer risk management services at a global scale and deliver a host of international programmes, including projects in Europe, Central and South-East Asia, Africa, and South America.

JBA consulting **JBA Consulting Engineers & Scientists (Ireland)** was established in 2007 and is a leading flood management, environmental, water, and engineering consultancy. Operating nationwide from its offices in Limerick and Dublin, as well as in Northern Ireland, the rest of the UK and internationally, the company has a growing presence in Eastern Europe, through its subsidiary company [JBA Consult Europe](#), based in Bucharest, Romania.

Jeremy Benn Pacific (JBP) was formed in 2016 with a focus on increasing community resilience to natural disasters – floods, cyclones, typhoons, storm tides, and erosion. The company works throughout Australia, the Pacific, and world-wide, and has delivered projects for local authorities, government departments, and international funding agencies such as the World Bank and Asian Development Bank.

Mekong Modelling Associates (MMA) is JBA Group's operating company in Cambodia. Based in Phnom Penh, MMA delivers a range of climate change adaptation and transboundary flood risk and water management projects for public and private sector clients throughout SE Asia.

In 2013, JBA joined forces with national civil engineering contractor JN Bentley to form a new joint venture – **JBA Bentley (JBAB)**. Together, the two companies currently provide an integrated engineering design and build service to the EA as a framework supplier on its Flood and Coastal Erosion Risk Management (FCERM) Central Hub

frameworks. JBAB was also successful in securing a place on the Coal Authority's latest mine water treatment framework in July 2020.

In 2011, JBA Group created the independent charity, the **JBA Trust**, with the specific purpose to support research and promote the development of knowledge and skills in environmental risk management, and in the water environment in particular. Working with leading academic researchers, NGOs, other charities, and the JBA Group companies, the Trust provides training and education in schools and supports post-graduate education through placements, internships, and financial bursaries.

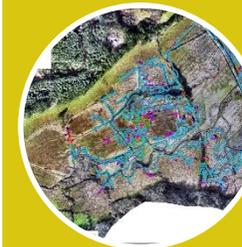
What we do

Communication and Stakeholder Engagement **Coastal Flood Modelling**
 Contaminated Land **Training** Flood Alleviation **and Forecasting** Ecology
 Marine and Coastal Risk Management **Rail Engineering**
 Landscape Design and Assessment **Flood and Water Management**
Climate Change **Coastal Sediment Dynamics**
 Coasts, Ports and Harbour Engineering **Environmental Services**
 Internal Drainage Boards (IDB's) Sustainability **Engineering**
 Systems, Software and Data **Flood Risk Management**
 Catchment and River Environmental Impact Assessment
 Restoration Team **Research & Development** **Flood Defence**
 Development planning **Environmental Regulation** **Design**
 Metrocean Risk Management **and Compliance** **Natural Flood Management**

JBA Group is a family of companies, respected by our clients and industries for providing expertise in flood risk management and modelling, engineering, and environmental and water management.

We are scientists, engineers, hydrologists, environmental and risk managers, surveyors, ecologists, archaeologists, landscape architects, project managers, software developers, mathematicians, modellers, economists, trainers, and more.



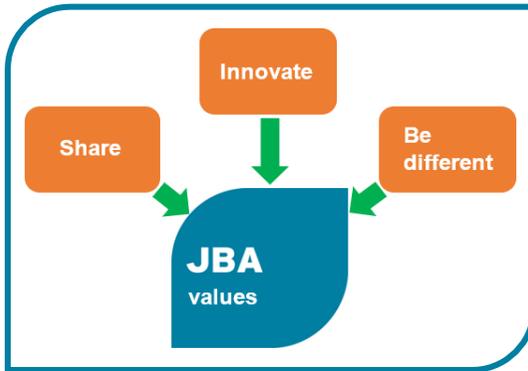
 <p>Civil Engineering</p> <ul style="list-style-type: none"> Fluvial flood defences Rail Bridges Geotechnics Surveying 	 <p>Flood Risk Management</p> <ul style="list-style-type: none"> Flood modelling Flood forecasting Asset management Flood risk assessment Reservoir management 	 <p>Coastal and Maritime</p> <ul style="list-style-type: none"> Coastal engineering Dredging design and assessment Flood modelling and forecasting Beach management 	 <p>Environmental</p> <ul style="list-style-type: none"> Environmental assessment Ecological survey and assessment Landscape architecture Archaeology River restoration 	 <p>Water Resources</p> <ul style="list-style-type: none"> Drought modelling Hydrometric services Water cycle studies Groundwater modelling Water supply modelling 	 <p>Risk Management</p> <ul style="list-style-type: none"> Catastrophe modelling Flood risk mapping and analytics Climate change Event response 	 <p>Software and Systems</p> <ul style="list-style-type: none"> Data management GIS and mapping Website and app design System and cloud architecture
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Core services provided by JBA Group companies

Our values

JBA prides itself on its innovative, independent, and inclusive culture. Our independence has shaped who we are and provides us with the flexibility to make our own decisions and to be the masters of our own fate. We place sustainability, health, safety and wellbeing at the top of our agenda. We encourage creative, innovative thinking, and listen to new and fresh ideas, and we aim to provide important, stimulating, and rewarding work for our staff.

The best feature of JBA is our people. All of our successes are because of our people: their drive, ideas, ingenuity, commitment, and the support they provide to colleagues. We want everybody at JBA to thrive and to achieve their ambitions. We want people to be safe and well. We recognise the importance of a diverse workforce and the need to promote diversity. We're proud of the unique environment that we've established at JBA, but we also know that we can do more to help people achieve their potential.



Our values are neatly summed-up in three simple sentiments: **share**; **innovate**; **be different**. They're the values that represent us as a business and we protect these values as we continue to grow and evolve. They underpin the way that we work together as a group of businesses, and together we share aspirations, and coordinate and capitalise on innovation.

Share: We've developed some of the most advanced environmental risk management practices in the world. The work that we're doing is genuinely driving change in the sectors that we work. Whilst we must hold the detail of some of the technologies and practices that we develop close to our hearts, we share concepts, ideas, and our views on industry direction widely. We also share success with our employees. As an employee-owned organisation, everybody benefits from the success of our business. We reward our staff for their hard work and the contribution they make to our values and objectives.



Innovate: Innovation is in our DNA. We put innovation much higher on our agenda than most of our competitors and this has many benefits. It helps to make our work more efficient and of a higher quality and ingenuity. It gives us a unique identity and raises our profile. It helps us to diversify our business. It keeps us ahead of the competition, and, perhaps most

importantly, it makes life more interesting and stimulating for everyone. Our ethos for innovation is best summed up as 'the JBA Way'.

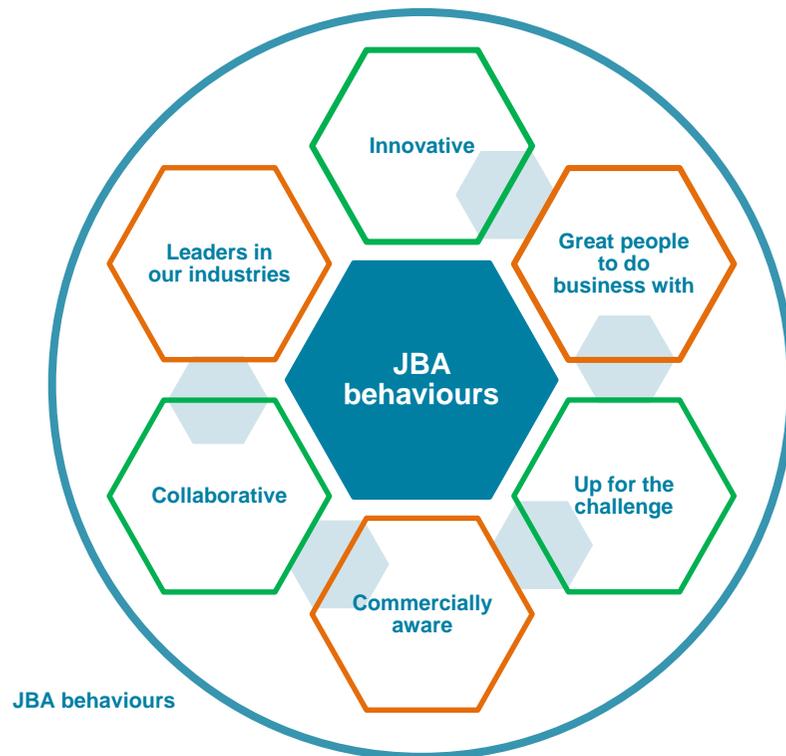
Be different: Being different is a collection of things; it's the things highlighted above and throughout this document. It's about our unique culture. It's about our independence. It's about having goals that are balanced. Ultimately, JBA is different because of it's people. We're different because we've established a culture that has attracted like-minded people; people who have then embraced our culture and gone on to develop it further.

Our culture

Our culture drives our business objectives, our behaviours, and the quality of the services we deliver. It's our core aim to have a positive impact on our staff, client, suppliers, and the local communities and environments in which we work. To achieve this, we've set Group-wide objectives and we continually measure our progress against these objectives.

Our core business objectives

- ✓ We are committed to providing high quality services that meet or exceed the expectations of our clients.
- ✓ We proactively manage the health, safety, and welfare of JBA employees, suppliers, and visitors across all areas of our business activities, and we require our suppliers and partners to do the same.
- ✓ We comply with the highest relevant and ethical standards and maintain our systems to minimise the occurrence and impact of any security incidents.
- ✓ We continuously strive to improve our environmental performance and reduce the environmental impacts of our business.
- ✓ We use our consumer power to reward suppliers who support our objectives, share our business values, and deliver excellence.



business, incorporating **The Ten Principles of the UN Global Compact**, and actively promoting the **UN Sustainable Development Goals (SDGs)**.

The central aims of our policy include:

- ✓ Taking all reasonable measures to minimise the environmental impacts of our operations and activities and ensuring our use of natural resources is sustainable and environmentally responsible.
- ✓ Working progressively to improve the sustainability of our business practices and being fully accountable for the environmental impacts of our operations.
- ✓ Effectively engaging with our staff, clients, and suppliers to promote environmental sustainability and proactively share good practices.
- ✓ Taking meaningful action to minimise our climate impacts, with the objective of being a net zero carbon emissions business.
- ✓ Adopting a circular economy model and promoting the principles of a circular economy in our services and in the goods and services we use.
- ✓ Applying sustainability as a positive choice and prioritising suppliers who support our sustainability objectives.
- ✓ Complying with, and exceeding where practical, all legislation, standards, statutory and other obligations, and best practices that are relevant to our activities and the jurisdictions in which we operate.
- ✓ Maintaining and continually improving our Environmental Management System (EMS) so that, as a minimum, it satisfies the requirements of the ISO-14001 standard.

Our policies

Our policies define how we operate, our aims, and how we apply our business values, objectives, and behaviours. Our policies set our expectations, help ensure legal compliance, demonstrate our responsibilities, and keep us accountable.

Our **Sustainability and Environmental Management** policy sets out our commitment to integrate the principles of sustainability in our practices, operations, and business planning. It commits us to applying a principles-based approach to

Our sustainability policy works in-conjunction with our **Corporate Social Responsibility (CSR)**, **Sustainable Procurement**, **Health & Safety**, and **Equality, Diversity and Inclusion (EDI)** policies to reinforce our commitments to sustainability, promote continuous improvement in our operations, and have a positive impact on our staff, client, suppliers, and the local communities and environments in which we work. We actively encourage all of our staff to apply these policies in all of their actions across all of our operations and client services.



2. Our contribution to the UN Sustainable Development Goals

Sustainable Development Goals (SDGs)

Launched by the United Nations (UN) in 2015, the 17 **Sustainable Development Goals** (SDGs) and 169 associated targets form a framework through which society can achieve a “better and more sustainable future for all”. These inter-linked goals include a breadth of social, economic, and environmental themes, including water, energy, climate, poverty, equality, education, industry, and health and wellbeing, and define the global sustainable development priorities and aspirations for 2030.

Our **Sustainability and Environmental Management Policy** sets out our commitment to integrate the principles of sustainability in our practices, operations, and business planning. It commits us to applying a principles-based approach to business, incorporating **The Ten Principles of the UN Global Compact**, and actively promoting the SDGs.

“We will adopt a principles-based approach to business, incorporating The Ten Principles of the UN Global Compact, and will actively promote the UN Sustainable Development Goals (SDGs) within our culture and our operations. We will monitor our contribution to the SDGs and communicate our progress in our annual business reporting.”

JBA Group Sustainability and Environmental Management policy

Our focus on the SDGs stems from our desire to improve the environment, communities, and infrastructure, and the SDGs have helped shape our values and culture. The goals provide us with an overarching framework to demonstrate our

approach to responsible business and to help focus our efforts so that we can actively contribute to solving these global sustainable development challenges.

The SDGs define a common framework of action and encourage businesses to “reduce their negative impacts while enhancing their positive contribution to the sustainable development agenda.” The UN recognises that not all 17 SDGs will be equally relevant to a company and that the extent to which a company can contribute to each goal depends on a wide range of factors. Whilst we support all of the SDGs and seek ways to contribute to as many as possible through both our operations and services, several of the SDGs are more directly relevant to the type of business we are and the work we do. We focus on these goals more often because we can most directly influence the positive and negative impacts our business activities have on these SDGs, both directly and through our value chain.

How we contribute

Through our operations and application of our policies, we directly contribute towards several goals, most notably SDG 3 (Good Health and Wellbeing), SDG 5 (Gender Equality), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). Within our project-related activities that we deliver on behalf of clients, our contributions typically focus on seven goals: SDG 3 (Good Health & Wellbeing), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land).

In 2021, we’ve undertaken an initial, high-level analysis of our contribution to the SDGs through our project activities and found that at least 80% of our projects contribute to the SDGs in a positive way. In this section, we highlight the goals we most directly influence and summarise how we contribute to their achievement.

We plan to monitor our contributions to these SDGs, and the other goals as relevant, more directly in future years, and communicate our progress in our annual business reporting.



Good health and wellbeing – The principal aim of this goal, to “ensure healthy lives and promote well-being for all”, is central to how we operate. We aim to create “a safe and healthy working environment” and we measure our progress against this objective through our ISO-45001 certified Health & Safety Management standard. We understand that work can have a big impact on staff wellbeing and this can affect their health. We take a proactive approach so that employment with JBA is a positive influence on the wellbeing of all staff, and we help staff achieve a healthy work/life balance. We run annual wellbeing initiatives for all staff to increase awareness and understanding of health issues that can affect everyone and to promote the range of benefits we have put in place to support staff wellbeing, including our Mental First Aider group and our Wellbeing, Mental Health and wider Employee Assistance Programme.



Gender equality – Providing equal opportunities to all is important to us. We want all of our staff members to be able to contribute to the best of their capacity, and we believe we can achieve this if everyone is included, respected, valued, and supported. We recognise the need to promote gender equality within JBA and the sectors we operate. Over the past few years, we’ve made a series of important changes to strengthen our policies and practices to promote gender equality and the empowerment of women. We’ve established a Group-wide Gender Group to improve our understanding of the obstacles to progression for women and to take action to address any such obstacles in JBA. We promote female innovators, what they’ve achieved, and the challenges they’ve overcome and we actively support initiatives such as **International Women’s Day** and **Women in FCERM**, which is a networking group set up to support women working within flood and coastal erosion risk management.



Clean water and sanitation – Much of the work we do is directly related to sustainable water management. We are experts in flood risk, water resources, and reservoir management, and river and wetland habitat restoration, and the quality of our work is recognised internationally. We work extensively for the EA, local flood risk authorities, and Internal Drainage Boards (IDBs), supporting their flood risk and water management programmes through our integrated engineering, modelling, and environmental project teams. Our work focuses on increasing resilience, promoting sustainable water management, reducing pollution, and protecting and enhancing water-related ecosystems. Our joint venture

partnership, JBA-Bentley, has been appointed to the Coal Authority's mine water treatment framework, providing an integrated design and build engineering and environmental service to deliver innovative solutions that treat mine water pollution and improve the surrounding environment.



Industry, innovation and infrastructure – JBA contributes to the delivery of major public flood defence, water management, and transportation projects in the UK and internationally. We've been a national framework consultant to the EA since 1999 and the only consultant appointed to national flood management frameworks in each of the UK devolved administrations, Isle of Man, and Republic of Ireland. Through our joint venture with the contractor, JN Bentley, we also provide design and build solutions to the EA and Coal Authority. Our work helps improve quality of life by reducing flood risk and improving water management and quality. We support our clients to develop innovative and sustainable infrastructure solutions and we're increasingly addressing the climate impacts of our work, embedding low carbon considerations in the choice of options and design solutions.



Sustainable cities and communities – Climate change, urbanisation, biodiversity loss, and growing pressures on water resources and the natural environment mean that communities need to become more resilient and adapt to the effects of a changing world. As a specialist in flood risk, water resource, and environmental management, the goal to "Make cities and human settlements inclusive, safe, resilient and sustainable" is embedded across our business. Our project teams support clients to develop sustainable solutions that increase community and environmental resilience, promote inclusivity and safety, and protect cultural and natural heritage. Our work for the EA over the past 20 years has led to the delivery of a broad range of community-focused projects that have made communities safer and healthier places to live.



Climate action – We recognise that we're in a climate and ecological emergency and the need to take meaningful action to minimise our climate impacts. We published our first carbon emissions reduction plan in 2007 and have held ISO-14001 certification since 2009, with the aim to continually reduce our carbon emissions. We've a Group-wide objective to achieve net zero carbon emissions and have committed to setting science-based emissions reduction targets through the Science Based

Targets initiative (SBTi), aligned with what is needed to limit global warming to 1.5°C. We will publish our Net Zero Route Map in Spring 2022, setting out the actions we will take to achieve this objective.

Our project teams develop low carbon, sustainable solutions, applying scientific, innovative approaches to reduce emissions and natural resource use, and to positively influence demand for low-carbon solutions. We are experts in translating climate data to assess impacts for the economy, society, and the environment. We specialise in research, policy development, and climate risk assessment and adaptation planning, promoting innovation and adaptation and reducing emissions.



Life below water – the health of marine ecosystems is fundamental to human society and achieving sustainable marine resource use is a key target of the SDGs. Coastal risk management is a core service we provide, and our multi-disciplinary teams of specialist coastal engineers and environmental scientists deliver high-profile coastal and maritime projects both nationally and internationally. We're increasingly applying nature-based solutions to increase community resilience to climate change and flood risk, which work with nature and natural processes to achieve both societal and environmental benefits. Our work for the EA and local authorities within the UK and for governments and organisations around the world has delivered innovative solutions that have increased protection for coastal communities whilst reducing human pressures on the marine environment and protecting and creating new habitats for wildlife.



Life on land – Natural capital constitutes the various elements of the natural world, including soils, water, and all living things. When viewing the world through a natural capital lens, nature is seen as an asset that delivers benefits to society. The natural capital lens helps us identify our fundamental dependencies on the natural world and also helps us to see nature as a benefit rather than an obstacle to development. Our work helps our clients understand the value of natural assets and the dependencies and impacts they have on natural capital, and we actively promote ways they can work with nature to maximise the benefits.

Within our operations, we take all reasonable measures to minimise our environmental impacts and we aim to ensure our use of natural resources is sustainable and environmentally responsible. We work progressively to improve the sustainability of our business practices and are fully accountable for the impacts of our operations.

3. JBA Group carbon footprint



We recognise that we're in a climate and ecological emergency and are committed to taking meaningful action to minimise our climate impacts. Our **Sustainability and Environmental Management** policy requires us to take all reasonable measures to protect the environment and seek opportunities to achieve environmental and social benefits.

It's our ambition to achieve net zero emissions across the JBA Group by 2040 (see Section 5 for more information on our net zero objective). We're committed to measuring and publicly disclosing our greenhouse gas (GHG) emissions. This includes all relevant emissions, including our direct (controlled by JBA directly) and indirect (within JBA's 'value chain') emissions.

We've calculated the full JBA Group carbon footprint for our 2020-21 year. This represents the 'base year' for the purposes of our net zero GHG emissions objective and associated science-based emissions reduction targets. We'll report our progress against these targets on an annual basis and will provide a comparison of our annual carbon emissions against this base year to track our performance.

JBA applies the operational control approach to its footprint assessment, meaning that we account for 100% of the emissions from operations over which we have operational control. The assessment includes emissions from all of the operating companies within the JBA Group.

For measuring and reporting on our GHGs, we follow methodologies set out in the **Greenhouse Gas (GHG) Protocol**. Our assessment utilises available data and applies published methodologies where estimation has been required. Data limitations have influenced numerous aspects of the assessment, requiring

estimations with varying confidence levels. Substantial estimation was required for several significant emissions sources, including emissions from goods and services purchased by JBA and emissions from employee commuting and homeworking.

In-line with good practice, the 2020-21 footprint assessment is not considered 'final' and we'll continually review and refine the assessment as required in the future to take account of improved data quality and better assessment tools and methodologies. We'll continue to sharpen our approach to further understand the impacts of our operations and the impacts our work has on the footprint of our clients.

Assessment method

Wherever possible, the assessment has followed recognised good practice guidance – *GHG Protocol Corporate Standard* and *GHG Protocol Corporate Value Chain (Scope 3) Standard*¹. The assessment considered a wide range of emissions sources organised under three groups or 'scopes':

- ✓ **Scope 1:** Emissions from the consumption of office gas and pool car fuel.
- ✓ **Scope 2:** Emissions from the generation of electricity consumed in our offices.
- ✓ **Scope 3:** All other emissions not directly controlled by JBA.

Scope 2 emissions were assessed using both the 'market-based' and 'location-based' methods. The 'market-based' method takes account of the lower GHG emissions from the renewable electricity supply to several JBA offices, whilst the 'location-based' method applies UK grid-average emissions to all office electricity consumed. Both footprint estimates are reported here.

All relevant Scope 3 categories were assessed, including emissions from use of sub-consultants, purchased office supplies, company assets, business travel,

¹ *GHG Protocol Corporate Accounting and Reporting Standard* (available [here](#)) and *GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard* (available [here](#)).

overnight accommodation and subsistence, waste disposal, and staff commuting and homeworking. Staff commuting emissions were based on office average emissions estimated from responses to a staff survey undertaken in 2021.

UK emissions conversion factors were typically used to assess emissions from non-UK JBA operations due to lack of readily available overseas conversion factors.

Results summary

The JBA Group carbon footprint for 2020-21 was approximately 3,232 tonnes of carbon dioxide equivalent (tCO₂e) using the market-based method or 3,385 tCO₂e using the location-based method. The per capita footprint was approximately 4.62 tCO₂e per person (market-based) and 4.83 tCO₂e per person (location-based).

Scope 1 emissions from the combustion of diesel in our pool cars and gas in our offices for heating accounted for around 2% of our carbon footprint. Scope 2 emissions from the generation of electricity consumed at our offices represented around 2% of our footprint using the market-based method and 5% using the location-based method.

In relation to our Scope 3 emissions, emissions from goods and services we purchased accounted for about three quarters (65%) of our total carbon footprint. Other significant Scope 3 emissions sources include staff homeworking (14%), business travel (8%), and staff commuting (7%).

The main emissions sources within the purchased goods and services category were from use of sub-consultants (49%), purchased assets e.g., office equipment (10%), software (9%), accommodation and food (6%), and office supplies (4%).

The main sources of emissions from business travel comprised private cars (58%), hire cars (37%), air travel (2%), and public transport (2%).

Table 1: JBA Group GHG emissions (tCO₂e) 2020-21

Scope		Emissions (tCO ₂ e)	
Scope 1	Emissions from fuel combustion in JBA-owned pool cars	36	
	Emissions from gas combustion to heat offices	25	
Scope 2	Purchased electricity (market-based)	66	
	<i>Purchased electricity (location-based)</i>	186	
Scope 3	Purchased goods & services	2,265	
	Upstream fuel & energy activities (market-based)	46	
	<i>Upstream fuel & energy activities (location-based)</i>	79	
	Disposal and treatment of waste	Waste disposal	1
		Water treatment & disposal	1
	Business travel	<i>Business travel: hire car</i>	96
		<i>Business travel: private car</i>	151
		<i>Business travel: taxi</i>	1
		<i>Business travel: train</i>	5
		<i>Business travel: aeroplane</i>	6
Employee commuting and homeworking	Employee homeworking	449	
	Employee commuting	217	
Downstream use of sold products		23	
Removal of inter-company emissions double-counting*		155	
TOTALS			
Market-based		3,232	
Location-based		3,385	
Per capita emissions		4.62	

* These emissions are from work undertaken by one JBA operating company for another operating company and have already been accounted for in the footprint assessment.

Results summary

Figure 1: JBA Group principal emissions sources



Scope 1

- Fuel combustion in pool cars (1%)
- Gas combustion to heat offices (1%)

Scope 2

- Generation of purchased electricity (market-based) (2%)

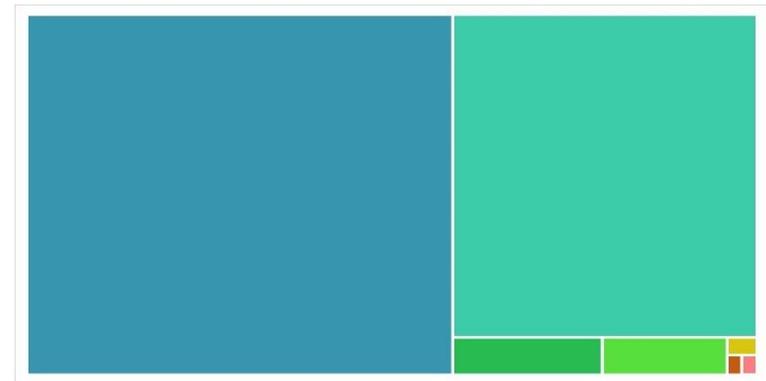
Scope 3

- Purchased goods & services (64%)
- Upstream fuel & energy activities (market-based) (1%)
- Business travel (8%)
- Employee homeworking (14%)
- Employee commuting (7%)
- Downstream use of sold products (1%)

Figure 2: Breakdown of principal emissions from Scope 3 purchased goods and services

Fixed assets	10%	Subsistence	6%
Professional fees	1%	Data	<1%
Repairs and hire	<1%	Software	9%
Subscriptions	<1%	Insurance	3%
Training	2%	Sub-consultants	49%
Office supplies	4%	Maintenance	<1%
Telecoms	3%	Miscellaneous	5%

Figure 3: Breakdown of principal emissions from Scope 3 business travel



Private car	58%	Taxi	<1%
Hire car	37%	Ferry	<1%
Aeroplane	2%	Bus	<1%
Train	2%		

Addressing our emissions

We're committed to minimising our carbon emissions whilst supporting others we work with to improve their own environmental sustainability. Our approach to reducing our emissions has four main components, which meet the requirements of the Science Based Targets initiative (SBTi) **Net-Zero Standard**:

- ✓ We have committed to setting near-term and long-term science-based emissions reduction targets with the SBTi following its Net-Zero Standard. We will not claim net zero status until we achieve our long-term target;
- ✓ We will focus on minimising our emissions across our entire carbon footprint as far as possible in-line with our science-based targets, focusing initially on the emissions that account for most of our footprint;
- ✓ We will work with our suppliers to encourage them to commit to setting science-based net zero targets and support them to minimise their own emissions; and
- ✓ We will mitigate our remaining emissions by investing in carbon offsetting at a ratio greater than 1:1 and in-line with the **Oxford Offsetting Principles** guidance, focusing on high-quality carbon removal offsets that provide multiple environmental benefits.

Our goal is to reduce our GHG emissions as far and as fast as we reasonably can and to get as close to zero emissions as possible. Our commitment to net zero encompasses our full Group-wide carbon footprint, including our direct emissions (Scope 1), purchased electricity (Scope 2), and our full range of value chain (Scope 3) emissions. We'll work progressively to improve the sustainability of our business and will be fully accountable for the impacts of our operations. We'll measure our progress against these targets and will report how we're doing each year in our annual Sustainability and Environmental Management Report.

Chapter 4 provides further information on our science-based net zero emissions reduction targets and the actions we'll take to reduce our emissions and achieve our targets.



Actions we're already taking

We've already implemented a range of measures to help reduce our emissions. Here we highlight a few of the key things we're already doing to make JBA more sustainable.



Establishing our priorities

Our commitment to sustainability is set out in our Sustainability and Environmental Management policy. We've adopted a principles-based approach to business, incorporating *The Ten Principles of the UN Global Compact*, and established our net zero and circular economy objectives.



Environmental Management System (EMS)

We have long-standing actions to reduce our energy and water consumption, business travel, waste generation, and use of office supplies. We monitor and report our progress annually through our ISO14001 EMS.



Green energy

We manage our energy use responsibly and maximise energy efficiency wherever feasible. Where we've control of our energy tariffs, we purchase our electricity from 100% renewable sources.



Promoting sustainable suppliers

Our Approved Supplier process promotes suppliers with good sustainability credentials, including those with robust carbon reduction plans in place.



Agile working

Our Agile Working guidance supports our staff to work flexibly and we've made significant investment in our IT infrastructure, which has greatly reduced travel and travel-related emissions.



Low carbon travel

We promote low carbon transport, encouraging staff to prioritise public transport. When we do need to travel by car, we prioritise electric cars (EVs) through investment in our EV pool car fleet.



Carbon conscious commuting

Our Environmental Reward Scheme rewards staff who commute to work using low carbon transport. To support this, we've set up a Cycle 2 Work scheme and provide interest-free loans to staff to cover the cost of season tickets or corporate railcards.



Sustainability Champions

Our group of Sustainability Champions are recognised as leaders on sustainability and help us to promote good practices more widely, making our everyday working practices more sustainable.

4. Performance against our environmental management objectives

Our ISO-14001 certified Environmental Management System (EMS) aims to enhance our environmental performance by minimising our adverse environmental impacts and ensuring we fulfil our compliance obligations. We're committed to continually improving our environmental management system, preventing pollution, and reducing our carbon emissions.

For 2020-21, we set ourselves a new environmental management objective to help us to further enhance our environmental performance and minimise our adverse environmental impacts. To help us achieve our intended outcomes, we established key actions for each objective and regularly monitored our performance.

Table 2: JBA Group 2020-21 EMS objective, key actions and intended outcomes

EMS objective	Key actions	Outcomes
Reduce the adverse environmental and sustainability impacts of our business activities and the projects we work on.	<ul style="list-style-type: none"> Monitor and report paper use, business waste, water use, metered energy use, and business travel. Develop and implement the JBA Group Carbon & Resource Use Management Plan. Improve the environmental and sustainability performance of our work for clients. Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability. 	<ul style="list-style-type: none"> Recognition as a sustainable and environmentally responsible business. Year on year reduction in carbon emissions. Legal compliance. Certification to ISO-14001:2015 and EIA Quality Mark.

This following section provides a summary of our performance against our 2020-21 EMS objective and key actions.

EMS Key Action: Monitor and report paper use, business waste, water use, metered energy use, and business travel



Paper use

Table 3: Paper consumption at our offices

JBA year	Virgin paper (kg)	Recycled paper (kg)	Total paper (kg)	Paper per capita (kg)	Change per capita (%)	Recycled paper (%)
2018-19	559	3,021	3,581	6.05	23.4%	84.4%
2019-20	235	1,366	1,600	2.67	55.9%	85.3%
2020-21	133	751	884	1.45	45.7%	85.0%

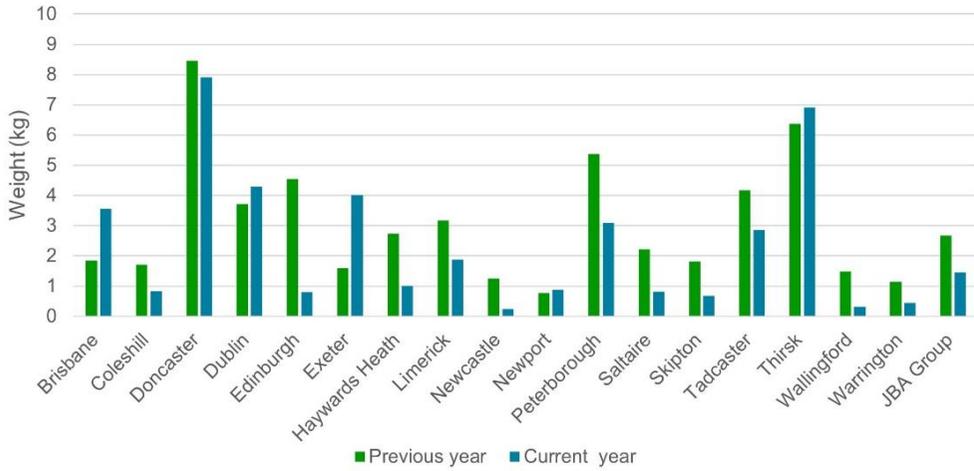
In 2020-21, we significantly reduced our paper consumption. Total paper use fell by 45% compared to the previous year (2019-20) and we consumed only 25% of the paper used two years earlier (2018-19). Per capita paper use fell by 46% compared to the previous year.

This significant reduction in paper consumption directly contributed to our key action to reduce our use of natural resources.

Our overall paper use was over 700kg less than in 2019-20 – equivalent to almost 290 reams of A4 paper. Our per capita paper use fell from 2.67kg to 1.45kg. This continues to build on reductions achieved in previous years: nine years ago, the equivalent figure was 14kg per capita.

Figure 4 shows per capita paper use at each of our offices in each of the last two years. This demonstrates both the year-on-year decrease and the wide variation in paper use across our offices. The variation reflects the differing client requirements and types of projects our offices undertake. In all offices, we encourage our clients to consider their need for hard copy documentation and have updated our Terms & Conditions to reflect this.

Figure 4: Per capita paper use at each JBA office and across the JBA Group



Reduced office working as a result of the Covid-19 pandemic and introduction of our Agile Working practices is likely to be a significant contributing factor to our reduced paper use since 2019. We'll aim to maintain this lower level of resource use in future years.



Business waste

Table 4: Waste generation and disposal at our offices

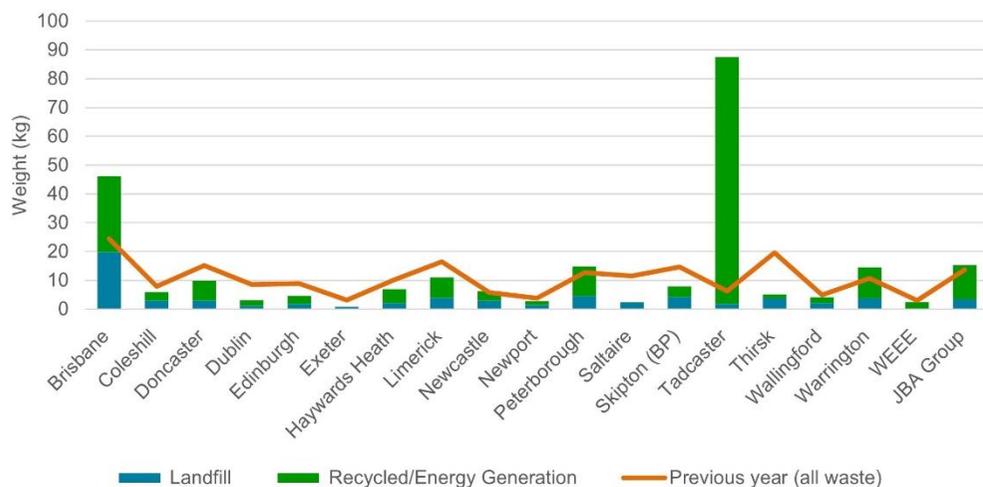
JBA year	Total waste generated		Waste sent to landfill		Waste sent for recycling or energy generation		
	Total (kg)	Per capita (kg)	Total (kg)	Per capita (kg)	Total (kg)	Per capita (kg)	Total (%)
2018-19	15,508	26.17	5,687	9.60	9,821	16.57	63%
2019-20	8,202	13.70	2,903	4.85	5,300	8.85	65%
2020-21	9,786	15.33	2,245	3.51	7,541	11.81	77%

We're able to monitor and record the waste we produce at most of our offices. We estimate our waste using a set of conversion factors devised several years ago based on the average weight of different waste types and different waste containers. This allows for comparisons between offices and years.

In 2020-21, our offices produced more waste – around 19% more – than the previous year. This increase is also reflected in our per capita figure, which increased by almost 12%. The main reason why our waste increased in 2020-21 is due to the refurbishment of our Tadcaster office, which generated a substantial amount of waste that was then recycled. Discounting this uncommon activity, waste generation across the JBA Group as a result of our normal operations decreased substantially. In comparison to 2018-19 year, the amount of waste generated in 2020-21 was around 37% lower.

Importantly, the amount of waste disposed of via landfill decreased in 2020-21 and is less than half the amount disposed of in this way in 2018-19. This is reflected in the percentage of waste sent for recycling or energy generation, which increased from 65% in 2019-20 to 77% in 2020-21.

Figure 5: Per capita business waste at each JBA office and across the JBA Group



Water use

Table 5: Water consumption at our offices

	2020-21	2019-20	2018-19
Total water consumption (litres)	541,000	400,000	557,000
Per capita water consumption (litres)	4,412	4,530	6,202

We monitor water consumption at our offices where our water use is separately metered. Currently, this is only possible at our Doncaster, Edinburgh, Newport, and Tadcaster offices. The amount of water consumed in 2020-21 is similar to that used in 2018-19, with a substantial drop observed in 2019-20. The 2020-21 value is principally due to abnormally high meter readings recorded at one of our offices, which was due to an ongoing leakage issue. Notwithstanding this, per capita water consumption decreased slightly in 2020-21.



Energy use

Table 6: Energy consumption at our offices

	2020-21	2019-20	2018-19
No. offices directly monitored	10	14	14
No. offices with renewable electricity	6	7	7
Renewable electricity used (kWh)	568,667	525,089	779,751
Non-renewable electricity used (kWh)	186,618	247,941	310,492
Total electricity used (kWh)	755,285	773,029	1,090,243
Per capita electricity used (kWh)	1,381	1,718	2,434
Total gas used (kWh)	66,407	94,025	134,465
Per capita gas used (kWh)	874	930	1,293

We calculate our energy use at locations where JBA energy consumption is measured separately to that of other occupants. In 2020-21, we were able to directly monitor our energy consumption at 10 JBA offices. Six of these offices benefit from a renewable electricity tariff and around 87% of our staff are based in these monitored offices.

In 2020-21, total electricity consumption at these monitored offices reduced slightly compared to the previous year and was substantially (30%) lower than in 2018-19. Total gas consumption at these offices reduced by 30% compared to 2019-20 and by 51% since 2018-19.

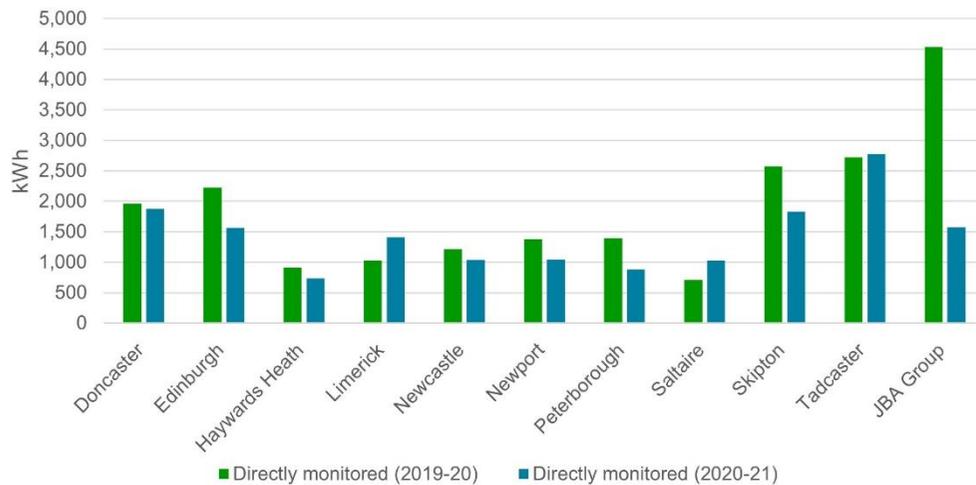
Per capita electricity consumption also reduced substantially since 2019-20 and was approximately 2% (electricity) and 6% (gas) lower.

By far the largest form of office energy is electricity and so it is important that we concentrate our efforts on managing our electricity consumption. Where we control the electricity contract for our office, we purchase electricity from certified 100% renewable sources. In 2020-21, this accounted for 75% of the electricity used at our

monitored offices. We purchased electricity from renewable sources for our offices at Doncaster, Limerick, Newport, Saltaire, Skipton, and Tadcaster.

Figure 6 compares the per capita energy consumption for both our 2020-21 and 2019-20 years at offices where JBA energy consumption can be directly monitored.

Figure 6: Per capita energy use at each directly monitored JBA office and across the JBA Group



Our response to the Covid-19 pandemic has been a significant factor in the reduction in our office energy consumption this year. Our offices remained open for much of the year, but with a much-reduced population and hence a lower energy use. Conversely, staff working from home will have increased their domestic energy consumption and we have estimated this energy use as part of our annual carbon footprint assessment summarised in Chapter 4.



Business travel

Table 7: Business travel across all relevant modes of transport

Transport mode	2020-21 (miles)	2019-20 (miles)	2018-19 (miles)
Hire Car	257,143	163,624	145,309
Rail	64,709	261,872	614,027
Bus/Coach	1,384	1,362	8,962
Taxi	1,264	5,138	12,060
Aeroplane	15,328	285,039	740,843
Pool/Company car (electric)	1,161	167	0
Pool/Company car (diesel)	143,728	155,096	226,246
Private car	368,927	275,799	330,046
Bicycle	168	62	127
Motorbike	20	65	194
Ferry	1,287	1,096	4,141
Total:	855,119	1,149,320	2,081,955

Table 7 provides a summary of annual business travel for the 2020-21 year and the previous two years using all relevant modes of transport. It shows that the overall number of miles travelled has reduced substantially in 2020-21. In 2020-21, JBA staff travelled approximately 58% fewer miles than in 2018-19 and 25% fewer miles than in 2019-20.

Key points to note within these figures:

- Air travel has reduced very significantly over the last three years and in 2020-21 we travelled only 2% of the air miles travelled in 2018-19.

- Use of public transport (rail and bus/coach) has also reduced very significantly over the past three years and in 2020-21 we travelled only 10% of the miles travelled in 2018-19.
- Miles travelled using hire cars has steadily increased over the past three years and in 2020-21 we travelled around 110,000 miles more than in 2018-19. However, we've recently improved the collection of hire car mileage data and so it's likely that mileage figures for previous years were greater than recorded.
- Conversely, the miles travelled by our pool car fleet has reduced substantially over the past three years and in 2020-21 we travelled only 63% of the miles travelled in 2018-19.
- The business miles travelled in private cars has increased by approximately 15% since 2018-19, having reduced quite substantially in 2019-20. Private car use now represents the largest component of our business travel based on miles travelled.
- Overall car use has increased from 701,601 miles in 2018-19 to 780,399 in 2020-21 (having reduced to 594,686 in 2019-20).
- In 2020-21, we travelled 1,161 miles using our battery electric vehicle (EV) located at our Skipton office, which is powered by renewable electricity.
- On a per capita basis, the number of miles travelled has reduced from 3,510 per person in 2018-19 to 1,247 miles per person in 2020-21, which represents a reduction of around 64%.

This decrease in public transport use and increase in car use is explained by the temporary adaptations we made to our Travel Hierarchy guidance in response to the Covid-19 pandemic. We prioritised the use of cars over public transport to be sure essential travel was undertaken in a Covid-secure manner.

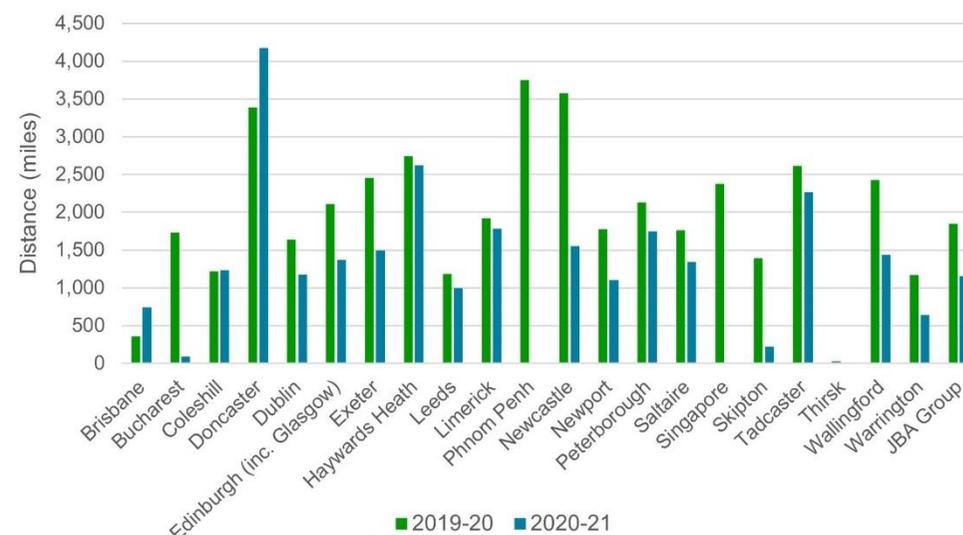
Figure 7 shows the per capita business travel (all modes of transport) at each of our offices. It shows that much of the reduction in business miles was the result of travel restrictions and changes in working practices enforced by the Covid-19 pandemic.

We're working hard to ensure we learn from this experience and do our best to maintain a lower level of business travel in future.

We're committed to:

- Rigorously promoting our Travel Hierarchy guidance to minimise business travel and encourage the use of more sustainable modes of transport for essential travel;
- Making maximum use of virtual meetings and methods of communication;
- Supporting agile and flexible working; and
- Encouraging our clients to minimise project travel requirements.

Figure 7: Per capita business travel at each JBA office



EMS Key Action: Develop and implement the JBA Group Carbon & Resource Use Management Plan

'We want to work more efficiently, minimising our resource use and the environmental impacts of our resource use. We want to achieve net zero GHG emissions across our business, not only in our own operations, but also taking account of our indirect emissions and impacts. And we want to engage more with our colleagues, suppliers, and clients on this subject, to demonstrate our commitment to sustainability, show leadership within our industry, and manage our supply chain with accountability.'

JBA Carbon & Resource Use Management Plan, 2020

We published our Carbon & Resource Use Management Plan in October 2020. The Plan establishes objectives and actions in relation to both our resource use – fuel, energy, water, the goods and services we purchase, and the waste we produce – and our GHG emissions. These aspects are inherently connected and it makes sense to take a holistic approach to how we manage and reduce them. The Plan encompasses the business operations of the entire JBA Group and all operating companies recognise the role they have in achieving its aims.

Whilst we've already made progress in reducing our energy consumption and associated carbon emissions, particularly emissions from our office energy use and business travel, we recognise that we need to do much more. Therefore, the Plan represents the first phase in our renewed efforts to minimise our GHG emissions. It includes a wide range of actions focused on providing us with a clear understanding of the climate and resource use impacts of our operations. These actions seek to establish the best approaches to both minimising our resource use and emissions and neutralising any residual emissions that cannot be eliminated.

A key action in the Plan is to undertake an annual carbon footprint assessment of the JBA Group, encompassing the full range of our emissions, to provide a holistic baseline from which we can measure our progress in reducing our emissions. This assessment was undertaken following best practice guidance published by the GHG Protocol and a summary of the results is provided in Chapter 4 of this report.

JBA is responding to an urgent call-to-action for companies to set emissions reduction targets in line with a 1.5°C future, backed by a global network of UN agencies, business and industry leaders.

'JBA Group is committed to achieving its science-based GHG emissions reduction target aligned with limiting global warming to 1.5°C and will achieve Net Zero GHG emissions no later than 2040.'

JBA Group Net Zero objective

The Plan establishes our overarching objective to achieve net zero GHG emissions. To support this objective, in June 2021 we committed to setting science-based emissions reduction targets with the Science Based Targets initiative (SBTi)². Our commitment included aligning our emissions reduction targets with the most ambitious goal of the Paris Agreement and what climate science states is needed to limit global warming to 1.5°C. By joining the SBTi, we ensure that our approach to reducing our GHG emissions is robust and aligns with best practice.

² Science Based Targets initiative (SBTi) (website available [here](#)).

By making this commitment, JBA also became part of the ‘Race to Zero’³, the UN-backed campaign to encourage regions, cities, companies, and other organisations to take action to reduce their emissions in line with the Paris Agreement. The Race to Zero formed part of the UN Climate Change Conference COP26 (November 2021) and sent a clear message to governments that the transition to a decarbonized economy needs urgent action and has widespread support.

The SBTi published its new *Corporate Net-Zero Standard*⁴ in October 2021. It clarifies the scale of emissions reductions that a long-term target needs to achieve and requires this target to be met before net zero status can be claimed. Following publication of the new standard, we reaffirmed our commitment to establishing a science-based target with the SBTi that meets its net zero standard requirements.

‘We recognise that we’re in a climate and ecological emergency and are committed to taking meaningful action to minimise our climate impacts. JBA is responding to the urgent call-to-action for organisations to set ambitious emissions reduction targets in line with a 1.5°C future. This forms a key step towards our ambition to reach net zero emissions by 2040. Aligning our approach with the SBTi criteria ensures we reduce our emissions at a rate and scale that climate science tells us is needed.’

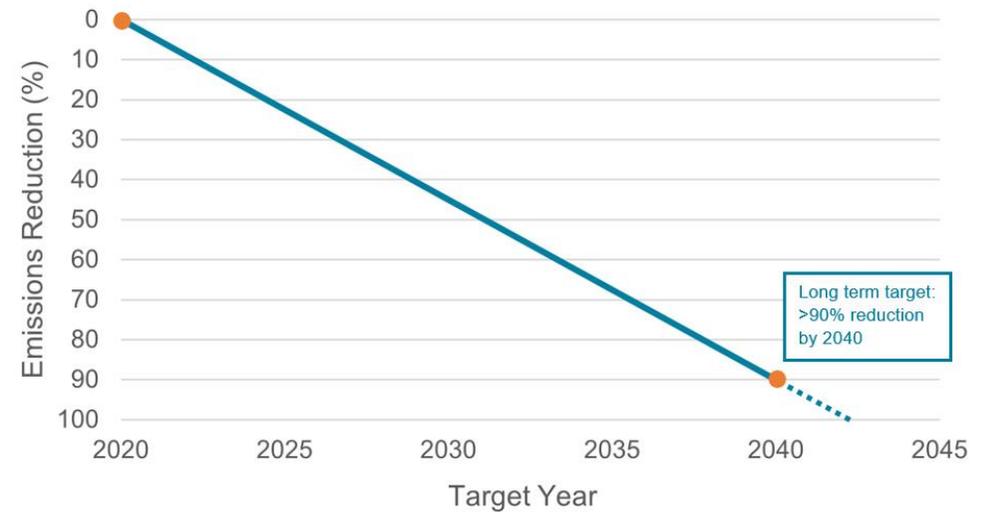
Jeremy Benn, Executive Chairman, JBA Group

Our overarching long-term target is to achieve at least a 90% reduction in our GHG emissions by 2040 at the latest. This target greatly exceeds the SBTi requirements and demonstrates our commitment to provide leadership in reducing emissions.

³ UNFCCC Race to Zero (website available [here](#))

In accordance with the SBTi Net-Zero Standard, we can only claim net zero status when we have met our long-term target.

Figure 8: JBA Group science-based net zero emissions reduction target

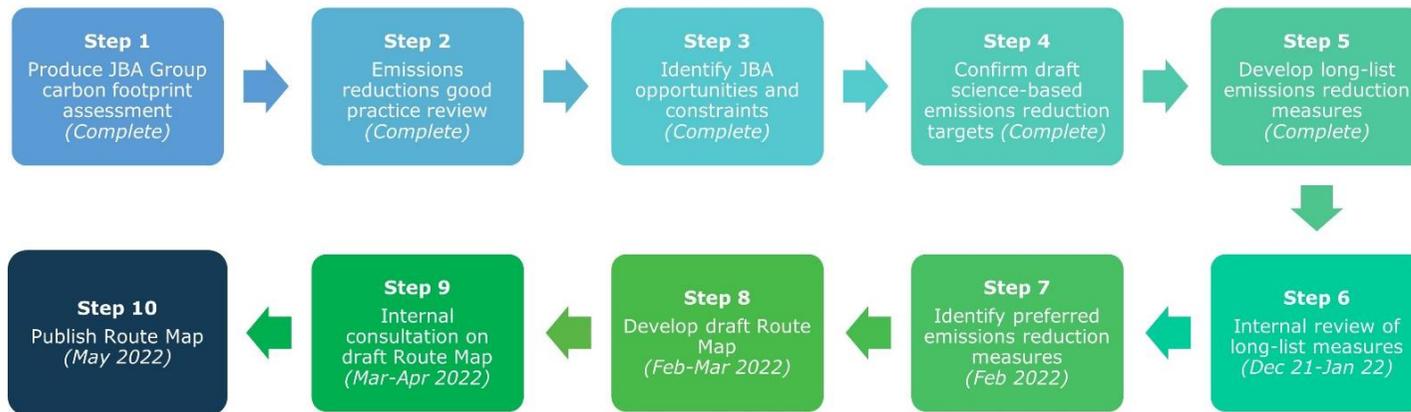


JBA Route Map to Net Zero

Our Carbon & Resource Use Management Plan establishes overarching objectives and sets out initial actions that aim to provide us with a more detailed understanding of our carbon footprint. A key action within the Plan is to prepare and publish an updated carbon reduction plan that sets out the additional actions we’ll take to achieve our net zero objective.

⁴ SBTi Corporate Net-Zero Standard (available [here](#))

Development process for the JBA Route Map to Net Zero



Our 'Route Map to Net Zero' is due to be published in Spring 2022. It contains a comprehensive suite of nearly 100 additional actions that we will implement to support us to achieve our emissions reduction targets. Achieving a 90% reduction in emissions by 2040 will be a significant challenge. Therefore, our best approach to achieving our net zero target is to implement a broad, integrated suite of new measures that target all aspects of our business and operations, whilst focusing on the emissions sources that contribute most to our footprint. Once finalised, we will publish the Route Map on our website.

Table 8: Summary of new emissions reduction measures to be included in JBA 'Route Map to Net Zero'

Category	Description
Low carbon behaviours	This category includes measures focused on internal communication and increasing awareness of our net zero target, emissions reduction measures, and carbon performance.
Leadership and strategic planning	Measures are included to embed carbon targets in business planning and increasing awareness and accountability for our carbon performance within JBA management teams.
Finance and investments	This category includes measures to embed carbon reduction in financial planning and financial decision-making.
Office energy management	A range of measures are included to further reduce office energy consumption and associated GHG emissions and improve office energy management and monitoring.
Staff commuting and homeworking	This category contains measures that aim to support staff to reduce emissions from commuting and when working at home, as well as measures to inform decision-making when relocating offices.
Business travel	Measures in this category are focused on reducing emissions from all forms of business travel, most notably from all forms of car transport.

Category	Description
Office resource use	This category includes measures that aim to further reduce emissions from resource use in our offices, encouraging offices to do more to reduce their resource use and waste generation.
Green IT	This category includes measures to further promote energy efficiency and circular economy principles in our IT infrastructure.
JBA suppliers	This category includes a wide range of measures focused on reducing emissions from our subcontractor supply chains. This includes direct engagement with key suppliers, provision of tools and advice, investment in improved data collection, and internal processes to promote greater use of low carbon suppliers.
Purchased goods and services	This category includes a range of measures to further improve the sustainability of the office goods and services we purchase.
Project delivery	Measures are included to reduce carbon emissions from project delivery, provide knowledge and training to project staff, and embed carbon management in project management and delivery processes.

EMS Key Action: Improve the environmental and sustainability performance of our work for clients

We work with many prominent clients across a wide range of service areas. We think and act like business partners, not simply advisors, and we share our clients' aspirations and objectives. We have a responsibility to support our clients and help them improve their sustainability performance and we do this through the quality of the services and solutions we deliver.

This section provides a selection of examples of how we ensure we deliver high quality and help our clients to protect and enhance the environment.

Quality service delivery



The number and breadth of clients we work with continues to grow. In 2020-21, we delivered project work on behalf of over 600 clients across the JBA Group. This figure considers different regions or departments within national public sector organisations, such as the Environment Agency, as separate clients because their work is often independent and is commissioned through differing means. The number of new external projects we were commissioned to deliver again exceeded over 1,400 across the JBA Group.

To ensure we deliver consistent high-quality work for our clients, we maintain a Quality Management System (QMS) certified to the ISO 9001:2015 standard. Our QMS is designed to support continual improvement in the efficiency and effectiveness of our operations to help us provide a service that meets or exceeds the expectations of our clients and interested parties and conforms to applicable statutory or regulatory requirements.

Our QMS is supported by a range of objectives and actions and we measure, monitor, and report on our performance against these objectives and actions each year. Our overarching quality objective is *“Consistent provision of high quality services, satisfied clients and a profitable sustainable business.”*

We monitor our performance using a variety of means and we request client feedback each month against a range of key performance indicators (KPIs) and analyse responses received. We also regularly undertake internal project audits to review the operation and implementation of our QMS processes, and in 2020-21 we undertook 52 internal audits. Any non-conformities or improvement opportunities were translated into actions that were then monitored to ensure corrections were made, where necessary, or lessons learned for the future.

Environmental management accreditations

ISO-14001



We have been certified to ISO-14001 and its predecessor standards since 2008. This certification was renewed in 2021 following a successful external recertification audit. It confirms that our Environmental Management System (EMS) helps to enhance our environmental performance, fulfil our compliance obligations, and achieve our environmental objectives.

To help us ensure our EMS is achieving its intended outcomes and meeting our requirements, we undertook 11 internal EMS audits during 2020-21. These audits focused on the environmental performance of our offices and sought to test whether our EMS is effectively implemented, compliant with the ISO standard and other requirements, and is readily understood and applied throughout JBA.

The audit process is particularly important for identifying new opportunities to improve the environmental performance of our offices and contribute to our sustainability objectives. Many of these are recorded on our 'Sustainable Actions and Good Ideas Log', with priority actions then implemented across JBA.

Environmental Impact Assessments

Since 2018, JBA Consulting has been accredited with the Institute of Environmental Management and Assessment (IEMA) as an EIA Quality Mark organisation. The EIA Quality Mark is a scheme that enables organisations that lead the coordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this independently reviewed. Our EIA teams support IEMA with best practice case studies and provide training to the wider profession, as well as develop a suite of internal courses.



For projects requiring a statutory EIA, there is a legal requirement that the *'likely significant environmental effects'* are reported by competent experts. Our [Register of EIA Competent Experts](#) identifies our EIA Coordinators and EIA Topic Specialists who have the depth of knowledge and experience required to produce and technically review EIA assessments.

2020-21 was a busy year for our EIA teams, who worked on several high profile statutory EIAs during this period. This included ongoing work to coordinate the EIA for a major road improvement project on the Hoo Peninsula in Kent for Medway Council, coordination of the EIA for proposed sea defence works on the islands of St Agnes, Bryher, and St Martin's as part of the Climate Adaptation Isles of Scilly project, and EIA coordination for a new lifeboat station in Aldeburgh, East Suffolk, on behalf of the Royal National Lifeboat Institution (RNLI).

Ecological Services



JBA Consulting has held Registered Practice accreditation with the Chartered Institute of Ecology and Environmental Management (CIEEM) since April 2020. CIEEM is the leading professional body representing ecologists and environmental managers across the UK and Ireland. It seeks to promote the highest standards of professional practice within the industry.

Registered Practices are champions of high professional standards and deliver the best outcomes for biodiversity. They are ambassadors in their field and help to raise the profile of the profession by sharing their expertise and supporting others to do their bit for our natural world.

Registered Practices are at the forefront of the environmental management profession. This is reflected in the busy and successful year our ecology teams had providing ecological survey and assessment advice to a wide range of clients.

CEEQUAL

CEEQUAL is an evidence-based sustainability assessment, rating and awards scheme delivered by the Building Research Institute (BRE). Applying CEEQUAL improves the quality and sustainable design and construction of civil engineering, infrastructure, landscaping, and public realm projects.

In 2020-21, we increased the number of CEEQUAL Assessors in JBA to four. This year, they supported the EA by applying CEEQUAL to improve the sustainability of a range of large-scale coastal and fluvial flood risk management projects in the Southeast Hub on the Collaborative Development Framework (CDF). These included Star Inn Gates Water Level Management project, which is providing a long-term sustainable solution to manage water levels across the Pevensy Levels SSSI. We applied CEEQUAL to the River Itchen flood defence scheme, which aimed to develop a detailed design for new and improved flood defences along a 3.6km frontage of the west bank of the River Itchen in Southampton.

Working closely with EA staff, our Assessors coordinated the assessment process, identified and documented the evidence-base needed to support the CEEQUAL certification process, and liaised with BRE to ensure this work meets its rigorous evaluation and award requirements.

The River Itchen at Southampton



"The Itchen Bridge" by foilman is marked with CC BY-SA 2.0

-  **GOLD** for South Ferriby flood alleviation scheme (Climate Change Sector)
-  **GOLD** for Bentley Ings pumping station project (Climate Change Sector)
-  **SILVER** for River Sheaf Screen in Sheffield (Environment Improvement Sector)

Established run by The Green Organisation, an international and independent non-profit environment group dedicated to recognising environmental best practice, the Green Apple award winners represent projects that make a real difference and contribute to the wider goals of sustainable development.

"The Green Apple 2021 awards are judged around the environmental benefit that the projects provide. Our three schemes, all for the Environment Agency, have demonstrated carbon reduction, habitat improvements, social and economic benefits to the community and innovation. The judges were also looking for the commitment of personnel on the project to achieve the environmental and sustainability outcomes."

Tony Moran [Director, JBA Bentley]

Recognising good practice

Green Apple Awards 2021



It's been another exciting and successful year for our colleagues at JBA Bentley (JBAB) – our joint venture with the engineering contractor J N Bentley. From low-carbon solutions within flood risk management projects and engaging the next generation of potential engineers to be inspired by STEM, to industry recognition for innovative carbon-saving solutions and environmental outcomes within key projects. The hard work of the JBAB team was recognised at the prestigious Green Apple Environment Awards 2021, with three JBA Bentley projects winning awards:



CIEEM Awards 2020

In January 2021, JBA had fantastic success at the delayed 2020 (virtual) Chartered Institute of Ecology and Environmental Management (CIEEM) awards. We won two of the three categories we were shortlisted in including:

-  'Promising Professional' for our ecologist Rebekah Beaumont, which recognises the exceptional commitment and ability of those at the start of their careers.
-  'Best Practice Large-scale Nature Conservation Project' for our Thorne Moors Water Level Management Plan project for Tween Bridge Internal Drainage Board..

Thorne Moors Water Level Management Plan project



In addition, the Thorne Moors project won the Tony Bradshaw Award for 'Outstanding Best Practice'. This award is selected from the winners of the seven 'best practice' categories and its award is made at the judge's discretion each year. Therefore, to have won this special award is an amazing achievement and is testament to the hard work of the Thorne Moors project team.

Finally, to cap an incredible night for everybody at JBA we were 'Highly Commended' in the Consultancy of the Year (medium) category, which recognises high standards of professional practice, and demonstrates our consistent delivery of high quality practical outcomes that benefit business and the economy as well as nature and/or people's connection with nature.



Fit 4 Offshore Renewables (F4OR) accreditation

In February 2021, JBA Consulting was awarded Fit 4 Offshore Renewables (F4OR) accreditation by the Offshore Renewable Energy Catapult (OREC), demonstrating our commitment to offshore renewable energy projects around the world. Having already worked on a wide range of offshore renewable energy projects using our **ForeCoast Marine** software to design and optimise operational strategies, the F4OR scheme offers an exciting opportunity to collaborate further with industry leaders and support our growth within this burgeoning industry.

To achieve F4OR accreditation we took part in pilot programme designed to assess our eligibility. The first phase, 'Business Excellence', focused on our core business

management systems and we assessed as being a highly capable and competent organisation, with effective and robust management systems. We also rated highly in the 'Sector-Specific' phase, further demonstrating the quality and suitability of our technical, commercial, and project management approaches.

“Participating in the F4OR programme has helped us drive business excellence in our offshore wind related activities. We believe that the F4OR granting will further strengthen our position and promote our business within the offshore renewable energy sector, allowing us to engage and collaborate further with industry leaders in this rapidly expanding industry, in the UK and other emerging markets.”

Mark Lawless [Director, JBA Consulting]

CIEEM Consultancy of the Year 2021



Building on our success at the delayed 2020 awards, our Ecology Team continued its winning streak when we were awarded the Consultancy of the Year (Medium) award at the 2021 CIEEM awards. Recognising consultancies that deliver high quality

ecological services whilst being an exemplar employer and advocate for the profession, this award is a fantastic achievement for everybody at JBA.

“Everyone at JBA is incredibly proud of this achievement, which is the result of the hard work and dedication of all team members across our UK and Ireland offices. The team is thrilled that our high calibre work on a range of exciting ecological and environmental projects has been recognised by this prestigious award.”

Laura Thomas [Principal Ecologist, JBA Consulting]

Over the past year our ecology teams have worked on a variety of successful projects, and the judging panel highlighted our Sands of Life Project for Natural Resources Wales and our Ecological Restoration Plan for Natural England's 'Growing Goss' project as stand-out examples of our work.

Habitat mosaic at Goss Moor



The Growing Goss project saw our team develop a restoration plan for Goss Moor, an area of unenclosed upland in the headwaters of the River Fal, in Cornwall. The restoration plan aims to re-naturalise the headwaters of the river where historic artificial drains and canalised channels have damaged wetland habitats. The project will enhance the resilience and capability of Goss Moor to deliver important ecosystem services for Cornwall's communities, including enhanced biodiversity, clean water, flood prevention, and carbon storage alongside education and health and wellbeing opportunities. Over the course of our work, the scheme will also restore hydrological conditions and improve the condition of a range of internationally and nationally protected ecological features.

Developing good practice

Principles of Cultural Heritage Impact Assessment in the UK

In July 2021, the Chartered Institute for Archaeologists (CIfA), Institute for Historic Building Conservation, and Institute of Environmental Management and Assessment (IEMA) launched the ***Principles of Cultural Heritage Impact Assessment in the UK***. The document was prepared as a response to a recognised lack of consistency in professional practice in cultural heritage impact assessment across the sector. The publication provides the guiding principles to be used by professionals engaged in cultural heritage impact assessment for policies, plans, and projects across the UK.

“Sitting on the Advisory Panel was an interesting and fulfilling experience. I have always had an interest in the development of professional practice and standards through my involvement with the Chartered Institute for Archaeologists and this provided an opportunity to get deeply involved in the development of a key professional practice document for the heritage sector.”

Kirsten Holland [Technical Director, JBA Consulting]

Grade I listed Moot Hall in Aldeburgh, East Suffolk



"The Moot Hall, Aldeburgh" by David Dixon is marked with CC BY-SA 2.0

Kirsten Holland, Technical Director in our Archaeology and Heritage Team was a member of the Advisory Panel during the preparation and launch of the document. She was initially the representative for CIfA whilst sitting on their Board of Directors and continued on the Panel once her term of office had ended.

FCERM Research & Development programme



At JBA, research and development are at the core of what we do and so we were very proud to be appointed as lead Research Contractor working in partnership with the EA on two papers recently published by the joint Flood & Coastal Erosion Risk Management (FCERM) Research and Development programme: ‘Review of groundwater flood risk management in England’ and ‘Understanding river channel sensitivity to geomorphological changes’. The Joint FCERM Research and Development Programme is overseen by Defra, the EA, Natural Resources Wales, and the Welsh Government on behalf of all risk management authorities in England and Wales.

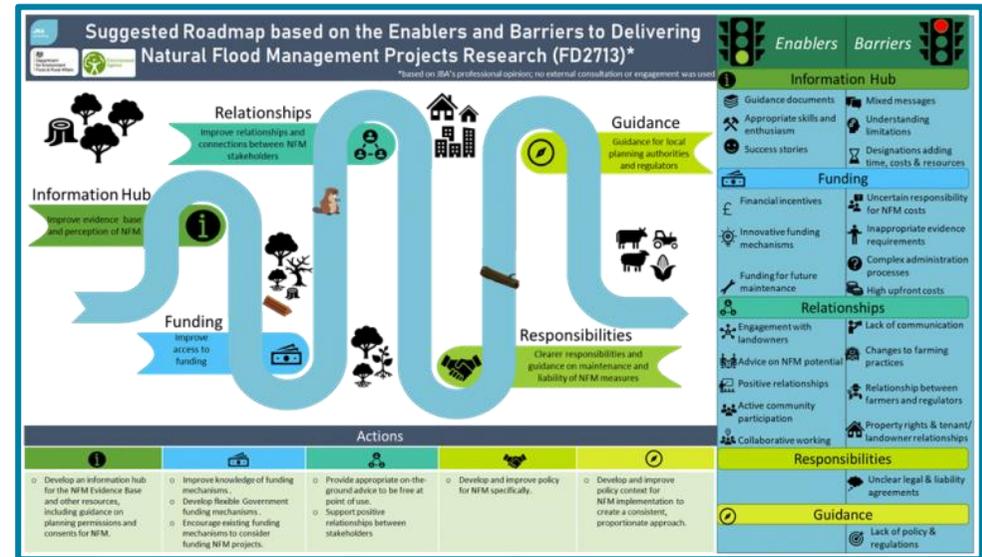
For both studies, a multi-disciplinary team of specialists from JBA worked with experts from the EA to review current approaches and report on recommendations where improvements could be made in practice and skills, to help future work in both groundwater flood risk management and river functioning.

Nature Based Solutions Roadmap to deliver NFM

In summer 2020, Defra published our research on the ‘Enablers and Barriers to Delivering Natural Flood Management Projects’ and in December, published our Roadmap to delivering more Natural Flood Management (NFM) projects.

Our roadmap identifies five main actions addressing specific barriers and enablers defined in the research. The report breaks down these five main actions into a series of tasks to meet the main action. It proposes a timescale, a suggested sponsor, and suggested leadership based on a combination of our own and stakeholder’s knowledge and expertise. We hope this roadmap and its supported evidence base empowers Defra and other government organisations to support the delivery of NFM schemes more effectively and further inform discussions about future actions that are likely to be supported through the UK Government’s new Environmental Land Management (ELM) scheme.

Roadmap to delivering natural flood management projects



JBAB Carbon Culture Roadmap



Our design and build joint venture, JBA-Bentley (JBAB), demonstrated its commitment to playing its part in addressing the climate emergency through the development of its ‘Carbon Culture Roadmap’.

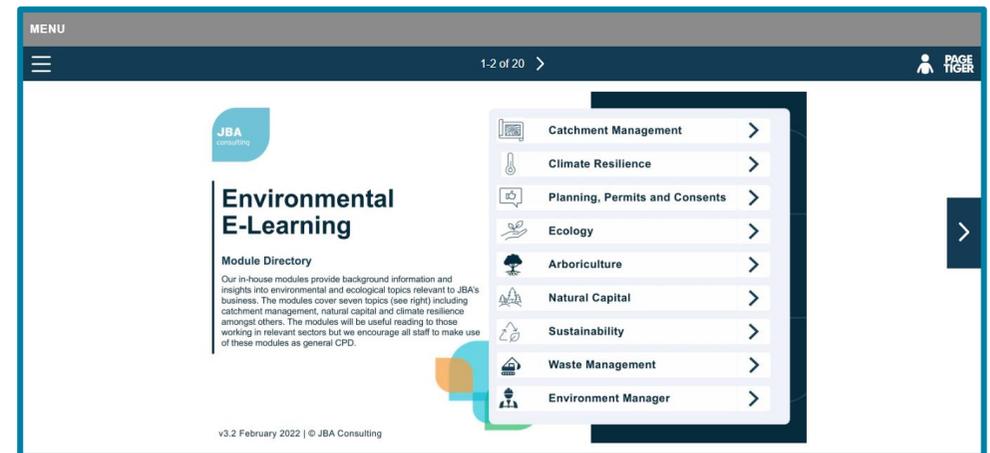
As a strategic partner of the EA and the Coal Authority, the Roadmap set out the steps JBAB is taking to reduce the embodied and operational carbon within its projects, which will directly support our clients to meet their carbon reduction targets. The principal aim of the Roadmap is

put in place the knowledge, skills, and process to transparently and actively use carbon impacts as a decision tool in design and construction. To do this, JBAB will:

- ✓ Report and be accountable for the embodied carbon in its projects.
- ✓ Present solutions for reducing operational carbon for its clients as a priority.
- ✓ Innovate from the standard way of doing things whilst still maintaining resilience and required safety standards.
- ✓ Share learning – good practice and areas for improvement within the organisation and its clients and continual improve its projects.

Environmental training

Throughout 2020-21, we continued to maintain, expand, and develop our suite of environmental e-learning modules. These are available to all JBA staff and are designed to raise awareness of environmental management risks, covering a broad range of sustainability and environmental topics including climate resilience, natural capital, catchment management, ecology, and waste management.



Staff learning was further supported through our programme of lunchtime training webinars, led by technical specialists in JBA, covering diverse topics including CEEQUAL, fish ecology, environmental clerk of works, arboriculture, listed building consent, biodiversity net gain, and embedding carbon reduction in decision-making.

We also ran external training courses in topics including Flood Risk Assessment, EIA, the Water Framework Directive (WFD), river modelling, and reservoir emergency planning.



All JBAB staff received carbon awareness training to firmly place carbon at the forefront of everyone’s thinking. This was followed by a drive to ‘talk and think carbon’, with project teams encouraged to actively consider no carbon and low carbon design and build solutions. To support this shift in culture, JBAB invested in a specialist project carbon monitoring tool, the Moata Carbon Portal, which gave teams a better tool to quickly gauge the carbon impact of project decisions.

JBAB has quickly moved from a position where low carbon was on the periphery of our project decision making, to where carbon saving is the responsibility of everyone in the project team, from designers to our procurement teams and

our site delivery teams. Making it everyone’s responsibility, supported by a group of champions with detailed knowledge of the tools and products available, has made carbon reduction part of JBAB’s language, its everyday discussions, and its culture.



We teamed up with **Climate Sense** to offer training on best practice in climate change adaptation, incorporating the requirements of the first standard to be published in this area: ISO14090 Adaptation to Climate Change – Principles, Requirements and Guidelines. Our **free online course** introduces the concepts and benefits of developing a climate adaptation strategy, whilst our tutor-lead courses provide more detail on all of the ISO's requirements, helping organisations to build their resilience to current and future climate change impacts.

In 2020-21, JBA staff reported 23 environmental incidents, near misses, or observations relating to our offices, service provision, and onsite activities. All reports were reviewed and, where appropriate, investigated further in accordance with our incident investigation process. Fourteen of the reports were observations, which often led to corrective actions to reduce any risk of a future adverse impact, whilst others led to improved outcomes. In addition, eight reports were following a near-miss event, where adverse impacts could have occurred. Twenty-two of the observations related to our site-based activities, whilst one related to our offices.

We maintained the training allowance for all permanent staff at up to six days of staff time and this further enhances our long-standing industry lead in supporting staff lifelong Learning and Skills Development. We also continued to provide an online staff calendar of training opportunities, enabling staff to access the latest information on a wide range of environmental and sustainability topics.



Reporting environmental incidents, near misses and observations, and disseminating lessons learnt

Our EMS includes formal procedures for recording environmental incidents, near misses, and reporting lessons learnt. It is also part of our IEMA accredited EIA process. We have designated reporting responsibilities for environmental incidents and mechanisms to investigate incidents, capture lessons, disseminate actions, and monitor improvements. We disseminate Key Learning Points from improvement notes to all staff across JBA and feed back into staff training and appraisal requirements, setting aims for new projects and improvement notices to suppliers.

EMS Key Action: Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability

As an environmental group, protection and enhancement of the environment is a specific requirement of our **Sustainability and Environmental Management** policy and is central to all our professional activities. This section provides a summary of a small selection of the projects we've undertaken during 2020-21 and highlights the wide range of ways our work benefits the environment and society. Where relevant, we've sought to highlight how the work we've undertaken on behalf of clients contributes to the UN **Sustainable Development Goals** (SDGs).

Delivering sustainable outcomes

Growing Goss Ecological Restoration Plan



Our Ecology Team spent a busy year supporting Natural England in the development of a new Ecological Restoration Plan for Goss Moor, an area of unenclosed upland in the headwaters of the River Fal in Cornwall. Abandonment of the extensive mining industries over recent years has led to the development of a series of biodiverse wetland habitats that are now recognised as nationally and internationally important.

The Restoration Plan aims to re-naturalise the headwaters of the River Fal where historic artificial drains and canalised channels have damaged these wetland habitats. The scheme will restore hydrological conditions and improve the condition of the protected ecological features.

Our work included assessing the feasibility of restoration options and the production of a detailed design to support the development of the Plan. A multidisciplinary JBA project team carried out a series of baseline environmental surveys, studies, and appraisals – including a range of ecology, archaeology, geomorphology, geology and hydrogeology assessments – to identify and examine the notable and sensitive environmental features that could be affected – positively or negatively – by the habitat restoration proposals.

Biodiverse wetland habitat at Goss Moor



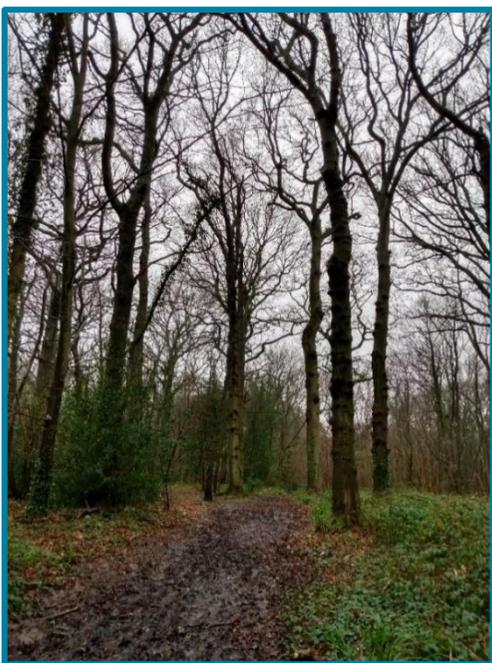
This included identifying and investigating opportunities to deliver additional environmental benefits, such as enhancements to the existing habitats and new habitat creation, and mitigation measures to minimise environmental risks.

This holistic approach informed the identification of project options and ultimately guided the development of a design that has the potential to deliver a wide range of environmental and social benefits, including enhanced biodiversity, improved water quality, flood-prevention, carbon storage, and the provision of education, recreation, and health and wellbeing opportunities.

Park Wood Sustainability Project



Stand of Oak trees at Park Wood



We were commissioned by the Environment Agency to assess options to improve the condition of Park Wood in East Sussex using a ‘natural capital approach’. This involved identifying the physical, natural resources of the site and assessing the benefits that these resources provide to people. The project aimed to further improve understanding of these natural assets and their value and investigate potential management options to enhance Park Wood and enable it to reach its full potential.

Our investigation identified 12 key ecosystem services and benefits provided by the site, including improved air quality, biodiversity, carbon sequestration, cultural heritage,

education, physical health, recreation, timber, and volunteering opportunities for local residents and visitors. A tailored value transfer approach was then applied to monetarily assess each of these ecosystem service benefits. This was carried out

alongside sensitivity analysis to build confidence in the calculated values, which provided a strong quantitative evidence base for potential management options and allowed for effective comparison of potential management benefits.

Overall, the project aided the development of a standardised natural capital approach across EA estates to assess environmental benefits. The insight provided by the project also supported the EA’s wider sustainable development objectives by highlighting the exciting potential for climate change mitigation, optimal use of resources, improving people’s livelihoods, and enhancing communities.

Sands of LIFE (SoLIFE) project



Shrill Carder Bee *Bombus sylvarum*



Sands of LIFE (SoLIFE) is an ambitious Natural Resources Wales (NRW) project that aims to restore four extensive sand dune systems, designated for their nationally and internationally important habitats, along the Welsh coastline.

Several JBA teams have been involved in this project since 2019, providing ecology, hydrology, soils, and geomorphology survey and assessment

advice to NRW to support the development of preferred options at each dune system. Our ecologists undertook a comprehensive range of habitat and species surveys – botanical, reptile, amphibian, and invertebrate surveys, including the rare

Shrill Carder Bee *Bombus sylvarum* – monitoring the biodiversity of the sites before and after restoration works commenced.

View from Newborough Warren, Anglesey, one of the largest dune systems in Britain and part of the NRW Sands of LIFE project



Our Sustainability Team was also commissioned to produce a preliminary assessment of the socio-economic impacts of the project. Initial desk-based research culminated in the publication of a Current State of Knowledge report, which presented the key findings from our study. Central to our work was the design and delivery of a stakeholder survey – including visitors, local residents, volunteers, and event attendees – to gather primary data to assess the SoLIFE sites against a suite of 22 socio-economic indicators that were directly relevant to the local economy, employment, and the environment, including those that relate to the wellbeing of visitors, volunteers, and the local community. Through a tailored on-site and online approach across all sites, over 270 responses were collected for analysis. Using this data, we developed metrics for each of the socio-economic indicators, which enabled a qualitative analysis of the sites to be undertaken.

This analysis provided crucial information on the contribution of the sand dune sites to sustainable development, including economic growth and social progress, and enabled NRW to better understand the likely social and economic benefits of the SoLIFE project and other future sand dune restoration projects.

Nature-based resilience in Vanuatu and Fiji



During much of 2021, JBA has been helping the Global Climate Change Alliance Plus with its Scaling up the Pacific Adaptation programme, working in Fiji, Papua New Guinea, and Vanuatu to increase the resilience of local communities to extreme weather and climate change. Rather than a single large project, the programme involves lots of small, community-scale projects.

Implementing revegetation activities on Vanuatu



Recent work involved JBA supporting development of an implementation plan for the restoration of the Tagabe River catchment, near Port Vila on Vanuatu. We assessed the benefits of a range of potential nature-based, community-led solutions that included revegetation and habitat restoration, and the installation of large woody debris, log-brush matting, brushwalls, and natural log jams.

Our work focused on the prioritisation of pilot sites, using NDVI codes to identify areas of deforestation, which were then cross-referenced with JBA flood maps to identify riparian zones. The selection of pilot sites was then further informed by stakeholder consultations, key informant interviews with community members, and discussions with national government staff.

We've also been working in Fiji to scale-up the Soasoa drainage system, with the aim of increasing the resilience of the local community through better planning and the integration of infrastructure and ecosystem-based adaption. This moves away from traditional 'hard' engineering options, and towards a more balanced approach combining hard and soft (grey or green) methods.

Restoring geomorphological and ecological functioning of rivers in Wales

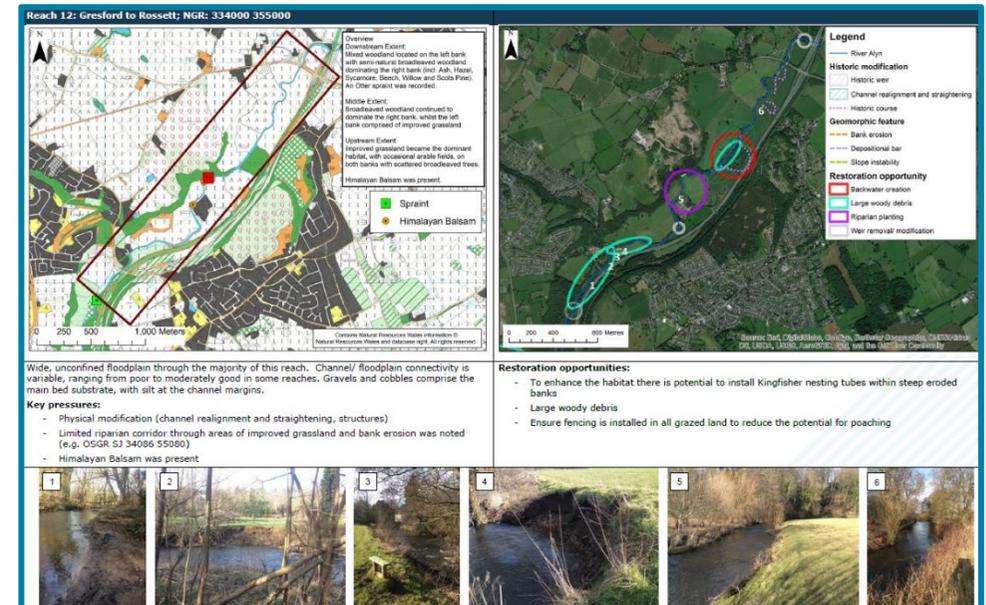


In the past year, JBA has prepared restoration plans for several Welsh rivers on behalf of NRW. The restoration plans sought to increase understanding of the geomorphological and ecological functioning of the watercourses and identify potential restoration opportunities.

We conducted an initial desk-based assessment, including analysis of catchment data on aspects including flow regimes, WFD status, and information on geology and soils. A targeted field survey was then carried out, informed through discussion with local communities and landowners to identify areas in most need of restoration. We applied our bespoke IRiS methodology, which combines fluvial audit methodology with a Phase I Habitat Survey, to evaluate both the hydromorphic functioning and biodiversity of a river. Following completion of the site work, a conceptual model of system functioning was developed in order to allow explicit linkages between ecology, morphology, and system controls to be made. This

holistic understanding meant that appropriate restoration and enhancement opportunities within each section of a watercourse could be identified

River Alyn river restoration plan



Restoration opportunities for each river section were presented along with evidence of key pressures, ecological habitats, and geomorphic features. This included using techniques to re-connect floodplains where there is a lack of connectivity and using features such as large wood or berms to encourage sinuosity and/or flow variability. We also developed indicative costs and set out recommendations for subsequent studies and design work to provide the evidence needed for the prioritisation and funding of future restoration measures.

Designing green-blue infrastructure at Baltic Quarter, Gateshead



Appointed by Gateshead Council to support the redevelopment of the Baltic Quarter in central Gateshead, our commission included the design of a multi-functional green-blue corridor crossing the site, linking to the wider green infrastructure network and integrated with a new surface water management system.

Outline design of proposed new green-blue corridor at Baltic Quarter, Gateshead



The design comprised a high-quality soft landscape and sustainable drainage scheme, with an associated framework of trees and other vegetation, and active travel links throughout, whilst also enhancing the landscape and biodiversity of the surrounding development.

The design included both formal and informal recreational spaces for use by residents and employees within the Baltic Quarter – providing valuable recreational space for people living and working in the area, and a pleasant green corridor for pedestrians and cyclists using the through route for sustainable active travel.

Flexibility was built into the design to accommodate the design of future building development adjacent to the corridor. Therefore, the corridor will be both attractive in the short term and able to accommodate these potential changes in future, setting a precedent for the quality and intention of future landscape design for the site.

By creating a distinctive, integrated backbone of green and blue infrastructure, the proposals create a benchmark standard for developments of this kind.

Calaminarian grassland mitigation in the North Pennine Moor mines



We've been working with the Coal Authority and the EA since 2017 on improving the ecological condition of several rivers in the North Pennines and reducing the impact of pollution from abandoned historic metal mines. Two of the sites – old lead mines at Carrshield and Garrigill – cause heavy metal contamination of more than 100km of the River South Tyne, harming fish and aquatic invertebrates.

Restored calaminarian grassland at Garrigill



The calaminarian grassland across the sites contain rare species tolerant of high levels of heavy metal contamination. JBA Consulting’s ecologists, working closely with JN Bentley engineers, the Coal Authority, and EA teams, supported the development of a design that included a range of natural flood management (NFM) features and sympathetic biodiverse landscaping solutions. This approach retained the natural character of the area whilst maximising the areas of calaminarian grassland preserved.

The project team developed a range of mitigation measures – developed in close collaboration with calaminarian grassland expert Dr Janet Simkin – tailored to each site depending on the species present, nature of the works, and likely impacts. Monitoring of the calaminarian grassland undertaken in 2020 and 2021 showed positive results and the project has successfully created new areas for the expansion of this rare and precious habitat to support local plants and wildlife.

Thames Estuary 2100 (TE2100) economic review



The **Thames Estuary 2100** (TE2100) Plan, implemented in 2009, is the UK’s largest flood risk management programme. Under the programme, tidal risks are managed for the Thames Estuary, including London, to the year 2100 in a way that is adaptable to changes in flood risk and social and economic conditions. Part of this dynamic flood management – driven by UK and global policy and the EA’s own carbon reduction targets – involves carbon optimisation through time.

JBA was commissioned by the EA to undertake the 10-year review of the economic case for the TE2100 Plan. As part of our review, we supported the development of an evidence base for anticipated policy and technology drivers and how these would

affect changes in carbon emissions. This informed a series of strategic, high-level scenarios for carbon reduction associated with management works to fixed flood risk management structures (embankments and walls) to 2070. These scenarios were combined to produce potential decarbonisation pathways in the Thames Estuary, providing an estimate of the extent to which this could support the EA and partners to reach their carbon emissions targets.

Thames Tidal Barrier



"Thames Barrier (Newham)" by JasonParis is marked with CC BY 2.0.

Our review identified that the largest proportion of carbon emissions came from sub-asset replacement works and climate change adaptation works to maintain the existing level of flood defence. The timing of future replacement works would have significant implications for ‘big wins’ in terms of carbon reductions, such as combining asset replacement with the planned asset raising.

In addition, the use of low carbon materials offered particularly large carbon savings, whilst alternative engineering approaches that avoid asset replacement could also provide substantial carbon savings.

Our work delivered a clear and accessible approach for determining robust values for the potential carbon savings associated with different management scenarios. This will support adaptation planning to help meet the challenges of climate change and will inform future approaches to partnership working and funding.

Protecting biodiversity during planned construction works in Dublin



Dune Helleborine *Epipactis dunensis* orchid



We were commissioned by South Dublin County Council to prepare a Habitat Management Plan to inform proposed upgrades to a 1.4km section of the N81 highway in Tallaght, Dublin. The purpose of the Plan was to identify and protect vulnerable species and habitats during the planned works and to provide guidance for the contractor on practical mitigation measures.

The Whitestown Stream flows through the construction site adjacent to the N81 and acts as

an important wildlife corridor for local flora and fauna, including Otter, Kingfisher, and five species of bat. In addition, Dune Helleborine *Epipactis dunensis*, an orchid species only recently confirmed as present in Ireland, had previously been recorded at the site.

Our Habitat Management Plan developed directly informed the development of a holistic suite of management and mitigation measures that sought to ensure

construction works could be undertaken following relevant legislation and best practice guidance. Specific practical measures were clearly communicated and mapped to help ensure they were effectively communicated to the construction site team. Specialist input was also gained from national experts to ensure we provided robust advice to effectively protect the Dune Helleborine orchids present on the site.

Carbon benefits of flood mitigation



We often assess the whole life carbon emitted by the construction and maintenance of flood alleviation measures. However, an aspect that is typically excluded from these assessments is the additional carbon emitted from the disruption, repair, and replacement of infrastructure due to flooding, and the carbon 'savings' made when flooding is alleviated. Flood alleviation schemes can therefore provide 'carbon benefits' in avoiding these costly repeat impacts. These benefits are typically not considered as part of an economic appraisal but can be considered separately to help demonstrate the wider impacts to stakeholders and funders of the project.

We have been working with the EA on its River Itchen Flood Alleviation Scheme since 2019. The scheme seeks to reduce the risk of tidal flooding to the west bank of the river in Southampton. Our work at project options and outline design stages had already achieved a 50% reduction in the carbon cost of the scheme compared to baseline estimate, achieved by changing the preferred option from a large quay wall to a more efficient set-back wall.

The scheme was chosen by the EA as one of three pilot projects across the UK trialling a new approach to appraising carbon in scheme design – 'carbonomics'. Carbonomics seeks to value the carbon costs of implementing flood risk management and compare them against the carbon benefits of reduced flood risk.

River Itchen in Southampton



Working closely with EA’s national team, we applied these cutting-edge methods to assess the true carbon benefits and costs of flood risk management. Through quantifying the carbon benefits of the scheme, we sought to demonstrate the importance of FCERM intervention, to inform local debate about these wider carbon benefits, and to help identify separate funding opportunities for the scheme.

Our work demonstrated that all scheme options were carbon beneficial and demonstrated a reduction in whole-life carbon expended compared to a baseline ‘do nothing’ scenario. The carbon benefits of the scheme, calculated and converted to a monetary value using standard carbon prices, was shown to have a Present Value for the carbon costs avoided of between £17m and £20m.

Therefore, the carbon benefits provided by the scheme would offset the estimated carbon costs of its construction and maintenance. Our work on quantifying the carbon benefits of flood mitigation will form part of the EA’s new FCERM-appraisal guidance, due to be published in Spring 2022.

Water resource benefits of Working With Natural Processes



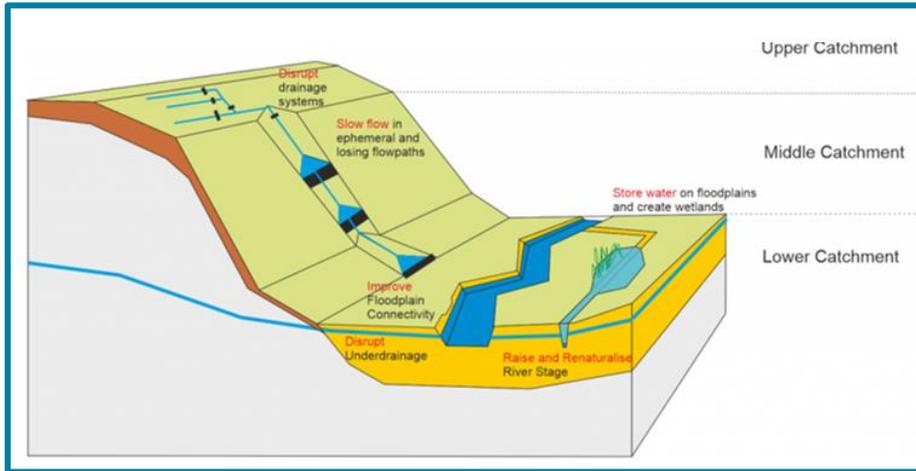
JBA has been working in the area of Natural Flood Management (NFM) for several years, using natural processes to reduce flood risk. More recently we’ve been working with the Environment Agency (EA), assessing the potential water resource benefits of Working With Natural Processes (WWNP) and nature-based solutions. WWNP work considers how changes to land management processes, including soil management, land use, reforestation, and surface water management can change the pathways of water through a catchment. Measures to improve soil health, increase infiltration, and reduce runoff have significant potential to increase groundwater aquifer recharge. Measures that slow down water flow to reduce flood risk downstream result in ponding and can also increase infiltration to the ground. However, local geological and hydrogeological conditions are key to whether WWNP measures will translate into actual groundwater resource gains.

Using a GIS-based approach, JBA investigated the potential for WWNP in 10 EA priority catchments in England. We developed an understanding of how WWNP measures interact with specific soils, geology, and hydrogeology environments and produced a conceptual model for a range of water resource situations.

The upper reaches of catchments have smaller drainage channels that are potentially suitable for measures that slow down and disrupt fast drainage pathways. These include blocking or partially blocking channels and water storage

measures. Mid-catchments, typically with steeper valley slopes, can also support runoff storage and slowing of runoff, with potential for channel reaches to lose water to the ground. Valley floors have a greater focus on restoring natural floodplain functions and potentially increasing water storage in wetlands and valley sediments.

Conceptual model of nature-based changes in land use and land management



Our work highlighted that the success of WWNP measures depends upon developing a detailed understanding of a catchment and its underlying soils, geology, and hydrogeology, which enabled us to quantify potential groundwater recharge gains from implementing WWNP.

Tees Tideland estuary restoration



Throughout 2021, we've been working with Stockton Borough Council and the EA's North East Team to deliver several projects as part of the Tees Tideland programme that aims to restore the coastal catchment of the Tees Estuary and establish new saltmarsh and mudflat habitats.

Tees Tideland is an estuary wide programme to open up the tributaries to tidal influence, to enable greater fish passage, re-establish parts of the natural estuary and permit inland migration of the estuary. The programme directly contributes to the environmental objectives of the WFD, supporting the estuary to attain good ecological potential by mitigating the ongoing impacts of physical modifications. The work also represents an initial Nature Recovery Network for the estuary, a subject of the UK Government Environment Bill that proposes targets for improving the natural environment and achieving Biodiversity Net Gain (BNG).

The projects have combined the skills and experience of our Teams across JBA. Several of the projects are looking into the removal of over-engineered tidal structures put in place during the 1970s and 1980s. Changes in EA objectives, together with new approaches to flood risk management, have made these structure obsolete. The removal of these structure also provides opportunity to create new habitats and restore highly modified waterbodies.

The projects have used a variety of new and innovative techniques, including ecological niche modelling, carbon sequestration, and the application of BNG calculation tools. These have contributed to developing alternative approaches in the preparation of project business cases.

Our hydrologists and river modelling teams worked closely with our ecologists and geomorphologists to identify and evaluate the opportunities for habitat creation by examining how areas close to the estuary developed following the removal of the old, obsolete structures. The predicted pattern of inundation and the depth and duration of the newly re-established tidal flows indicate the habitats likely to develop. We then used the BNG tools to calculate the value of these habitats and the number of BNG units created.

View of the Tees Estuary, part of the Tees Tideland project area



Biodiversity Net Gain is becoming increasingly important as it offers an opportunity for commercial trading where BNG units can be exchanged and used to generate revenue, which can then be used for funding further projects.

Bentley Ings Pumping Station



Bentley Ings pumping station, located on the River Don near Doncaster, protects several thousand homes and businesses from flooding. Built in 1942, the pumping station failed during a flood event in 2007, which led to flooding of more than 1,000 properties. Commissioned by the EA, our design and build project aimed to deliver

a major upgrade and refurbishment of the pumping station and ensure greater protection from flooding for over 1,600 properties.

From the outset, the JBAB project team sought to develop a solution that maximised the reuse of existing structures in the pumping station whilst minimising the embodied carbon of the design and its construction. This was a key driver for both the EA and the JBAB joint venture partners. The final design:

- ✓ Reduced capital carbon by 60% when compared to the carbon baseline.
- ✓ Impacts as little as possible on the existing environment. As well as reusing existing infrastructure, it made use of existing embankments for new emergency access, and we planted new trees and hedgerows to enhance the natural environment.
- ✓ Re-lined rather than replacing an existing inlet culvert saving almost 500 tCO₂e.
- ✓ Saved 77% carbon from baseline by re-designing the causeway culverts.

Bentley Ings pumping station in Doncaster



Sustainable procurement and circular economy principles led purchasing decisions, with many of the new design components and materials selected because of their potential for future reuse or recycling.

The design team also managed to reuse equipment and materials from another flood alleviation scheme – Foss Barrier in York – to further reduce the need for new components. Together, the reuse of materials and the innovative design and construction techniques applied reduced capital carbon by 60% compared to a wholesale rebuild of the pumping station.

Construction works commenced in 2019 and were completed in early 2021, and the refurbished pumping station has now been operational for almost a year. A successful collaborative team approach between the EA and JBAB partners produced substantial whole-life cost, programme, and carbon savings, and provided the local area with a valuable asset that will serve them for many years.

Australia Flood Map Update 2021

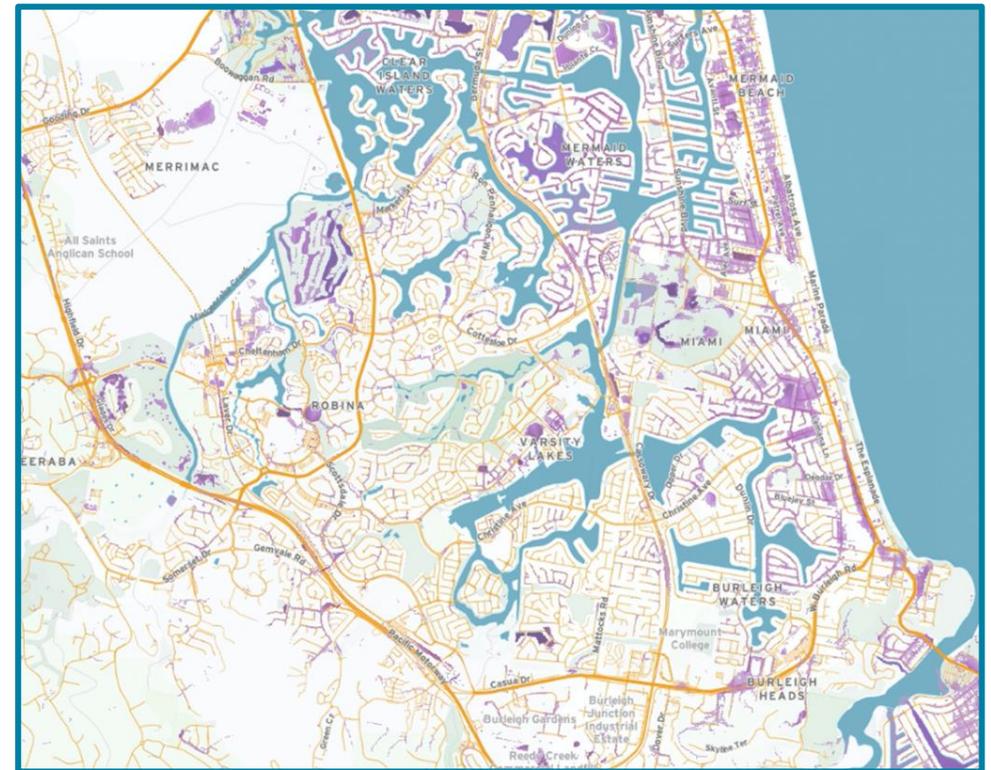


We've been the proud provider of flood maps for Australia since 2014 as part of our global mapping capability, empowering the re/insurance, financial, NGO, charitable and public sectors in flood risk management. Our mapping is used by several local and state governments in Australia to help in flood risk management and planning. This includes Douglas County Council (Queensland) who use JBA's maps to assess, prepare, and mitigate flood risk for their residents, as well as the South Australian government.

2021 saw JBA's team of flood experts update its Australia Flood Map with new data, advanced methods, and the latest science. JBA's Australia Flood Map was the first to offer national coverage for all major flood types at 30m resolution, including modelling of all rivers across the country, with seven regions now available at 5m resolution. The new 5m remodelling ensures that 56% of the population and the most densely populated areas are now captured by the highest resolution mapping available. This enables improved representation of flow paths, which is especially crucial in densely populated urban areas with lots of infrastructure, to avoid over or underrepresentation of flood risk.

Our flood data can be used by re/insurers, mortgage providers, banks, asset managers, and other investment organisations to effectively assess the extent and severity of flooding. This enables improved decision-making across property and asset screening, risk selection, underwriting, pricing, portfolio optimisation, and funding and investment opportunities. The data can also be used by public bodies for land use planning, adaptation planning, disaster preparedness, and more.

2021 flood map at 5m resolution for a section of the Gold Coast



6. Sustainability achievements beyond our EMS Key Actions

Sustainable operations

The sustainability of our operations is central to our business philosophy and we're committed to minimising the environmental impacts of our operations and activities – including reducing our GHG emissions to net zero. We've successfully developed a reputation as a leading supplier of sustainability advice and sustainability considerations inform our decision-making across all of our operations, services, and business activities.

Whilst we've already taken important steps to reduce the environmental impacts of our business, we want to take this further. We want to work more efficiently, minimising our energy and resource use and the environmental impacts of our resource use. We want to demonstrate our commitment to sustainability and show leadership within our industry.

In this section we highlight some of the sustainability-related improvements and initiatives we've put in place over the past year.



Office energy supplies

Since 2009, we've monitored our office energy consumption and have sought to reduce the energy we use and the environmental impacts of our energy use. A key way to reduce our impacts is to purchase energy from renewable sources. Where we have control of the electricity contracts for our offices, we purchase certified 100% renewable electricity, whilst at our other offices, we've actively sought to influence the building management company to switch to renewable electricity.

In 2020-21, two more of our offices switched to a renewable electricity supply. Our Saltaire office switched at the beginning of the year, whilst our Peterborough office

moved to a renewable electricity supply in October 2021. Seven of our offices – including our offices in Doncaster, Limerick, Newport, Skipton, and Tadcaster – now benefit from renewable electricity.

We'll shortly receive EV pool cars at both our Peterborough and Skipton offices, which already benefit from EV car chargers, meaning that business travel using these cars has the potential to be zero emissions. We'll work hard during 2021-22 to increase the number of offices that benefit from a renewable energy supply – this includes both electricity and gas supplies – with the aim that all of our offices are powered using renewable energy within the next few years.



Low carbon business travel

The JBA Travel Hierarchy guides our staff to think carefully about the environmental impacts of any business travel they undertake. We've used this tool to guide our business travel decisions for many years.

For much of 2020-21, we continued with our temporary Travel Hierarchy to respond to the needs of the Covid-19 pandemic. This meant we prioritised the use of cars over public transport to enable Covid-secure essential travel.

However, in October 2021 we were able to remove many of these restrictions and published a refreshed Travel Hierarchy. The lowest carbon and safest option is no travel at all and this is reflected in core message of our new Travel Hierarchy: *"Only travel when absolutely necessary"*.

For essential travel, the hierarchy is clear that active travel – walking and cycling – must be considered first. Public transport is first choice for longer journeys. However, if public transport is not feasible and driving is the only option, the Travel

Hierarchy promotes EV use over other forms of car travel. EVs have zero tailpipe emissions and their environmental footprint is much lower than a petrol/diesel car. Our Travel Hierarchy, applying its core message to travel only when necessary and promoting active travel, public transport, and EV use in place of petrol/diesel cars, is an important component of our plan to reach net zero GHG emissions.



Emissions from our business travel represent a sizeable chunk of the JBA carbon footprint and reducing our travel-related emissions is an important step towards reaching net zero. To help us meet our goal, in October 2021 we invested in three new EVs to replace several of our diesel pool cars – taking our number of EV pool cars to four. The new cars can all travel well over 200 miles on a single charge, meaning most car journeys we make should be readily achievable in an EV.

The new cars are due to arrive in Spring 2022 – with others to follow later in 2022 – meaning the option of electric driving should be available to many JBA staff before long. To support staff to use our EV pool cars and to help JBA staff to make the switch to an EV at home, we’re progressing the installation of EV chargers at all of our offices during 2022.



Encouraging low carbon commuting

To support our net zero ambition, we encourage JBA staff to use low carbon transport when commuting. We’ve had an Environmental

Reward Scheme since 2007, which rewards staff who regularly use low carbon means to commute to work. However, in 2021, we updated our scheme to better reflect our net zero target and further encourage staff to use low carbon transport.

Under the new scheme, staff can gain a daily reward each day that they travel to/from their normal place of work using one of a defined set of low carbon modes of transport. Every journey could contribute towards our carbon footprint and so our new reward scheme makes every journey count!

To further support JBA staff to commute using low carbon transport, we introduced a Cycle to Work (C2W) scheme in 2021 for UK and Ireland-based employees. C2W is a government-backed initiative that allows staff to hire bicycles (and related safety equipment) using a salary sacrifice arrangement and later purchase the equipment.

As a significant component of our carbon footprint, we recognise new measures are needed to support our objective to reduce GHG emissions from private car use, from both commuting and business travel. To help cut emissions, we’ve been investigating the introduction of a scheme to enable JBA staff to lease an EV via a salary sacrifice arrangement. Plans for the scheme are well-advanced with our chosen provider, Octopus EV, with the scheme due to be launched in early 2022.



Enhancing the sustainability of our supply chain

We take all reasonable measures to minimise the environmental impacts of our business and ensure our use of natural resources is sustainable and environmentally responsible. This extends to our supply chain and we recognise the important contribution our suppliers make to the success of JBA.

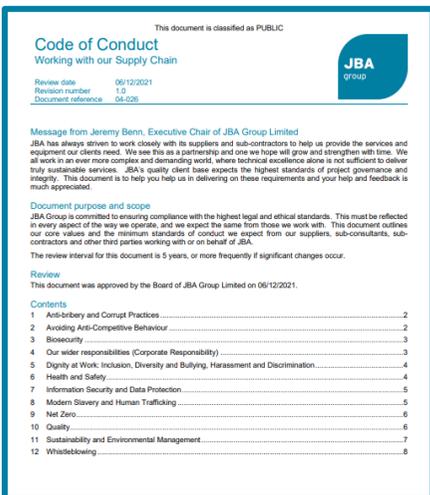
We aim to develop positive and lasting relationships with our suppliers and support our suppliers to achieve the highest legal, ethical, and environmental standards. We champion use of micro-businesses, small and medium-sized suppliers (SMEs), and local suppliers as appropriate, recognising the benefits this provides to the communities in which we operate. In 2020-21, the number of suppliers with

'Approved Supplier' status increased by 59 to 516 companies, of which almost 75% were SMEs or sole trader businesses.

We've recently strengthened our supplier approval process, to better align it with our net zero ambition and wider sustainability objectives. Our new process provides more detailed information on the sustainability credentials and performance of our suppliers, including information on sustainability accreditations, carbon emissions reduction targets, and wider actions to reduce their resource use and the environmental impacts of their resource use.

We've also introduced a 'Premium Supplier' status, which recognises suppliers with the strongest credentials in relation to sustainability and other important aspects including health and safety, information security, and quality of service.

These changes support our project managers and procurement staff to make more informed choices when commissioning a supplier to work on our behalf. This in turn directly contributes to our EMS objectives and net zero carbon targets, promoting use of suppliers whose sustainability objectives align with our own.



We also introduced our new supply chain **Code of Conduct**, which sets out the values and standards we require of all of our suppliers. This includes a requirement for our suppliers to support our net zero objective by reducing the climate impacts of the work they undertake for JBA. It also requires our suppliers to work progressively to improve their environmental performance, ensure their use of natural resources is sustainable, apply the principles of a circular economy, and seek opportunities to enhance social value through the work they undertake for us.



IMS Sustainability Hub

We've continued to develop and expand the Sustainability Hub on our IMS intranet site to provide a helpful source of information and guidance that all our staff can use to explore individual, project, and corporate sustainability matters. This includes a new Net Zero resource, which contains information about our Net Zero objective and the actions we're taking to reduce our carbon emissions.

We maintained our 'Sustainable Actions and Good Ideas Log', which is a staff initiative that enables us to record the local sustainability actions we've undertaken and post new ideas on ways we could improve our sustainability performance further. This could be something fairly small, such as an office initiative to help with the recycling of a particular type of waste, or something much larger, such as a Group-wide action that makes a significant dent in our carbon emissions.



Sustainability Champions

To support our ambitions to make JBA a more sustainable place to work, we created a new role – office Sustainability Champion. The core purpose of the role is to work with JBA staff to make our offices and everyday working practices more sustainable. The Sustainability Champions also help us to promote good practices more widely, so a positive initiative in one office can be readily applied in other offices.



Agile working

Our Agile Working framework went live at the start of the year, giving staff more choice over how and when they work, helping to enhance work-life balance and wellbeing. Whilst the Covid-19 pandemic has created many challenges, our investment in IT systems and hardware, continued focus on health and safety, and enhanced IMS processes has allowed JBA to rapidly change from



a largely office-based business model to blended working, with working from home in part or in full the way of choice for many JBA colleagues.

Agile working has enabled us to continually improve the way we work and to increase flexibility. It has also created opportunities to attract new staff from a wide and diverse pool and has helped us to reduce the impacts of our business and operations, contributing to our net zero target and wider sustainability objectives.



Equality, diversity and inclusion

At JBA, we want every member of our team to be able to contribute to the business to the best of their capacity. We believe that we can only achieve this if everyone is included, respected, valued, and supported. We're committed to eliminating discrimination and we

look for opportunities to maximise diversity and inclusion.

We recognise that each JBA employee brings their own unique capabilities, experiences, and characteristics to their work and we value this diversity at all levels of the company in all that we do. We ASPIRE to be more than the sum of our parts so that we're able to reflect and best support the communities we serve.

ASPIRE: Through Awareness of the issues facing our employees, clients and the communities we serve, we are able to Support them, and as an organisation Progress with Integrity and Respect for the good of Everyone.

Our approach to ensuing equality for all, promoting diversity, and fostering an inclusive culture is set out in our **Equality, Diversity, and Inclusion (EDI)** policy. We work within the spirit and practice of the Equality Act 2010 and the UN SDGs by promoting a culture of respect and dignity, where everyone is valued as individuals. All personnel, whether employees, clients, or suppliers, are treated fairly, with respect and without discrimination. Selection for employment, promotion, training, and other benefit is always on the basis of ability, and all employees are supported to develop to their full potential.

Our recruitment process demonstrates our commitment to equality of opportunity and applications from individuals are encouraged regardless of age, disability, gender, sexual orientation, race, religion or belief, and parental or partnership status. Whilst the majority of vacancies are advertised as full-time, we're always happy to consider part-time or job share for the right applicant and we encourage applications from candidates who may be returning to work after a career break.

In 2020-21, we undertook a range of activities to strengthen and promote our approach to EDI across JBA. Importantly, we made changes to our employee benefits package, including provision of maternity and paternity arrangements, with the aim to promote gender equality to all. We established an EDI Steering Group of EDI Champions, tasked with helping to embed our policy requirements and providing career support for under-represented groups. A key activity delivered was the publication of a staff EDI survey to gather information on attitudes on the workplace culture at JBA and knowledge and awareness of EDI legislation and issues and increase the quality of our data so that we can more clearly monitor our progress and inform new actions to support underrepresented groups.

We developed and expanded our staff EDI hub, providing advice and guidance on a range of EDI-related matters, and launched a new LGBTQ+ Forum to enable staff to reflect on the emerging and future needs of our colleagues, clients, and business. We also developed new staff training modules on unconscious bias and to support graduates joining JBA to understand our EDI goals.



We supported LGBTQ+ Pride Month in June and organised COVID-safe Picnics for Pride across our offices, including virtual picnics at several offices. We supported **Deaf Awareness Week** in May and promoted helpful pointers for staff to consider when interacting with someone who has hearing loss. We also promoted **World Menopause Day** in October to raise awareness of the menopause and the support options available for improving health and well-being.

JBA community

JBA staff numbers

The number of permanent staff employed at JBA has steadily increased year-on-year for the past 10 years. In 2020-21, the total number of employees exceeded 800 for the first time – this included both full time and part time staff – whilst the average number of employees across the year was 761, an increase of 86 on the previous year. The average number of full time equivalent (FTE) employees across the JBA Group was 700 in 2020-21, an increase in 73 FTE employees compared with the previous year.

Gender balance within JBA

The overall gender split within the JBA Group as of 31 October 2021 was 60.1/39.9 (% male/female), which has remained static from the previous year. We recognise the need to further promote gender equality within JBA and over the past several years we've made a range of important changes to strengthen our policies and practices to promote gender equality and the empowerment of women. In particular, we've established a Gender Group to improve our understanding of the obstacles to progression for women and to take action to address any such obstacles in JBA.

JBA graduate scheme



JBA operates a flourishing Graduate Scheme across several of its operating companies. Our scheme is a two-year programme aimed at providing our graduates with a comprehensive foundation for their future career with us. It provides them with the opportunity to learn about different facets of our business, to work with a wide range of staff, and to try different disciplines first-hand.

The experiences they gain during these graduate years support them to develop, focus, and build a successful career. On successful completion of the scheme, staff then follow our Development and Training Programme, tailored towards their specialist disciplines and future ambitions, which is also designed to directly support them to achieve membership of a chartered institution.

2020-21 was another busy year for our Graduate Scheme, with 55 new graduates joining JBA across our four graduate disciplines – engineering, environmental management, water management, and software and systems development – an increase of 21 on the previous year.

Apprenticeships with JBA



JBA Consulting offers a wide array of apprenticeship opportunities across the company. Our apprentices include people joining as new recruits or existing employees wanting to upskill, and the company offers apprenticeships from Level 3 (advanced) up to Level 7 (higher/degree)

in a variety of disciplines including flood risk management, software development, business administration, IT, and civil engineering. We consider our apprenticeship programme as a valuable and effective way to grow the talent across JBA and develop motivated and skilled staff members that make an important contribution to the JBA community.

In 2020-21, we increased the number of apprenticeship places available, employing 23 permanent apprentices and two fixed term apprentices, an increase of seven places from the previous year.



Research and development

Innovation is part of JBA's culture; it enables us to use the latest technical knowledge to develop new products and services for our clients, setting us apart from other consultancies and diversifying what we offer. For many years, we've made a significant investment in R&D

and business innovation, implementing a variety of initiatives to stimulate innovation across the business. This includes partnership projects with the JBA Trust and independent projects undertaken across a broad range of topics.

In 2020-21, we commissioned 25 internal R&D projects. This included developing a new tool to calculate biodiversity metrics to support biodiversity net gain (BNG) requirements, investigating the use of drone technology to support asset inspection surveys, developing a water neutrality calculator to assess the level of offsetting required for a development or plan, and creation of an online platform to visualise natural flood management (NFM) constraints, opportunities, and measures.

Adding social value

Just Be Active

This year we expanded our annual Just Be Active campaign and included initiatives focused on wellbeing, sustainability, being outdoors, and work-life balance. With Covid-19 affecting our normal working practices, we again moved the campaign on-

line, setting virtual challenges and asking colleagues to post information on activities they undertook and tips and advice on a wide range of health, wellbeing, environmental, and sustainability matters.



We held sustainability and nature webinars, ran a Bioblitz competition (most species spotted in the month), landscape photo competitions, and encouraged colleagues to get together for walks, runs, cycle rides, and other outdoor activities, and to take part in community activities like litter picks and tree planting. Everyone had access and over 82% of staff regularly viewed the campaign pages or chose to share what they had been doing.

Charitable grants and in-kind contributions



In 2020-21, we continued to support a wide range of events to raise awareness and promote knowledge and learning about risks in the water environment, particularly through the JBA Trust.

The JBA Trust supports and promotes scientific research, education, and training in the fields of environmental risk and resource management, with a particular focus on water. It works with leading academic researchers and other charities to create opportunities for research-based project placements and to support students and courses in higher education.

The JBA Group works closely with JBA Trust, providing opportunities for staff across JBA to contribute to the Trust's projects and initiatives, such as in September 2021, when staff supported the Trust to deliver a flood workshop to Year 5 and 6 pupils at a primary school in York.

Altogether, the JBA Group of companies continued to support the JBA Trust, providing over £150,000 in cash contributions or benefit in kind support.

More broadly, JBA staff were involved in a wide range of social and community activities. This included staff attending the Global Goals STEM Week 2021 to talk about their career working in flood risk management, and supporting the National Trust 'Skill Valley' project, where JBA staff gave a sandbox demonstration of how flood risk mitigation can be achieved through landscape management.

During 2020-21, JBA hosted six work experience students and provided paid internships for a further two students. We also funded scholarships for two staff to undertake the Postgraduate Certificate (PGCert) course in Flood and Coastal Risk Management at Lancaster University. Since the course started in 2014, we've supported 21 colleagues through the scholarship.



JBA runs a Give As You Earn scheme for UK-based staff, supporting staff to donate to their favourite charity straight from their pay. We currently hold a Bronze Award for payroll giving, based upon the percentage of employees enrolled in the scheme.

As part of their 150th Anniversary Celebrations, Medicash, who provides the healthcare cash plan package for our UK-based staff, marked Earth Day (April 20th) by making a donation to **Cool Earth**, a charity working alongside rainforest communities to halt deforestation. The donation will support the protection of 230,000 rainforest trees in Asháninka, Peru. Medicash has pledged to protect one tree for each JBA employee covered by a corporate Medicash policy, and JBA's 'share' was 408 trees.

Supporting local communities, suppliers, and social enterprise

Where possible we support the local economies around our offices by using local suppliers. Our Head Office near Skipton uses locally based HR advisers, pension administrators, financial auditors, and solicitors. All our offices use local cleaning and maintenance companies and, where possible, we use surveyors located close

to our projects. Several offices obtain milk from local suppliers and champion local food. We also use AirBnB rooms and small independent providers for some business accommodation.

We support environmental, social and community projects. For example, by subscribing to the legislation update service and attending training events provided by **The Compliance People** – who operate as a social enterprise and whose profits are gift aided to their charity **Newground Together** – we actively support a range of environmental, social, and community projects.

CoastSnap Stonehaven



CoastSnap
community beach monitoring

CoastSnap is an innovative, low cost, citizen science tool that enables members of the public to become actively involved in monitoring coastal change.

Images are taken by members of the public from the same spot using a fixed camera frame. When viewed sequentially, these images can reveal changes in the geography and topography of the coastline. Coastal environments are under a variety of pressures, including climate change and rising sea levels, and by

using this simple approach it is hoped that a vast amount of information can be gained that ultimately provides knowledge on the evolution of the coast to help coastal planners and managers.

JBA staff became involved in the initiative in 2020 and set up a **CoastSnap project** in Stonehaven, northeast Scotland, in-conjunction with Aberdeenshire Council, where JBA has been involved in the design and environmental assessment of new coastal flood defences. Over the past 18 months, the CoastSnap project has shown that along with regular fluctuations in beach levels, there has been a gradual loss of shingle from the upper beach.

The CoastSnap Stonehaven camera frame in action



Catgill Wood in 2008



Catgill Wood in 2021



Catgill Wood

In 2007, we established a new woodland, Catgill Wood, on land within the Broughton Hall Estate in North Yorkshire, under an agreed management scheme. We planted over 5,000 mixed native broadleaf trees on a 1.62-hectare area of land.

In June 2021, JBA's in-house arboriculturalist resurveyed Catgill Wood to document how the woodland is developing and assess its condition. This included the study of the carbon sequestration of the woodland. The survey showed that the site included a mosaic of species, with mature specimens of Oak, Ash, Beech, Yew, and Hawthorn were predominant on the site, augmented by our additional planting, which included Alder, Birch, Cherry, Rowan, Holly, and Hazel. The overall condition of the trees was considered to be good, with a relatively low mortality rate, and with many trees displaying features that are likely to provide benefits to local wildlife.

The carbon sequestration of the woodland was calculated as 5.12 tonnes of carbon per hectare per year, or 8.05 tonnes of carbon per year for the entire wood, based on Forestry Commission guidance. This equates to around 18.7 tonnes of CO₂ (tCO₂) being taken out of the atmosphere each year.

Although the CO₂ sequestered by Catgill Wood represents a small proportion of our carbon footprint, the wood is a very tangible sign of the importance we attach to our environmental performance. Establishing and maintaining the wood demonstrates our commitment to the environment and has enthused and involved staff – in its original creation, its ongoing maintenance, and as a recreational resource.

7. Environmental objectives and actions for the year ahead

For 2021-22, we've again set ourselves objectives and actions to help us achieve our sustainability and environmental management goals. We will continue to monitor our performance against these objectives and will report our progress in our annual Sustainability and Environmental Management Report, which we will publish on our websites.

Our overriding environmental objective has been refined to make it more ambitious and more directly aligned with the core aim of our Sustainability and Environmental Management policy. This objective is supported by a range of key actions and for 2021-22, these actions have been expanded to make them more holistic.

Table 9: EMS environmental objectives, key actions and intended outcomes for 2021-22

Objective	Key actions	Outcome
Reduce our environmental and climate impacts and have a positive impact on local communities and environments.	Assess and report JBA Group carbon emissions and emissions reduction measures. Measure and report our social value and our contribution to the UN Sustainable Development Goals (SDGs). Improve the environmental and sustainability performance of our work for clients. Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability.	Recognition as a sustainable and environmentally and socially responsible business. Reduction in carbon emissions in-line with our science-based targets. Legal compliance. Certification to ISO-14001:2015 and EIA Quality Mark.



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Bucharest
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Doncaster
Dublin
Edinburgh
Exeter
Haywards Heath
Leeds
Limerick
Newcastle upon Tyne
Newport
Peterborough
Saltaire
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