



Environmental Services

► OUR GOAL

Work with your teams
to help create long-term value.



Engineering has transformed. So has BBA.

National and international reach with a local presence

Environmental Services

+20

Offices across Canada,
Chili and USA

For over 40 years, we have been intensifying our efforts to improve our practices and design cutting-edge solutions, based on industrial client needs, that are reliable, profitable and environmentally friendly.

+1.5k

Employees

Outside our more immediate successes, we focus on the future to create long-term value for our clients. Every day, we go beyond engineering and encourage our team members to do the same, so we can build a sustainable world together.

+40

Years of innovation



“Our team manages the entire project to make sure all stakeholders are well served. Our mission is to safeguard a balance between the environment, performance and profitability.”

Jérôme Pelletier, P.Eng., MBA - President and CEO

Boisbriand
Calgary
Concord
Edmonton
Labrador City

Mont-Saint-Hilaire
Mont-Tremblant
Montréal
Quebec City
Rouyn-Noranda

Saguenay
Salt Lake City
Santiago, Chile
Sept-Îles
Sudbury

Terrace
Toronto
Trail
Val-d'Or
Vancouver





Our values

Environmental Services

0

Onsite accidents.
We stay alert for everyone's safety.

Our success is largely due to the our highly engaged team members. With a culture based on commitment, development and complementary talents, we build lasting relationships with our employees, clients and partners. BBA's increased presence in the field provides team members with a rich professional experience, offering a broader and more accurate view of operational activities.

+91%

Client satisfaction

By 2030

Toward Net Zero

Our objective is a total reduction of our CO₂ equivalencies by 47% by 2030 compared to our 2019 baseline.

People first

At BBA, we firmly believe that health and safety must be a way of thinking, acting and living—a reflex we sustain over time. Achieving excellence in health and safety is a responsibility we all share, from executives, to managers, to employees. Our 10 golden rules target the aspects of our work that present the highest risks. We ensure the health and safety of our team and clients at all times—a principle that guides all of our decisions.

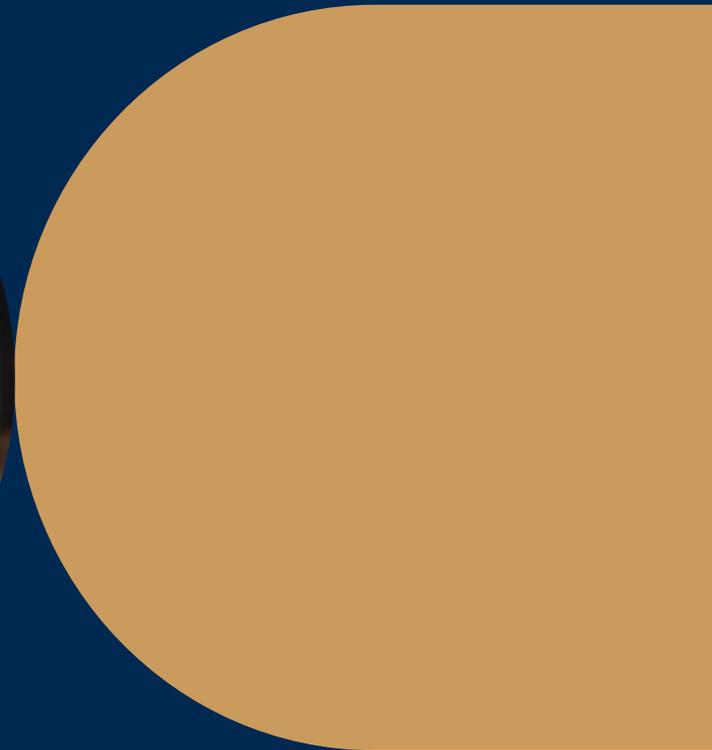
Rigour, ingenuity and collaboration

We are in the field right from the start of a project, communicating efficiently with our teams, inspiring them and giving them the autonomy that helps them get it right the first time. No matter the challenge, we tackle it together, driven by the desire to exceed expectations.

Eco-mindfulness

We are fully aware of our influence on developing environmentally-friendly projects, and we are committed to providing our clients with every possible option to reduce their environmental footprint. At BBA, engineers, biologists and environmental experts work closely to strike the right balance between protecting the environment, controlling costs and complying with regulations.

Our culture is built on values that have stood the test of time.





Understanding today's challenges to build the future

Environmental Services



Energy



Mining and Metals



Biofuels, Oil and Gas



Other industries
Pulp and paper, industrial agriculture, data centres and much more

Our world is changing fast. The urban population is growing exponentially, as is our energy and natural resource consumption. As an industrial company, you have many challenges to overcome —you can count on us to help.

Our environmental and engineering experts work closely together to plan and optimize your project.

Our technical capabilities

We take pride in offering you comprehensive multidisciplinary solutions. These solutions aim to significantly reduce your project costs during development and operations, while maintaining an enviable track record when it comes to safety and environmental sustainability.

Environmental services

- Studies and assessments
- Strategic and regulatory advising
- Government relations
- Approvals and impact studies
- Public hearings and stakeholder licensing
- Mitigation measure design
- Work method optimization
- Environmental compliance during construction
- Environmental monitoring during operation
- Site closure and reclamation





Focusing on innovation

Environmental Services

We know that to be implemented, new technologies must meet a real need, while remaining cost-effective, efficient and environmentally friendly. Our recommendations are guided by a comprehensive and measured analysis of your operations.

We have invested in the following technologies to better serve you.

3D simulation, virtual reality and augmented reality

Immersive technologies such as virtual reality and augmented reality are used to reduce costs and accelerate project development:

- Optimized constructability
- Design review
- Health and safety training
- Virtual tour
- Public consultations
- Stakeholder communication



Digital power systems

Our laboratory enables us to verify equipment compatibility and ensure flawless commissioning:

- Control and automation network simulation and testing
- Power system protection



Motion amplification

Motion amplification is used to visualize complex vibratory phenomena without contact and without stopping production. It is also used to quickly pinpoint fundamental causes for wear issues. This innovation is a complementary tool for the following activities:

- Maintenance
- Modal analysis of structures or foundations
- Analysis of rotating equipment

RDI Technologies certified partner



Cybersecurity

We have extensive experience with industrial control systems and their associated regulatory requirements:

- Standard gap analyses – NERC, CIP, NIST, CSA Z462, OSHA 3132 and IEC
- Review of work and intervention methods
- Training



4.0 solutions

We design innovative solutions for Industry 4.0 to help you meet your digital transformation challenges.

- Learning to use equipment to detect abnormal situations
- Equipment geolocation for operational decision-making
- Performance indicators and optimizing asset utilization
- Augmented reality



Drones

The use of drones allows us to acquire high-precision data and improve team productivity:

- High-precision imaging
- Multispectral imaging
- Photogrammetry and volume calculation
- Inspection and measurement
- Georeferenced videos



Environmental services integrated into engineering

Environmental Services

From design to commissioning, each mandate is thought out based on all parameters affecting your project. We enhance and adapt our integrated offer according to your needs, project constraints and market realities.



Our team brings together experts from all disciplines connected to physical, biological and human environments.

Environmental and biophysical expertise

- Constraints analyses and due diligence
- Environmental studies and monitoring – flora, fauna, ecosystem
- Biophysical and social management plan
- Mitigation measures and compensation plan
- Environmental compliance during construction

Acoustics and vibration

- Acoustics and vibration studies
- System design and optimization
- Industrial hygiene and sound compliance
- Vibration and maintenance diagnostics
- Construction support
- Complaint management
- Noise impact studies

Water treatment

- Potable water
- Industrial water
- Pollutant dispersion studies
- Mining operations water (waste rock and tailings)

Permits and social licensing

- Permit and approval applications
- Environmental assessments and impact studies
- Coordination and negotiation with regulators
- Relationship strategy with local and Indigenous communities
- Public hearings

Water quality, hydrology and hydraulics

- Integrated water management plan
- Water modelling and hydrodynamics
- River and lake studies
- Erosion and sedimentation control
- Aquatic habitat restoration

Air quality and explosive dust

- Assessment of atmospheric emissions
- Dispersion studies
- Continuous emission monitoring system (CEMS)
- Stack sampling
- Environmental footprint calculation – GHG
- Odour impact assessment

Contaminated soil and geotechnical engineering

- Environmental site assessment (Phases I, II and III)
- Excavated soil management and delineation
- Remediation plan
- Slope stability analysis
- Rock mechanics

Geomatics and visual simulation

- Visual simulation
- 3D modelling and communication materials production
- Impact and visual integration assessments
- Virtual and augmented reality
- Geospatial data management, processing and analysis
- Cartography
- Drone imaging



Involved in every stage of your project

Environmental Services

At BBA, engineers, biologists and environmental experts work together with sustainable development in mind. Whether it's managing a project throughout its life cycle or meeting specific needs, you can count on us.



FROM PRELIMINARY DESIGN

TO COMMISSIONING

Prefeasibility studies and preliminary design

At this stage, we assess the environmental issues, risks, socio-environmental constraints and footprint associated with your project. The goal: to help you develop a solid plan that is both cost-effective and environmentally friendly.

- Environmental constraints analysis
- Due diligence
- Biological, physical and human environment studies and expertise

Permits, approvals and social licensing

Our team will help you navigate through the steps to obtain the required approvals and permits. We can also implement and coordinate your social licensing action plan.

- Management and coordination of environmental permit and approval applications
- Environmental impact assessment
- Public hearings and consultations

Design and construction

Working with the engineering team, we optimize design plans by taking into account environmental factors and how they evolve. We strive to maintain the right balance between controlling operating costs and complying with environmental standards. We support you right up to the construction site to ensure practices are compliant and to minimize environmental risks and impacts.

- Design of mitigation and restoration measures
- Environmental management and protection planning
- Environmental site monitoring

Operations and commissioning

We are committed to your project's success, and we are always available to monitor the progress of your activities and secure your assets. We can support you in optimizing your resources, including developing solutions for dealing with the unexpected.

- Environmental monitoring
- Emissions, noise and pollutant management
- Complaint management



Prefeasibility and preliminary design studies

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The concepts of economic growth and environmental protection have long been thought of as mutually exclusive, but that thinking has changed. Achieving a socially acceptable and economically viable project while reducing its environmental footprint is the challenge for all businesses today.



Thorough analysis

Before investing time and resources into your project, you need all the data that will affect whether or not it will be successful. The due diligence process when assessing site viability involves analyzing the following elements:

- Constraints and risks associated with future development
- Regulatory liability
- Social and environmental responsibilities
- Review of regulations and operating conditions
- Existing agreements with neighbouring communities
- Project irregularities and projected costs to comply with current laws and regulations

Our multidisciplinary team will assist you in drawing up a complete picture of the situation. Using reliable and exhaustive data, we can carry out environmental scoping and make informed recommendations that will allow you to focus your efforts on high-potential projects with the highest success rate.

A true understanding of your issues

By establishing a preliminary portrait of the project's constraints, social realities and environmental variables, our team helps you understand the issues at hand. You can then assess the risks, costs and efforts associated with the studies and other steps to obtain the required permits and approvals. Our experts will be able to draw up an accurate portrait of the study area, the project-specific constraints, and the anticipated impacts and social resistance.

WHY INVEST IN DETAILED IN-DEPTH STUDIES?

The purpose of these studies is to gain a better understanding of the environment and its impacts to optimize a project's configuration, facilitate the process of obtaining the required approvals and promote social acceptability.

+200k ha

of land assessed

Our solutions

The planning stage is crucial in determining the project's feasibility and associated external risks.

PHYSICAL STUDIES AND ASSESSMENTS

- Ground and surface water quality
- Air quality, meteorology and olfactometry
- Geology and soil quality

BIOLOGICAL STUDIES AND ASSESSMENTS

- Aquatic and riparian habitats
- Wetlands
- Aquatic, avian and herpetofauna
- Large fauna and mammals
- Sensitive ecosystems and threatened or vulnerable species

SOCIAL STUDIES AND ASSESSMENTS

- Landscape quality
- Noise environment
- Indigenous land and treaties
- Socio-economic study

Reliable data

The analytical work performed upstream and in the field helps gather reliable data to submit permit applications and carry out environmental impact studies. This ensures that efforts and costs will be managed optimally by reducing them at the exploration stage and increasing them proportionally as the project gains stability.

BBA is known for its client support and its ability to build strong relationships with various stakeholders. We develop environmental assessment programs that reflect your schedules, your budget and your risk tolerance.



Permits, approvals and social licensing

Environmental Services

Our society is adapting to a context of climate change and habitat modifications. In Canada, and elsewhere, governments are pushing companies to evolve by tightening the rules.



Your goal

How can you ensure your project is environmentally and socially compliant, economically viable and completed in a timely manner? To do so, our experts will guide you in tackling two key challenges:

1. Approvals and regulatory framework

Without exception, all development projects require regulatory approvals, which are granted with government authority supervision.

By properly planning environmental studies, you will have a better understanding of potential impacts on the environment. You can then optimize your project to limit impacts at the source and compensate for any effects, thereby making it easier to obtain approvals. From the outset, it is important to carefully structure activities that are part of the application process, which includes steps, a completion schedule and specific analysis deadlines.

At BBA, we are committed to helping you demonstrate the value of your project to facilitate its acceptance and approval by regulators. Our experts have in-depth knowledge of applicable laws and regulations, speeding up your process.

2. Social licensing

There are many examples of projects that, although they received the required government endorsement, could not proceed because of low social acceptability. Whether based on facts or not, public opinion is a key decision-making criterion in project development.

An open, transparent and inclusive attitude helps build trust with communities. By understanding their expectations and concerns, we can prepare mitigation measures right from the planning stage. This upstream initiative increases social acceptability.

HOW DO WE BENEFIT FROM THE REGULATORY APPROVAL PROCESS?

By seeing it as:

- Strategic thinking, and not a simple project description
- An evolving planning process leading to an acceptable and sustainable project
- A proponent's roadmap

BBA has built close ties with various industry stakeholders, ministries and over 30 Indigenous communities. We integrate them into our projects, as partners, workers, contributors or subcontractors so everyone can be a part of the solution and facilitate project acceptability and development.

Our solutions

REGULATORY REVIEW AND LIABILITY

- Identification of regulatory triggers
- Environmental and social baseline
- Liaison, coordination and negotiation with regulators

PERMIT AND APPROVALS APPLICATIONS

- Coordination of required sectoral studies
- Environmental impact assessments
- Approvals application management and coordination

SOCIO-ECONOMIC STUDIES AND PUBLIC CONSULTATIONS

- Relationship strategies with local and Indigenous communities
- Indigenous communities and land claims
- Cultural and anthropological studies
- Economic studies
- Coordination of public hearings and consultation
- Complaints management and legal support

300+

approvals and permits successfully granted
(energy, mining, industrial and commercial sectors)



Design, optimization and construction

Environmental Services

At this stage, you need to count on reliable expertise to properly plan your project and speed up its completion. Your goal: to strike the right balance between your operating costs, meeting schedules and complying with environmental standards.



Environmental optimization of design plans: an approach that pays off

After obtaining approvals, we set up the markers that will enable us to meet your criteria for functionality, constructability, efficiency and environmental compliance.

Our team is made up of engineers, biologists and environmental experts who work together to promote sustainable development. These professionals rely on a "Sustainability by design" approach defined as follows:

"A project that is thought out from the start to integrate environmental principles into its design."

This approach helps reach technical and financial goals much more efficiently and to implement optimal environmental mitigation measures right from the start. It also helps obtain greater support from investors, build project confidence and, in many cases, provide long-term savings.

Management and protection plan

Our vast field experience enables us to produce environmental management and protection plans for construction work. We target practices that are the most efficient, profitable and easiest to implement and effectively manage residual effects on the receiving environment. We consider all activities related to project construction, operations and decommissioning beforehand, making it easier to obtain permits and approvals and to optimize your project's technical and economic feasibility.

HOW DO WE ENSURE THE CHOSEN MITIGATION MEASURES ARE APPROPRIATE?

They must address specific and measurable impacts, and they must be technically and financially feasible.

One vision

shared by our multidisciplinary team: sustainable development must be at the very core of project design and construction.

Our solutions

Our extensive expertise enables us to integrate mitigation measures into project design:

- Developing environmental criteria and objectives (construction and operation phases)
- Environmental compliance review of work and implementation methods, processes and environmental targets
- Preparing general and specific environmental protection and management plans for construction work

Environmental monitoring and compliance during construction

The construction phase is often fast-paced, involving a number of issues: budget tracking, negotiations, workflow, contractor and supplier management, along with permit conditions compliance. The slightest variance can have significant financial consequences and jeopardize your schedule. Combining engineering with environmental services, our team works to diligently coordinate technical aspects and environmental compliance requirements.

Not only are we your eyes in the field, but we provide support in real time with solutions to changes and contingencies, while minimizing disruptions.

Our team specializes in:

- Supervision, environmental compliance and contractor consulting services in the field
- Change management and modifications to permits and approvals
- Environmental incident management
- Preparing environmental monitoring reports



Operations and commissioning

Environmental Services

Environmental monitoring from the beginning to the end of a project allows you to improve your mitigation measures, minimize your risks and increase your reaction speed in unforeseen circumstances. This approach has a direct impact on environmental compliance. Every detail counts.



Environmental monitoring: carrying out your project with rigour

Environmental monitoring during operation, a standard in approval practices, is intended to validate mitigation measure effectiveness. These programs can be costly and can lead to non-compliance with permit conditions if they are not properly designed and monitored.

Environmental monitoring logically follows from the upstream planning stage, the appropriateness of the chosen plan and the mitigation measures put in place.

This serves as an opportunity to demonstrate your professionalism and strengthen your reputation with government authorities, clients and neighbouring communities. By acting as an environmentally conscious organization that designs and implements projects to the highest standards, you set a positive precedent and facilitate future regulatory applications.

Keep your eyes peeled

After your activities have begun, various unforeseen situations may arise that require exemplary adaptation and management. Our team is there in the field with you, offering support and ensuring your project remains profitable and compliant every step of the way.

1500+

clients have benefited from our expertise to meet the environmental requirements of their projects.

HOW DO WE KNOW AN ENVIRONMENTAL MANAGEMENT PLAN IS A SUCCESS?

A plan is successful when it adopts an iterative, adaptive and dynamic approach every step of the way, from construction, operation and decommissioning to project closure.

Our solutions

In collaboration with your teams and partners, our experts can take charge of effectively coordinating and implementing monitoring, restoration, mitigation and compensation measures, such as:

- Habitat restoration and off-setting options
- Hazard and operability study (HAZOP)
- Complaints management and environmental compliance
- Independent environmental supervision and monitoring carried out on your behalf for:
 - Habitat and population restoration and biological monitoring programs
 - Effluent and emissions monitoring
 - Interior noise level measurement (industrial hygiene)
 - Correction of vibration problems
 - Continuous emission monitoring system (CEMS)
 - Stack sampling
 - NPRI and GHG reporting
 - Erosion and sediment control
- Training and information sessions on good environmental practices and safety
- Closure plans and cost assessments

Because environmental management activities can extend over several years, our experts make sure to design flexible, easy-to-manage solutions that promote long-term savings.

Moreover, our extensive experience in the field allows us to accurately evaluate the impact of the measures put in place.



Social licensing and Indigenous relations

Environmental Services

PROUD MEMBER OF



BBA supports interest groups and stakeholders of the projects in which it is involved, bearing in mind their long-term impacts on communities, the environment, employees and business partners. This vision is based on principles of sustainability, trust and fairness and guides each of our actions.



1

Recognizing Indigenous rights and our social responsibility

BBA believes it is essential to develop close and meaningful relationships with Indigenous peoples. We welcome their input and the knowledge they bring when we carry out projects on their ancestral lands and territories.

- BBA's Indigenous Peoples Policy based on the reconciliation process and respect for their rights and traditions
- Commitment to and support for the United Nations Declaration on the Rights of Indigenous Peoples
- Participation in the operations of Indigenous economic development organizations, such as the Canadian Council for Aboriginal Business (CCAB)

2

Investing in project development with Indigenous peoples

Before a project is even considered, BBA works to establish engagement activities with communities. We aim to understand Indigenous values as they relate to their relationship with the land and its resources and work inclusively while providing support.

- BBA's support and initial investments to start partnership projects—some examples of investments made:
 - Malahat Nation, Vancouver
 - Métis Nation of Alberta
- Ongoing involvement of Indigenous leaders in the decision-making process
- Clear understanding of community impacts and benefits

3

Establishing lasting and authentic partnerships and agreements

Our vision of partnership is based on the principle of mutual benefit. By striving to develop economic opportunities and positive benefits in the region where the project is carried out, BBA establishes strong and transparent relationships between local and Indigenous communities and developers. Here are some examples:

- Partnership with the Innu – Eastern Canada
- Cree partnership – Northern Ontario
- Métis Nation of Alberta relationship agreement – Western Canada

4

Giving back to local communities and social involvement

BBA contributes to the well-being of the communities where it operates through various initiatives:

- Granting scholarships and sponsorships—a portion of which is reserved for social agencies and educational institutions in Indigenous communities
- Supporting programs that promote health, poverty and social exclusion abatement and environmental enhancement
- Participating in Indigenous awareness days and events

5

Support with permitting and approval processes

Our team helps industrial companies navigate the steps of obtaining approvals and permits. We implement and coordinate social licensing action plans by understanding local community concerns and integrating them into project planning to benefit all stakeholders. Our goal is to carry out socially acceptable and economically viable projects while simultaneously mitigating environmental impacts.

- Permit and approval applications coordination
- Environmental impact assessment
- Public hearings and consultations

6

Valuing communities and acting as an ambassador

BBA is raising awareness about local benefits and wellbeing, inclusion and equity by helping its employees and clients understand how their projects influence cultural, environmental and socio-economic values of the communities involved.

- Ensuring equal access to business opportunities for qualified local professionals
- Identifying training opportunities involving community members
- Valuing the culture, principles and values of host communities
- Participating in social projects and creating local economic benefits
- Understanding and respecting traditions, history and cultural diversity



Our projects are designed to integrate environmental principles from the start.



Our vision of the industrial future

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Think about sustainable operations

Economic growth and environmental protection are no longer mutually exclusive. More and more, society is recognizing that the need to use natural resources must be balanced against the need to preserve the environment for future generations.

“It is vital to develop and conserve natural resources and ecosystems to maintain biodiversity and our collective well-being. This is why it is essential to design projects that are in harmony with the environment and host communities to create positive synergy. Through its conscientious work, BBA is ready to take on the challenge.”

The BBA Environment Team

