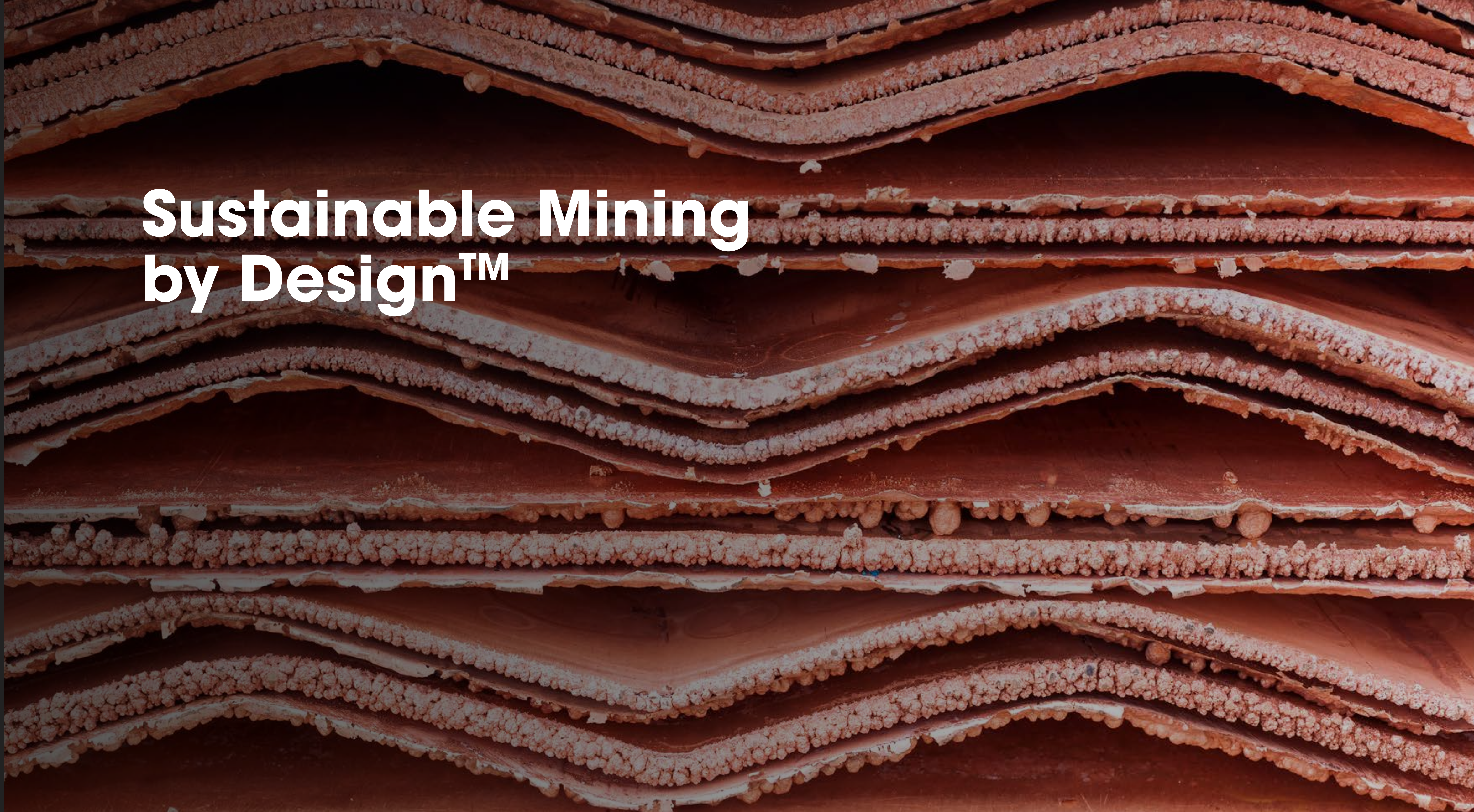


PRIORITIZING YOUR ESG PERFORMANCE FOR THE FUTURE OF MINING

STANTEC'S SUSTAINABILITY SERVICES



# Sustainable Mining by Design™





# What is Sustainable Mining by Design™?

**WE'RE FOCUSED ON MEETING THE NEEDS OF TODAY WITHOUT COMPROMISING THE NEEDS OF THE FUTURE FOR OUR CLIENTS, OUR COMMUNITIES, AND OUR NATURAL ENVIRONMENTS.**

## **WHY IS IT IMPORTANT?**

### **Encouraging equity and fairness**

We lead with inclusion to promote diversity and achieve equity. Whether we're designing layouts and equipment that are accessible or incorporating Indigenous and local communities in the workforce and supply chain, we prioritize equitable designs.

### **Realizing connections between the economy, society, and environment**

Our focus on sustainability is built on the premise that positive economic results are possible when we effectively manage our environmental, social, and governance affairs.

### **Understanding the limits of the world's ecosystems**

We see the big picture in the context of the world's carrying capacity, shifting demographic trends, and evolving economic realities. Planetary boundaries and decreasing ore grades require efficient operations to reduce waste and protect the environment.

### **Having a long-term and multi-generational view**

We're always thinking about community. Decisions we make today can benefit future generations.

[Learn more](#) about shifting your organization toward a culture of Sustainable Mining by Design™.

**1,000+**

People in Stantec's mining community

**900+**

People across Stantec with sustainability accreditations



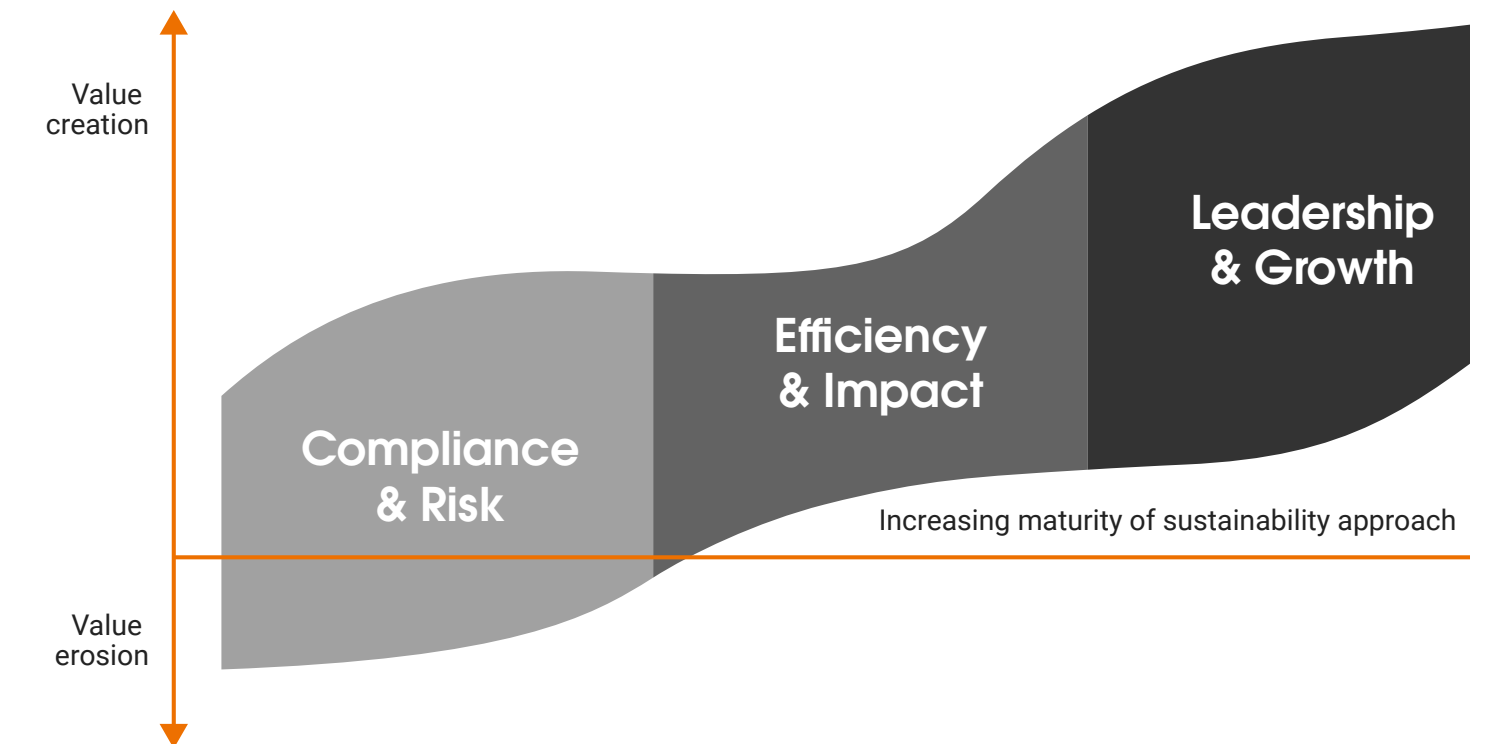


# Sustainability for business growth

When done properly, sustainability isn't an added cost— it's a collection of practices and solutions that reduces waste and drives profitability.

Companies who adopt a sustainability-focused mindset can harness multiple benefits:

- Reduced waste and expenses
- Efficient use of limited resources like water and energy
- Increased employee productivity through inclusion and diversity
- Increased profitability, capital attraction, and lower cost of capital
- Competitive edge for hiring and reduced attrition rates
- Improved risk management
- Improved market position through innovation



A strategic imperative, both morally and commercially



## Sustainable Mining by Design™ for every project

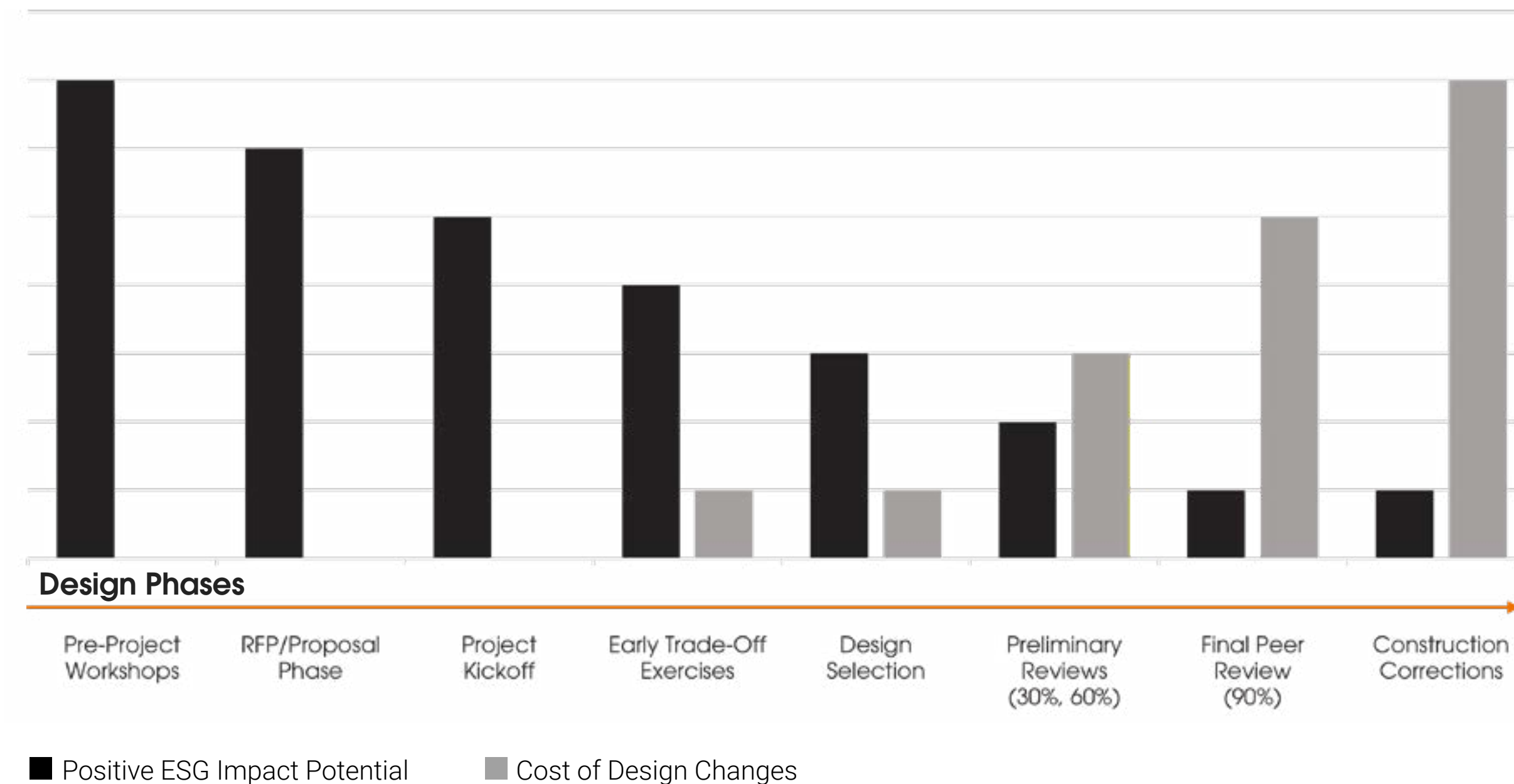
Whether you're building a new mine or optimizing an existing operation, the best opportunities for positive ESG impacts occur early in the design process.

**Project Kickoff.** We'll work with your team to map out key site-specific ESG needs and opportunities. This establishes design criteria that guide the planning and design phases. We'll consider your specific stakeholders, regulatory bodies, economic factors, equity and fairness, community awareness, and environmental factors.

As part of the **Preliminary Review**, peers consider if the triple bottom line was implemented in the design.

The **Final Peer Review** is a last check by project management to confirm the design addresses your ESG needs.

# Opportunities for ESG Impact



Evaluating your ESG potential early and often helps maximize positive impact.



# Your trusted partner in sustainability

WE LEAD BY EXAMPLE.  
WE **PLEDGE** TO BE CARBON NEUTRAL BY 2022, THEN NET ZERO BY 2030.

**#5**  
Ranked fifth most sustainable corporation in the world

2021 Corporate Knights Global 100

[Learn more.](#)

**#1**  
Ranked most sustainable corporation in North America

2021 Corporate Knights Global 100

[Learn more.](#)

**11**  
Indigenous Business Partnerships

[Learn more.](#)

**World's Best Employers**

2020 Forbes

[Learn more.](#)

**America's Best Employers for Women**

2020 Forbes

[Learn more.](#)

**America's Best Employers for Diversity**

2021 Forbes

[Learn more.](#)

## ESG FRAMEWORKS

Our experts are well-versed in global sustainability frameworks.

Envision

Global Industry Standard on Tailings Management (GISTM)

LEED

Towards Sustainable Mining (TSM)

United Nations Sustainable Development Goals

WELL





# Transforming your mining ESG risks into opportunities

## RESPONSIBLE CONSUMPTION AND PRODUCTION

We know earth's resources are limited. Maximizing efficiency and leveraging supply chain opportunities are ways we can keep mining activity within the world's carrying capacity.

- Efficient Mineral Processing Design
- Debottlenecking Studies
- Supply Chain Strategy Development
- Procurement and Logistics Management
- Circular Economy Solution Development

## ENVIRONMENTAL AND BIODIVERSITY COMPLIANCE

From obtaining permits to rehabilitating closed sites, we're here to help. We have specialized environmental services teams who are versed in the requirements for your unique geographic region.

- Ecological Impact Studies
- Environmental Planning and Permitting
- Progressive Rehabilitation and Closure (PRAC™)
- Asset Transformation
- Ecosystem Restoration
- Air Quality Monitoring
- Fishery and Aquatics Programs

## TAILINGS AND WASTE MANAGEMENT

Reducing and safely storing mine tailings is critical, as waste remains long after the mine has closed.

- Alternative Tailings Disposal (ATD) Strategy and Design
- Tailings Storage Facility (TSF) Construction and Monitoring
- Legacy Tailings Dam Closure and Remediation
- Tailings Dam Safety Review
- Minimized Waste Rock Strategy and Design



# We're with you every step of the way.

## WATER STEWARDSHIP

As one of the most important components of a mine site, our water management services run deep.

- Water Supply, Storage, Management, and Discharge Strategy
- Water Audits
- Water Balance and Groundwater Modeling
- Wastewater Treatment Plant Design

## HEALTH AND SAFETY

We'll help you mitigate risks to keep your mine staff and the surrounding community safe. Whether we're implementing autonomous solutions or writing a safety manual—we incorporate safety into all stages of the mine life-cycle.

- Prevention through Design Application, Review, and Training
- Constructability Review
- Remote Sensing Design
- Remote and Autonomous Equipment Strategy and Implementation
- MSHA Training
- Health and Safety Program Development

## STAKEHOLDER ENGAGEMENT

Mining impacts many groups. Whether it's workers, investors, consumers, or the nearby community, thinking about stakeholders throughout the mine's life is crucial to maintaining a social license to operate.

- Indigenous and Community Engagement Services
- Materiality Assessment Development
- Capacity Building Program Development
- Community Utilities Strategy and Design
- Inclusive On-site Facility Design

## NET ZERO EMISSIONS

Whether we are improving energy efficiency or implementing renewable and clean energy alternatives, we're here to guide your energy transition journey toward Net Zero.

- GHG Inventories, Audits, and Accounting
- Large-Scale Renewable Energy Infrastructure Design
- Energy Efficiency Value Engineering
- GHG Reduction Road Map Development
- Electric and Alternative Power Mobile Equipment Fleet Transition
- Autonomous Transport Design
- Ventilation Efficiency and Heat Recovery
- Hydraulic Hoisting
- Climate Risk and Resiliency Assessments





# Putting people first

## Protect health and improve local economic prosperity

*Confidential Client, Peru, South America*

An existing mine needed water to expand and the nearby city lacked the infrastructure to treat sewage water. We designed a waste water treatment plant to process the sewage, then the mine used the treated water for the expansion, the rest was drained into a nearby river (where it was previously being dumped—untreated). This creative and cooperative solution allowed the mine to obtain a social business license by providing citizens with a significant reduction in health risks, improving acceptance of agricultural products in international markets (previously rejected due to health risks), recovery of aquatic life ecosystems, and increased tourism and recreation.

## Create more inclusive work environment

*Confidential Client, Indonesia*

At a remote Indonesian mine, operators would stop their activity a few times a day and travel to local areas of worship to fulfil their religious commitments. During a mine expansion, we designed mosques, washing facilities, and a chapel in the underground mine. This made it easier for workers to attend to their religious requirements. Creating more accessible facilities also increased operational efficiency, because less time and energy was needed for transportation around the massive mine site. These religious accommodations and other underground facilities—such as a first aid clinics, lunchrooms, and maintenance shops—contribute to a more welcoming and efficient work environment.

## Improve safety and overcome language barriers

*Confidential Client, Indonesia*

We created a detailed construction sequencing animation for a large-scale service shaft. Video sequencing is often used as a helpful tool for identifying potential hazards in the design early on in the process, but in this case it was used to transcend language barriers. This sequencing animation prevented construction staff from misinterpreting written directions. Visualizing this process was a creative solution to improve construction safety.



[Watch the animation.](#)







# Helping you do right by the environment

## Restore the natural environment

*Holden Mine, Washington, United States*

Located in a remote area of the Okanogan-Wenatchee National Forest, the Holden Mine was one of the largest copper mines operating in the United States between 1937 and 1957. Waste rock and mill tailings covered 50 hectares of US National Forest land. We conceived an integrated closure system including infrastructure improvements, groundwater collection and treatment, demolition, and a restoration approach to re-establish native vegetation. Largely due to the remote location of the site, the water treatment process is passive and utilizes very little energy compared to a typical system. [Learn more.](#)

## Reduce greenhouse gas emissions

*Asanko Gold Inc, Ghana*

We quantified and reported greenhouse gas emissions and removals associated with the operation of a large-scale, multiple-pit mine. Our team collected data related to electricity and diesel consumption, along with raw materials usage, travels, and commuting. Our specialists conducted a site visit to analyze each input, then compiled the information into a comprehensive report with recommendations based on best practices. [Learn more.](#)

## Reuse water

*Cortez Hills, Crescent Valley Nevada*

We completed detailed engineering and design of an underground pumping station with separate contact and non-contact sumps and pumping systems to support development and production at the Placer Dome Cortez Hills project. Because the non-contact water was protected from impurities through its own separate set of piping and pumps, it could be reused as process water. [Learn more.](#)

## Transition to an electric fleet

*Confidential Client*

We're working in partnership with a local university and operational mine site to research adding autonomous heavy electric vehicles to move materials from the mine site to the processing facilities. This project will be the first time a fully autonomous electric vehicle will be used for overland trucking – and has the potential to be applied to other industries in the future. By utilizing electric vehicles that are also autonomous, our client can reduce carbon emissions along the route while also improving safety for their staff. Our client hopes to have a commercial solution in the next five years. [Learn more.](#)





## FEATURED PROJECTS

### Mine Air Quality Monitoring Program

*Doris Mine, Nunavut, Canada*

### Electrical Energy Audit

*Bagdad, Arizona, United States*

### Water Pump Reuse Solution

*Cortez Hills, Nevada, United States*

### Greenhouse Gas Emissions Audit and Removals

*Asanko Gold Inc., Ghana, Africa*

### Closure and Remediation Plan

*St. Ives Gold Mine, Australia*

### Restoration and Reclamation

*Holden Mine, Washington, United States*

### Response to Environmental Impact Statement

*Hope Bay, Nunavut, Canada*

### Environmental Restoration to Former Mine Site

*Colline Metalifere, Gavorrano, Italy*

### Tailings Facility Design for Limited Site Footprint

*Cerro Corona Mine, Peru*



## DESIGN WITH COMMUNITY IN MIND

At Stantec, we help mining companies in accordance with applicable professional standards access natural resources and conduct business in an environmentally sustainable way. From front-end studies to mine closure and reclamation, we keep clients at the forefront of a rapidly changing industry.

With over 30 years of creative solutions for clients and communities around the world, our approach is defined by a commitment to communities, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

## CONTACT US

For more information about Stantec's Sustainable Mining by Design™, please contact us at: [askstantec@stantec.com](mailto:askstantec@stantec.com)

## CONNECT WITH US



**STANTEC.COM**