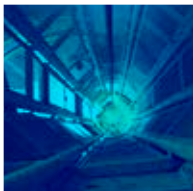




Mining & Mineral Processing Infrastructure



Providing Mining Expertise

since **1974**



J.L. Richards is a 100% employee-owned and Canadian company, providing multidisciplinary engineering, architecture, planning, and project management services. Founded in Ottawa in 1955, we complete projects all over Canada and the world for a variety of clients. Our clients are consistently satisfied with the work we do, and the majority of our business is with repeat clients or referrals.

With offices in locations throughout Ontario, including three in northern Ontario, J.L. Richards has staff in close proximity to some of the largest mining operations in Ontario. This means that we have consistent and wide-ranging exposure to a variety of mining operations. A large number of projects undertaken by our northern offices are related to mining, and many of our staff work exclusively or specialize in these types of design projects. Because we routinely work with mining clients, we have the knowledge and expertise to deliver high-quality projects in all facets of the industry.

Projects we are frequently involved in include a host of mine and mining plant operations, and related civil and building infrastructure, and conducting several types of specialized studies. We also offer maintenance engineering and project management services to execute projects of all sizes from concept to completion.

CANADA
BEST
MANAGED
COMPANIES

Platinum member

J.L. Richards is a Platinum Club member of Canada's Best Managed Companies. We achieved the first award level in the program in 2014, followed by the Gold designation in 2017.

After successfully maintaining our Best Managed status for seven consecutive years, we achieved Platinum Club status in 2020 and have since requalified to maintain our status.



Hoisting Plants

The hoisting plant is a crucial component of underground mining. J.L. Richards' team of experts are knowledgeable about every aspect of headframes and hoisting systems, and we are highly experienced in dealing with these types of systems.

Whether you are looking to design a new headframe or hoist house, or have existing systems to be evaluated or repaired, we can deliver comprehensive, reliable, and cost-effective solutions to a variety of unique challenges.



Ventilation

Ventilation is another integral aspect of underground mining. We are experienced with both surface intake and exhaust fan designs, as well as underground booster fans and vent walls.

Our team works closely with the owner's preferred suppliers to design an efficient and safe system. This streamlines the design process and allows for new equipment to be seamlessly integrated into existing equipment.



Mine Backfill

In our experience with backfill systems, we have developed specialized expertise with analyzing and simulating backfill system performance, technical feasibility reports, designing systems using both piping and boreholes, creating efficient transfer points and ergonomic layouts, and selecting reliable equipment for longevity.



Mine Dewatering

Dewatering is a crucial aspect of every mining operation. We consistently develop complete dewatering systems that always take cost, reliability, and ease of maintenance into consideration.

We specialize in settling sumps, in-shaft piping, sump sizing, pump sizing, pipe layout, dam design, and the required electrical and instrumentation design to support these components.

Cover: Gold Mill Expansion - Timmins, ON

1. Dufferin Aggregates Plant Expansion, Flamboro Quarry - Dundas, ON

2. KGHM Levack Headframe - Levack, ON

3. KGHM Podolsky Mine Exhaust Fan - Capreol, ON

4. Glencore Fraser Morgan Backfill System - Onaping, ON

5. KGHM Levack Dewatering - Levack, ON

Surface Facilities

Because J.L. Richards completes such a high volume of mining work, we are intimately familiar with facilities that have complex and multifaceted functional needs. Our full multidisciplinary in-house design team can provide all necessary services, from planning and detailed design to contract administration and commissioning. Some of the many surface facilities we can provide services for include:

- Administration buildings
- Security buildings
- Compressor houses
- Shops
- Core logging buildings
- Camp facilities
- Equipment foundations
- Warehouses
- Dust collection systems
- Electrical substations
- Truck scales
- Mine dry facilities



Material Handling

J.L. Richards has extensive experience in the design of material handling facilities. We have a clear understanding of material handling first principles, the importance of workplace safety and maintenance accessibility, and the implications of noise and dust abatement. Our team has specialized expertise in material handling system design (conveyors, crushers, chutes, etc.), compressed air systems, and process piping for material handling facilities. We also have in-depth experience in the design of large-scale gyratory and jaw crushers, including their foundations.

J.L. Richards can provide preliminary layouts for costing, budget control, feasibility studies, and funding procurement. In addition, we can create 3D images and animations for various stages of project development to assist our clients in securing funding and approval.



Energy Systems

J.L. Richards' Energy Systems Engineering group routinely works with a wide range of power systems, and we are highly familiar with how these systems operate. We specialize in:

- Energy system modelling and design
- Grounding modelling design and testing
- Power system protection and control
- Layout and design of medium voltage substations
- Protective device evaluations
- Coordination studies
- Power flow studies
- Arc flash studies
- Fault investigations

Process Controls

J.L. Richards' Electrical group works closely with both designing and implementing control and instrumentation systems. We are involved in all phases of process control development, from conceptual design to detailed design, through to instrumentation selection and commissioning. We routinely provide services involving:

- Panel detailing
- Loop diagrams
- Piping and instrumental diagrams
- Input-output tables
- Network communications
- Distributed control system (DCS) hardware
- Instrumentation
- Process control narratives
- Selection and specification of instrumentation
- Configuring and management DCS system libraries
- Startup and commissioning assistance
- PLC/DCS/HMI programming

1. Goldcorp Hollinger Project Haul Road Crossing - Timmins, ON
2. Lance Cooling Tower Replacement, Vale Copper Cliff Nickel Refinery - Sudbury, ON
3. Goldcorp Hoyle Pond Substation - South Porcupine, ON
4. Vale Thickener Pumps - Sudbury, ON

Project Management

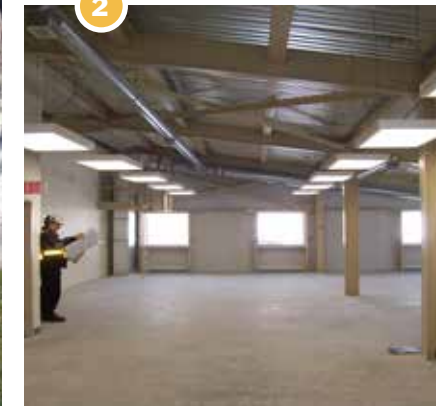
At J.L. Richards, project management means being physically present during construction, participating in ongoing coordination, and leading meetings with key stakeholders to realize the project's vision. Our project managers consider the logistics of every project, and thoroughly examine the space and resources available to complete tasks on time and within budget.

We offer cost control and document control services and, once a project is complete, we complete wrap-up documentation to identify any lessons learned and how to apply them in the future. We take pride in providing our clients with comprehensive, start-to-finish project management services.

Studies

When we take on a prefeasibility or feasibility study, we strive to objectively uncover the strengths and weaknesses of a proposed project, no matter its size or complexity. We aim to identify the resources required to carry out the project, ascertain the prospects for success, and determine opportunities and threats with respect to constructability, the environment, financing, and safety. We provide high-quality results that not only meet our clients' needs, but also simplify processes, improve safety, optimize investments, and enhance profitability.

Our team has conducted engineering studies related to mills, smelters, refineries, underground mines, and much more.



Additional Complimentary Services

- Architecture
- Civil Engineering
- Electrical Engineering
- Energy Systems Engineering
- Environmental Engineering
- Mechanical Engineering
- Planning
- Project Management
- Structural Engineering

If you have any questions about any of our services, please contact one of the members of our Mining group.

Maintenance Engineering

Our team understands that maintenance engineering is an important tool that our clients use to both improve and maintain the critical functions of their facilities. We work actively with the operations and maintenance staff to develop a complete understanding of their needs to enable them to use the equipment safely and efficiently.

We take pride in our ability to develop designs that are straightforward, user friendly, cost effective, and easy to access and maintain. Our firm's unique multidisciplinary approach allows us to create complete maintenance engineering solutions that address our clients' needs.

Civil Infrastructure

As a multidisciplinary firm, J.L. Richards provides our clients with holistic solutions to address their unique civil infrastructure needs. We adopt a forward-thinking approach, taking advantage of early opportunities to identify potential conflicts and develop plans to mitigate or eliminate issues. We integrate civil and infrastructure components in the early phases of the design process to ensure timely and cost-effective project delivery.

Our firm has specialized expertise in water and wastewater treatment systems, raw water and treated effluent dewatering, haul road design, assessment of packaged potable or domestic water systems, government consultation, and permit application processes.

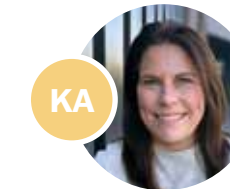
Talk To Us Today



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1. Agrium Alternate Use Study - Kapuskasing, ON
2. KGHM Levack Core Logging Building - Levack, ON
3. Vale Copper Cliff Smelter 2012 PMP Coordination - Sudbury, ON
4. Dufferin Aggregates Plant Expansion, Flamboro Quarry - Dundas, ON



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Architecture
Civil Engineering
Electrical Engineering
Energy Systems Engineering
Environmental Engineering
Mechanical Engineering
Planning
Project Management
Structural Engineering

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