Civil Engineering

Capability Statement

COMPETENCY
CAPACITY
COMMITMENT

BG&E
RESOURCES

Acknowledgement of Country

BG&E Resources acknowledges Aboriginal and Torres Strait Islander peoples as the first peoples of Australia and the Traditional Owners and Custodians of lands and waterways on which we work and live.

Our operations are conducted on the traditional lands of the Whadjuk people of the Noongar nation in Perth, the Bindjareb people in Mandurah, the Larrakia people in Darwin, the Kaurna people in Adelaide, the Gurambilburra Wulgurukaba, Bindal, Nywaigi, and Gugu Badhun peoples in Townsville, the Turrbul and Jagera peoples in Brisbane, the Awabakal people in Newcastle, the Gadigal people of the Eora nation in Sydney, and the Wurundjeri and Boon Wurrung peoples of the Kulin nation in Melbourne.

We honour the wisdom of, and pay respect to, Elders past and present, and we acknowledge the cultural authority of all Aboriginal and Torres Strait Islander peoples across Australia.

We also acknowledge the vital contribution made by our Aboriginal and Torres Strait Islander employees and we thank those who have guided our approach and generously shared their insights.

Image: Aboriginal artwork created by Jayda Sebire (Indigenous Artist and former BG&E Resources People and Culture Assistant).

Acknowledgement of Country

Technical Excellence

Civil Engineering and Design for Asset Optimisation

BG&E Resources (BGER) is a multidisciplinary engineering, EPCM and ESG consultancy, delivering technical solutions for clients in the Resources, Energy and Industrial sectors.

With offices on the East and West coasts of Australia, we are majority owned by our employees and committed to helping clients decarbonise in a net zero economy.

Our fit-for-purpose engineering solutions enable mining and raw material proponents, energy and water utilities, and port authorities to optimise the performance of their assets, minimise operational disruption, improve safety and mitigate risks.

BGER's proven approach to deliver schedule and cost benefits through clever engineering and true collaboration is what sets us apart.

Our people pride themselves on providing smart and sustainable solutions to complex engineering problems; and importantly, on being great people to work with.

Technical Excellence

Our people are passionate about leveraging their technical ingenuity to solve complex problems.

Technical excellence is the bedrock of our business. It drives our people and propels the outcomes that we provide for clients, communities, asset owners and operators, and financiers.

Our dedicated professionals and subject matter experts focus on understanding our clients' business objectives, their desired project outcomes, as well as the latest industry research for the sectors in which we operate.

A Premium Client Experience

The success of our project work depends on leveraging the best expertise of our people. That's why we allocate the most qualified professionals to help realise our clients' development vision and bring their projects to life.

Our work is underpinned by strong engineering design principles, industry-leading technology and pragmatic advice to deliver exceptional outcomes, every time.

This approach provides the following benefits:

- Ease of understanding of regulatory frameworks
- Efficient navigation through the development approvals process
- Protection and preservation of our cultural heritage, the environment and waterways
- Healthy, transparent and trusted relationships are established with stakeholder groups
- Respectful liaison with Traditional Owners is undertaken
- Fair and equitable outcomes are achieved for First Nations' communities
- Project knowledge is retained, including lessons learned
- Innovation is embraced and deployed.

Technical Leadership Team

The quality and excellence of our world and ability to deliver the best technical and cost-effective solutions for our clients is guided by our Technical Leadership Team.

Led by the most senior members of our business, this team facilitates learning and knowledge transfer, professional collaboration and mentorship to drive continuous excellence in our technical capabilities. It also encourages our people to perform to high technical standards and rewards staff for incorporating innovation into projects.

Image: Steve Ash and Kanishka Pathirana at Paraburdoo Train Load Out Facility, Pilbara WA.

Safety is at the Heart of our Business

Our diverse and culturally aware teams embrace safe work practices that are environmentally sound.

Safety is integral to everything we do at BG&E Resources. We care about our people, clients, and the communities in which we operate, and strive for zero harm in everything we do.

Health, safety and quality are embedded in our work practices, while heritage and sustainability are considered throughout the entire project life cycle.

We recognise the importance of continuously reviewing safety in design issues at all stages of a project, from investigation, design, construction, operation (including maintenance), closure and rehabilitation.

Exceeding regulatory obligations, we leverage a formalised Health, Safety, Environment and Quality Management framework that allows us to analyse and implement practical measures to mitigate risks.

Leadership

- Understanding of client needs
- Technical Leadership Team governance
- Strong Chartered presence
- Adherence to Technical Standards & Regulatory Instruments
- Committed to Technical Excellence
- Striving for low-carbon impacts

Systems

- ISO Accredited Quality Management System (QMS)
- Design Assurance
- Engineering Verification Procedures
- Safety in Design
- Net Zero in Design
- Risk Mitigation & Management
- Project Governance (Action Tracking, Monitoring, Performance & Auditing)
- Continuous Improvement (Lessons Learnt)

Characteristics

- Client Centric
- Risk Adverse
- Reliable
- Accountable
- Innovative
- Simplification
- Community & Culture

Image: Lucy Nguyen at Cape Lambert Port Facility, Karratha WA.

Respecting, Protecting and Preserving our Cultural Heritage

Diversity across our workforce and our supply chain is vital.

Our clients trust in our ability to enhance their social license to operate, including through the provision of mutually rewarding cultural heritage consultation and management, healthy Indigenous partnerships, and ethical procurement from Aboriginal-owned and operated businesses.

Working with Traditional Owners, First Nations peoples, Indigenous Prescribed Body Corporates and Aboriginal Corporations, is seeded in early engagement as it enables our team to deliver benefits for today (across the life cycle of proponents' projects) and for future generations.

Early engagement underpins our approach to cultural heritage management as it enables us to understand the needs and desires of all stakeholder groups, as well as any existing Indigenous Land Use Agreements (ILUAs) which have been registered with the National Native Title Tribunal (NNTT).

We partner with highly experienced local archaeologists and ethnographic specialists to provide clients with access to an abundance of heritage site data, and to collectively undertake walk-throughs of proposed project sites.

From the Kimberley in the North to Esperance in the South of WA, across central Australia and along the Eastern seaboard – we engage with Traditional Owners and Custodians, Prescribed Body Corporates (PBCs), Aboriginal development corporations and First Nations communities to preserve their cultural heritage and when helping proponents and/or government agencies to deliver projects.

Cultural Heritage Management Capabilities

- Stakeholder consultation and engagement to help Traditional Custodians of the land and Native Title Claimants to establish IULAs, registration to the NNTT and compensation frameworks (among others).
- Advice for proponents regarding the application of legislation including the Native Title Act 1993, Heritage Act 1972 (Aboriginal Cultural Heritage Bill 2021) and Repeal Bill 2023.
- Developing scopes for archaeological and ethnographic surveys.
- Indigenous business contracting (including teaming with Aboriginal-owned and Supply Nation-certified businesses to develop First Nations regional workforces).
- Capacity building (including coaching, mentoring and career pathway development, etc. for First Nations peoples).
- Reconciliation Action Plans.

Image: Indigenous peoples' hands. Copyright approved via Shutterstock.

First Nations' Partnerships

We have a range of actions in place to increase Aboriginal and Torres Strait Islander employment and engagement in our business, to help First Nations communities become self-sustaining (current participation is approximately 1.5 per cent of our workforce and we are striving to increase that to three per cent by December 2025).

We proudly support Aboriginal and Torres Strait Islander owned businesses and have established a majority-owned Aboriginal company, TICS (WA) Pty Ltd (TICS). TICS is a NATA-accredited laboratory to ISO 17025, providing non-destructive testing (NDT) services.

Similarly, we have strategic partnering arrangements with several Aboriginal-owned businesses, including Karlayura Contracting, which provides design and construction support for clients.

We have also established a similar partnering agreement with i24s, an Aboriginal-owned and operated workforce company, providing security, civil works and commercial cleaning services for mine sites in remote locations across Australia, as well as for commercial premises in capital cities (their clients include BHP, Horizon Power and Cundaline Resources, among others).

Most recently, we also established a partnership with Pirrpala, a 100 per cent Aboriginal-owned and operated small scale project delivery provider.

Our partnerships also span the globe, specifically in China, for the procurement of equipment and professional services, including on Country inspections of fabrication, testing, compliance and design reviews.

Reconciliation

Review our Innovate Reconciliation Action Plan, Aboriginal and Torres Strait Islander Engagement Strategy, Human Rights Statement and Anti-Discrimination Policy.

Civil Engineering

Images: Great Northern Highway Realignment, Port Hedland WA.

Specialising in the optimisation of bulk earthworks and providing design, documentation and construction support services for all aspects of road infrastructure.

BGER offers a full suite of services including bulk earthworks design, roadwork design, stormwater design, utility services design, traffic engineering and contract management.

We have played a key role in numerous mining projects on East and West coasts of Australia, designing heavy haul roads and railways.

Capabilities

- Civil Works including Bulk Earthworks
- Rail and Associated Infrastructure and Systems
- Access Roads
- Flood Studies and Waterways Assessments
- Hydrology & Flood Protection Design
- Non-Process Infrastructure (NPI)
- Heavy Haul Roads and Access Roads
- Guide Bank and Rock Protection Design/Documentation
- Bore Field and Water Supply
- Hydraulic Structures and Underground Services
- Construction Phase Support

Image: Geotechnical Works in Port Hedland, WA.

Image: Loui Drake at Lot 1 at Tom Price Mine (Rio Tinto), Pilbara WA.

Geotechnical Engineering

Providing a full suite of ground engineering services - from onshore and nearshore site investigation through to detailed foundation design.

Successful project outcomes start from an early understanding of geological hazards and ground risks, followed by active management of these risks throughout the project life cycle.

BGER's engineering geologists and geotechnical specialists work collaboratively to plan and execute site investigations, analyse and design while using the latest software and technology to provide construction phase support and undertake asset condition assessments.

Our experience gained on projects in Australia, New Zealand, Indonesia and Africa, allows us to assess key geotechnical risks and adopt practical design measures to manage them. We leverage historical project learnings to better inform solutions to unforeseen ground conditions, construction difficulties, construction material characterisation and supply.

Capabilities

- Site Investigation
- Rock and Soil Slope Stability
- Soft Ground Engineering
- Deep Pile Foundations
- Earth Retention
- Dam Engineering
- Pavement Design
- Temporary Works
- Construction Support

Hydrology

Image: Courtesy of Adobe Stock

Providing specialised hydrological services and advice, BGER assists clients throughout the planning, design, construction and operation of process and non-process infrastructure.

BGER's dedicated hydrology team are skilled in the use of the most up-to-date software and trained in the application of the latest tools and hydrology methods.

The team prides itself on providing site-specific, quality and accurate services and advice. Our 'boots-on' leaders are experienced in project delivery, of all scales and many global locations.

Capabilities

- Waterways Investigation and Design
- Surface Water Modelling
- Flood Risk Assessment
- Hydrological and Hydraulic
- Water Supply and Yield Studies
- Water Balance
- Modelling
- Mine Site Water Management
- Yield Assessment Studies
- Dam Design, Dam Failure Assessment
- Environmental Hydrology
- Water Quality Assessment

Project Phases

Our Civil team offers services throughout the project life cycle covering concept, PFS, FS, Detailed Design through to construction and commissioning support.

Capabilities

- Concept Studies
- Pre-Feasibility Studies
- Bankable Feasibility Studies
- Front End Engineering Design
- Detailed Design
- Independent Review
- Construction Support
- 2D & 3D Design

Projects

Projects

Projects

Stanley Point 3 Port Expansion

Client: Roy Hill

We have played a key role in the expansion of one of the largest bulk commodities ports in the world, completing three engagements to date.

To support the long-term strategic planning of its existing mine and port infrastructure, Roy Hill commenced the detailed design phase of the proposed Stanley Point 3 Port Expansion Project to increase the current export capacity from 60-64 Mtpa to 102 Mtpa.

BGER was engaged to provide a range of multidisciplinary capabilities including civil, structural, mechanical, and electrical engineering.

Concept Engineering Study

We have completed this study and determined optimal solutions for magnetite handling from within the Ridley Development Envelope at Port Hedland, and into the Stanley Point 3 shiploading circuit.

As part of this study, our team provided a detailed assessment of the options including identifying and developing feasible conveying and transport routes. They also undertook a high-level assessment of the proposed assets and identified mitigation measures to prevent issues relating to handling the higher-density product.

Feasibility Study

Further to the Concept Engineering Study, we were asked to complete the Feasibility Study. Our team incorporated sufficient engineering definition (15%) to support a Class 4 cost estimate for a base case integrated stockyard and split yard solution.

Progressive delivery combined with 3DEGlobal's Indian Design Modelling Centre was effectively utilised to facilitate rapid development of the design documentation in an aggressive 16-week schedule to achieve the Financial Investment Decision milestone.

Energy & Power Feasibility Study

Our third engagement on this project helped to determine the overall power and energy demand for the new infrastructure planned for Berth 3.

The BGER NetZero in Design™ approach was integrated throughout the project life cycle to enable Roy Hill to achieve its targets as efficiently as possible.

Engineering design and approvals are now well advanced for the Stanley Point 3 expansion, which will support the rising demand in exports in the coming years for the global energy transition.

Onslow Iron Civil Design

Image: Onslow Iron, Pilbara WA.

Client: Mineral Resources Limited (MRL)

MRL is developing a 30 Mtpa transhipping operation at the Port of Ashburton servicing the West Pilbara region as part of the Onslow Iron Project (OIP).

BGER was engaged to develop a concept design for the port facilities of MRL's 30 Mtpa OIP at the Port of Ashburton eastern planning precinct.

The concept design included:

- Haul Road
- Port landside civil and drainage works
- Lease lot pad for truck unloading, storage shed and NPI facilities
- Rock armoured revetments
- TSV loading wharf, approach jetty and abutment

Our team also developed the necessary engineering documentation to support a Stage 3 Development Application submission to the PPA.

Odysseus Underground Mine

Client: IGO Limited

We are providing quality services, civil engineering, and site-based construction support for the Odysseus Underground Mine.

Currently being developed by IGO Limited, the mine is located at the Cosmos Nickel Project, 30 km from Leinster in Western Australia.

Once it is in production, the mine will deliver high-quality nickel concentrates to the global market. It is also among the few nickel sulphide projects that will enter production to meet the rising demand for nickel used in Electric Vehicle (EV) batteries.

We leveraged our expertise in risk management, quality frameworks, compliance processes, and investigative techniques to enable IGO Limited to eliminate harm, reduce risk and achieve organisational quality outcomes.

Our teams undertook an extensive Quality Assurance and Quality Control (QA / QC) review and provided a framework to IGO for implementation.

On the ground, our civil engineering professionals were involved in developing the LV and HV access road design for the NPI area. We also supplied secondment personnel to fulfil superintendent, project engineering and quality management roles.

Image: IGO Cosmos Nickel Mine, Courtesy of IGO Limited.

White Quartz Road Realignment

Image: White Quartz Road Construction, Pilbara WA.

Client: Rio Tinto

We helped to ascertain the safest and most functional route for the realignment of this critical access road.

Located approximately 55 km north-west of Tom Price in the Pilbara region, the White Quartz Road (WQR) is the primary access road to Rio Tinto's Brockman 4, Brockman, Nammuldi and Silvergrass Mines. We completed the Pre-Feasibility Study, providing recommendations for the preferred realignment option and delivering preliminary design including civil, structural and EIC engineering as well as geotechnical support.

The Scope of Works included 5 - 6 km of new sealed access road in total with parts of the new alignment to be staged/deferred to suit mine sequencing, to provide an optimal solution. Considerations included allowing for an unsealed bypass (1 km) track for future oversize loads to drive around the tunnels and cross the haul road at a controlled gated point as well as relocating an existing 33 kV overhead power line currently feeding the B4 ANFO facility and removing the existing 33 kV and 415 kV overhead power located within the future mining areas.

BGER provided design, tendering, evaluation, procurement and variation management from the vendors to the Rio Tinto Procurement team, transport logistics and receipt at site for the following packages:

- Mechanical equipment for a new vehicle wash down bay
- Oily water separator packages – Ultraspin
- Standpipe and sump pump package – Truflow
- Automatic Access gate house equipment – Seme
- Culvert package for civil drainage of road realignment works – Roundel
- Road Safety Barriers – W-Beam Guard rails – Ingal Civil
- Warehouse Kiosk Transformer 100 Kva – Excess Power
- Temporary power supply – 200 Kva Generator and control panel – Aggrekko

We also provided geotechnical engineering support to monitor geotechnical progress of civil works, material suitability and concrete arch foundation preparation.

In addition, we deployed a team of civil, structural and EIC project engineers – as part of the Owner's team – to assist with the delivery of design services to:

- Undertake quality management of civil contractor construction Safety development.
- Manage vendor supplied procurement solutions, including technical clarification with Rio Tinto SMEs and vendor engineers.
- Manage Rio Tinto site stakeholders, requested input into designs around project budgets which equated to managing $2.5 M of Rio Tinto Procurement.
- Manage the installation of the Telstra fibre optics cable for critical communications.

Hydrology and Waterways Study for Mine Road Upgrade

Client: Pilbara Minerals

We completed a hydrology and waterways assessment of the Pilgangoora Mine Site and Wodgina Mine Access Road, including the conceptual design of floodway crossings.

Following the conceptual design phase, BGER's Geotechnical and Civil teams have been working in a joint effort with Pilbara Minerals to progress detailed design and site investigations for the delivery of the road upgrade project.

The operation consists of two processing plants, the Pilgan Plant located on the northern side of the Pilgangoora area, produces a spodumene concentrate and a tantalite concentrate, and the Ngungaju Plant, located to the south and produces a spodumene concentrate.

The Wodgina Access Road to the Pilgangoora Mine Site is situated between Port Hedland and Mulga Downs in Western Australia's Pilbara Region. The road is currently unsealed and extends approximately 24 km from Great Northern Highway, where a new intersection will be required.

The design scope involves upgrading 24 km of the Wodgina Road to a sealed road to facilitate increased haulage capacity via super quad road trains. This includes 11 major floodway crossings, 12 km of site access and haul roads, and a new intersection at Great Northern Highway.

Our involvement initially commenced in Dec 2022 with completion expected in November 2023.

When complete, the road upgrade will improve the efficiency and safety of transporting critical minerals to Port Hedland to meet the increased demand for resources to enable the global transformation toward clean energy and a sustainable future.

Image: Ngungaju Plant - Courtesy of Pilbara Minerals.

Explosive Facility Detailed Design

Client: Pilbara Minerals

We delivered the concrete, civil and EIC detailed design of a new onsite explosive facility for the Pilgangoora Operation.

The facility spans ammonium nitrate stores and truck loading, emulsion storage and pump arrangement, diesel fuelling facilities, vehicle park-up and washdown areas, and support offices, stores, ablutions, and workshops.

Our team developed the detailed design for the overall location plan, facility arrangements, and requirements. This comprised detailed earthworks (including access roads), fencing and signage, civil and building concrete design, earthing and lightning protection, area lighting, and mechanical and electrical services reticulation.

Conceptual level designs were also delivered by BGER for the building and storage shed general arrangement layouts, CCTV and access control, equipment layouts and requirements, and tanks, pump skids and piping.

A key challenge was ensuring the design complied with the updated code of practice for dangerous goods. Our team adopted a future-focused approach, considered resiliency, and reworked the proposed solution to incorporate stricter code elements.

Abrolhos Overpass

Client: Fortescue (Central Systems)

We delivered an effective solution to enable autonomous mining access over a live rail network.

BGER collaborated with Central Systems to deliver both steel plate and concrete arch structures at Fortescue's Cloudbreak Iron Ore Mine.

The project involved the construction of a concrete arch over a live rail network which provided some unique challenges and additional safety considerations. Significant planning and effort were required to safely complete the project while accommodating regular interruptions of the Fortescue trains.

Full credit is awarded to the entire team and their ability to consider, plan and deliver the project safely. The project was delivered through the COVID-19 lockdown, meaning a significant component of the design was delivered by our teams working remotely.

The highly collaborative nature of the partnership between Fortescue, Central Systems and BGER was instrumental in the success of this project.

Image: Cloudbreak Iron Ore Mine, Pilbara WA.

Image: Marble Bar Road, Pilbara, WA.

Marble Bar Road Detailed Design

Client: Roy Hill

Our civil team successfully negotiated a fit-for-purpose set of design criteria with Main Roads WA to ensure construction costs remained within budget.

Following our completion of Roy Hill's Marble Bar Road Pre-Feasibility Cost Study, we were engaged to deliver the detailed design for the upgrade of 100 km of road suitable for haulage of iron ore by quad trucks between the McPhee Creek Deposit and the existing Roy Hill Mine.

The cost study involved comparing the expense of upgrading Marble Bar Road to Main Roads WA (MRWA) design standards versus those of Roy Hill.

BGER worked closely with MRWA and Roy Hill on the project, in particular at the town of Nullagine, where the alignment is constrained by hydrology, terrain, heritage and ethnographic sites.

The existing Marble Bar Road was re-designed over a total length of approximately 14 km in order to bypass the Roy Hill Mine Site.

B4B2 Haul Road

Client: Rio Tinto

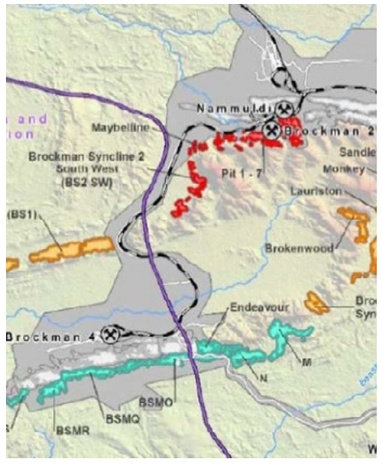
We delivered the Feasibility Study and Detailed Design for a dedicated road train haul road and associated infrastructure to connect Brockman 4 to Brockman 2 Operations.

Brockman 4 Mine, Pilbara WA.

The Brockman 4 to Brockman 2 ore transport road provides a strategic link to connect the two operations.

The 25 km long dedicated road is designed transport 10 Mtpa of low-grade iron ore between the two mines for blending into a higher quality product.

Ore from Brockman 4 is loaded onto 300t road trains for transport to Brockman 2 via the B4 Skyways Transfer Pad. Featuring low level floodway crossings, the road has been designed to minimise impact on existing infrastructure and heritage sites.



Overland Conveyor Belt Change Facilities

Image: Western Turner Syncline, Tom Price WA.

Client: Rio Tinto

We developed a low-risk belt replacement solution on Rio Tinto's longest overland conveyors to minimise lost production and lower impacts on existing road networks.

We supported Rio Tinto through multiple project phases that included option identification, optioneering, equipment selection and detailed design through to implementation and close out support for the Overland Conveyor (OC) replacements at Western Turner Syncline (WTS). We provided multidisciplinary services spanning civil, structural, mechanical and electrical engineering.

Our scope of work encompassed the suitability and modification of belt changeout sites and the design of belt reeling platforms, splicing stations, clamp stations and belt flaking layouts for the four overland conveyors and the stacking conveyor, including auxiliary belt pulling drives specific for the changeouts.

During the WTS1 greenfield project construction phase, cost optimisation led to the OCs being constructed without belt replacement or belt splicing facilities. Since installation in 2014, these belts had not been replaced and were approaching their end of usable life.

In particular, the CV2104 conveyor belt which is 12 km long (25 km tape length) and the longest in the company's fleet is a critical component for both plant and production operations. Rio Tinto required a solution to allow these belts to be replaced according to their planned maintenance schedule which involved years of pre-planning.

Through our involvement over the past 4-5 years, BG&E Resources (BGER) identified an innovative approach to develop layouts that maximised the efficiency of the belt replacement and minimised impacts on existing road networks.

Tony Daniel, Program Manager – Sustaining Capital says, "This allowed the rest of the plant to continue operating during belt changeout, minimising the risk of lost production and work required during shutdowns."

The low-risk solution optimised belt changeout to simplify earthworks, eliminating the need to source fill materials as well as reducing risk to ethnographic sites. By developing a relocatable solution, the scope of the project was optimised, thereby removing the need for the fabrication of duplicate items and overland power supply by utilising portable, temporary power controls.

"This complex multidisciplinary brownfield project is a testament to BGER's commitment to delivering high quality sustaining capital works," adds Tony.

Our Experts

Our Civil Engineering Team

Brad Thomas
Discipline Lead - Civil

11 years of experience in both contracting (Alliance, D&C JV, construct-only) and consulting backgrounds throughout Western Australia in civil construction and mining operations. With a high attention to detail, Brad is focused on continually improving safety, productivity, efficiency, and quality for the benefit of all related parties whilst working in a team with a hands-on approach and putting people first.

Steve Evans
Technical Director - Civil

30 years of experience in civil engineering, including over 14 years in the resource industry on various national and international projects across Africa and South America. As a Principal Civil Engineer, Steve was responsible for the design of the various non-process infrastructure facilities within projects which include access roads, haul roads, earthwork pads, laydown areas, accommodation camps, raw water dams, tailings storage facilities and drainage.

Peter Stanes
Technical Director - Civil

40 years of experience in both engineering and commercial aspects of major resources development projects including, heavy haul railroads, roads and bridges, public works the timber industry and commercial developments. He has extensive professional experience working within the civil and rail engineering sector.

Anders Tan
Project Director - Civil

26 years of experience in civil design, construction and maintenance. Anders experience extends to heavy haul rail, rail embankment, roads, highway, drainage extending to track and civil maintenance and operations.

Colin Meeking
Principal Civil Engineer

35 years of experience in the successful delivery of some of the states major infrastructure projects. He has extensive experience in the delivery of major D&C's and Alliances, including freeways, major urban and rural highways and interchanges interfacing with rail, local road networks, urban regeneration, regional airports, regional villages, commercial and industrial subdivisions and developments, recreational facilities, parks and streetscapes.

Scott Henderson
Water Lead

40 years of experience with 36 years in the water industry and the last twelve working in WA. Scott has managed both large project teams and programmes of work with Multidiscipline teams for various clients. Scott has successfully managed many large complex projects in a design and construct environment where tight deadlines and maintaining supply are the key drivers.

Our Experts

Our Civil Engineering Team

Gavin Treacy
Lead Civil Engineer

18 years of experience in civil construction, design and project management. Gavin has a proven track record in implementing cost effective and practical solutions for clients in high risk operations, utilising a strong understanding of engineering principles and attention to detail.

Chee Ho
Lead Civil Engineer

33 years of experience in broad-based civil engineering with particular emphasis on local government, subdivision, and resource sectors projects. He has experience in feasibility studies, FEED, detail designs and peer reviewed works on earthworks (bulk & detail), surface drainage management and road design in Australia, Malaysia and Singapore.

Jayden Catto
Lead Civil Engineer

10 years of experience in the design, design management and site engineering of resources, urban development and infrastructure projects. Recent project experiences have been across successive stages of a project lifecycle including pursuit and bid development, feasibility, concept, detailed design, and procurement and construction support.

Dr. Natalie Horsfield
Lead Hydrologist

10 years of experience working within Australia and the UK for private consultancies and State government on projects within the mining, transport infrastructure, urban development and waste management sectors. Her focus has been on baseline assessments, Environmental Impact Assessments, Pre-Feasibility Studies, flood studies and Surface Water Management Plans. Nat holds a PhD in Physical Geography and a BSc (Hons) in Environmental and Resource Management.

Ryan Brook
Lead Civil Engineer

11 years of experience in designing culverts, floodways and drainage systems for linear infrastructure projects, designing alongside civil works. Ryan has a strong understanding of utility provider processes for design, construction, and relocations.

Roanna Lo
Hydrologist

4 years of experience as a water and environmental engineer in mining, property development, transport, road, rail and water industries. Roanna's experience ranges from project management, hydrology and hydraulic modelling. She is currently facilitating projects in the field of ground and surface water management, stormwater management and contaminated site investigation and remediation.

Our Experts

Our Civil Design Team

Richard Hardy
Design Manager

20 years of experience in the civil design and construction industry with expertise in the mining sectors in Australia and Scotland. He holds extensive experience using 12D in the civil space across the resources and transport sector with exposure to large scale projects for BHP, FMG as well as Roy Hill across several civil areas.

Russell de Jong
Design Manager - Industrial

16 years of experience in engineering, project management and design management. Russell specialised in thinking outside the box to provide practical solutions to complex engineering problems. As Design Manager, Russell's responsibilities include management of design drafting teams project deliverables as well as providing technical assistance.

David Richelieu
Lead Civil Designer

25 years of experience in public works - roadworks, earthworks, carparks, precinct works, as well as mining projects involving camps, earthworks, roadworks and rail using 12d model and Bentley MX including Renew. David has extensive experience with Main Roads standards as well as Austroads and other state road authorities.

Dario Bukara
Lead Civil Designer

18 years of experience in design and drafting for mining, transport, marine, infrastructure industries and land development. Dario possesses a high knowledge of current industry requirements and technical standards.

John Bishop
Lead Civil Designer

21 years of experience. John has worked in both the private and public sectors. His range of experience includes the design and project management of various municipal works, civil infrastructure works, land development and mining projects.

Rob Street
Lead Civil Designer

31 years of Civil Design & Drafting experience in Rail, Road, Drainage, Bulk Earthworks and Site Layouts. The past 18 years has been focused in the Heavy Haul Rail field for major infrastructure projects. Alongside his main focus Rob has been involved in a number of bulk earthworks and tailings projects in the Iron Ore, Gold and Nickle sectors.

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BG&E Resources is a multidisciplinary engineering, design, project delivery and advisory consultancy, providing technical solutions for clients in the Resources, Energy and Industrial sectors. We are majority owned by our employees, who are united by our purpose – together, we embrace innovation to solve complex problems, for today and future generations.

bge-resources.com

COMPETENCY
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