

ABOUT US CGC CONSULTING

Established in 2015 by three forward-thinking engineers, Civil Geotechnical Consultants (CGC) emerged with a shared vision: to pioneer a company that not only tackled geotechnical challenges with ingenuity but also left an enduring positive mark on the community.

At the core of CGC's mission is a resolute commitment to forging robust partnerships, devising innovative solutions for clients and building strong foundations in both engineering and within our community.

In 2019, CGC became the first engineering company in Australia to become a certified social enterprise from Social Traders. In late 2025, CGC broadened our impact to become a certified B Corporation, strengthening our commitment to our people, communities, clients, environmental sustainability and governance.

With strategically located offices along the Eastern Seaboard, CGC is well-positioned to deliver intelligent, practical, and cost-effective engineering solutions across all project phases in the service areas shown below.

- » Transport geotechnics
- Detailed design
- » Design management
- Construction support
- Temporary works
- » Site investigations Bulk earthworks
- » Foundations and retentions
- » Materials assessments

- » Slope risk assessments
- » UAV aerial mapping
- » Geotechnical risk modelling
- 3D photogrammetric mapping
- » Geotechnical interpretation
- » Engineering opportunity analysis
- Contract management
- » Ground Improvement
- » RPEQ certifications







WHY CHOOSE CGC?

Through our geotechnical expertise and unwavering dedication to sustainable positive change, CGC creates stronger foundations through engineering solutions and commitment to our communities.

Geotechnical Specialists in Transport, Energy and Civil Infrastructure

With the highest level of geotech engineering qualification with Department of Transport and Main Roads (TMR) (GE3), our business and people have extensive experience managing geotechnical investigation and design teams for complex hard dollar projects.

Major Project Track Record

We have been selected as partners on many of SE Qld's most important infrastructure projects such as Coomera Connector, Bruce Highway upgrades and Cross River Rail.

A Certified B Corporation

As a B Corporation, we are certified to meet the highest standards of social and environmental performance, transparency, and accountability.

Leaders in Geotechnical Aerial Mapping

To achieve the smartest engineering solutions, you need the best possible information. Using our aerial mapping technology, we can provide 3D imagery, data modelling, and expert analysis to inform the successful delivery of even the most challenging project.

A Trusted Partner

Clients trust us. Over 90% of our projects are sole sourced from clients who want a collaborative partner that will get the job done to the highest engineering standards. Our client partnerships range from tier 1 contractors to TMR and local councils.

Highest-level Accreditations

- » TMR GE3 Geotechnical
- » Engineering TMR Specialist Services Panel Geotechnical / Geology
- » Qld Government Engineering Consultants Scheme Geotechnical
- » Transport for NSW Technical Services Scheme Geotechnical Quality
- » CASA Remote Operations Certificate (ReOC) holder
- » Quality Management Systems ISO 9001:2015
- » Occupational Health and Safety Management Systems ISO 45001:2018
- » Environmental Management Systems ISO 14001:2015
- » Supply Nations member









OUR CORE SERVICES AND CAPABILITY

SITE INVESTIGATIONS

- » Earthworks
- » Materials assessments
- » Geological mapping
- » Ground characterisation
- » CPTs, instrumentation, monitoring
- » Slope risk assessments

2 DESIGN AND ANALYSIS

- » Detailed and temporary works design
- » Ground improvements
- » Soft soils
- » Foundations
- » Retaining structures
- » Numerical methods

3 CONSTRUCTION SERVICES

- » RPEO certifications
- » Temporary works
- » Piling
- » Working platform design
- » Foundation, subgrade, slope and batter assessments

4 ADVISORY

- » Tenders
- » Feasibility studies
- » Value Engineering
- » Root cause analysis
- » Opportunity and risk assessments

5 AERIAL MAPPING

- » 3D design and modelling
- » UAV mobile mapping systems
- » Terrain and surface mapping
- » Risk assessments
- » Slope risk and hazards

6 ASSET MANAGEMENT

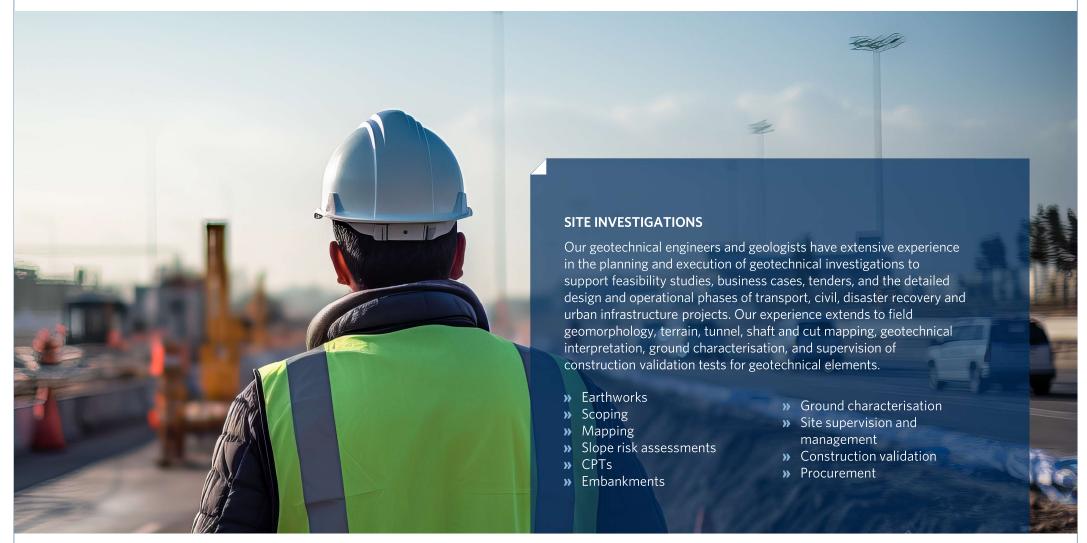
- » Forensic Geotechnics
- » Remedial Design
- » Ongoing monitoring
- » Risk assessment systems
- » Stabilisation solutions

CGC's experience in geotechnical design and analysis spans projects creating nation building infrastructure to small ground improvement designs.

OUR CAPABILITYSITE INVESTIGATIONS

Our geotechnical engineers and geologists have extensive experience in planning and executing site investigations.

It is critical to obtain an understanding of the physical properties of soil earthworks and foundations, through surface and subsurface exploration prior to commencing your project. The methods we use to obtain this information include drilling, soil sampling, laboratory testing, test pitting, trenching, boring, in situ tests and seismic investigations.



OUR CAPABILITYSITE INVESTIGATION PROJECTS



During Cyclone Marcia in February 2015, a 600m long section of the Scenic Highway at Statue Bay suffered significant landslide and rock falls. The slope section was up to 25m in height and adjacent to the coastline. CGC provided slope risk assessments, geotechnical investigation, and geological mapping of the slope and developed the concept, preliminary and detailed slope remediation designs. Geological mapping was also conducted to identify slope risk hazards in unstable, high and difficult to reach terrain.

CGC lead the geotechnical investigations to inform the most appropriate remediation design solution. Stabilisation designs were produced for the upslope which included catch fencing, rock bolting and soil nailing. The downslope required the design of a Reinforced Soil Structure revetment wall up to 9m in height with a bespoke facing block and connection.



Archerfield Airport Corporation commissioned Civil Geotechnical Consultants to undertake a pavement investigation to support the concept design and construction of a proposed Helipad located at Archerfield Airport, Archerfield. As the investigations were undertaken airside, co-ordination and integration with the Airport team was required to ensure safe and efficient execution of the works.

Services involved provision of geotechnical investigation using ute mounted drilling rig, laboratory and insitu sampling and testing, site classification and provision of subgrade design recommendations to support the Helipad design.

Challenges included working within an airfield environment and dealing with reactive subgrade materials derived from a basalt flow deposit.



The Nicklin Way upgrade included construction of a northbound and southbound bridge, pedestrian underpass, and new access to Bokarina Beach. CGC provided a review and assessment of the geotechnical pile design and the construction methodology.

The project included complex traffic management, road surfacing, revetment walls, excavation to link waterway development, intersection upgrades, earthworks and settlement monitoring, draining, service relocations, an upgrade to the existing Unitywater sewer pump station, relocation of the existing water main, construction of retaining walls and construction of suspended pedestrian walkway/boardwalk and linkages.

Six lanes were constructed, with widening and additional lanes marked on the new entry intersection to Bokarina Beach.

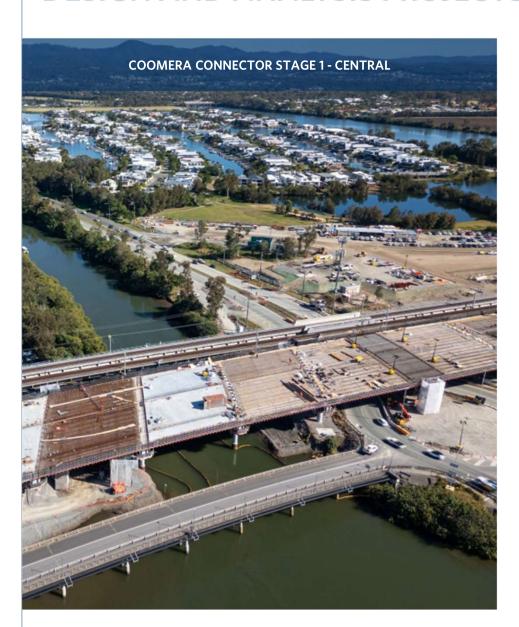
OUR CAPABILITYDESIGN AND ANALYSIS

Our leadership group have significant experience in geotechnical design and analysis for hard dollar contracts and leading design teams.

CGC's experience and skills include Geotechnical Design Management, Remedial Geotechnical Design, Soft Soil Engineering and Ground Improvements, Slope Risk Assessment and Stabilisation.



OUR CAPABILITYDESIGN AND ANALYSIS PROJECTS



The Coomera Connector Stage 1 is QLD's largest road infrastructure project. By constructing additional crossings of the Coomera and Nerang rivers, Stage 1 of the Coomera Connector will reduce pressure on the M1 by providing an alternative route for the growing communities and commercial hubs of Helensvale and Coomera.

The Central Section of Stage 1 between Helensvale and Smith Street Motorway is 16km long with 4 lanes and future-proofed to 6 lanes. This section includes 22 bridges, new interchanges, modifications to overpasses, hydraulics and complex geotechnical improvements.

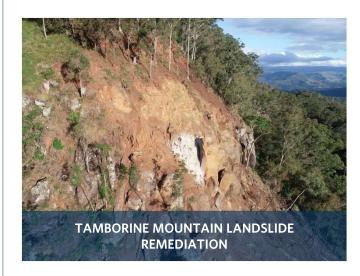
CGC forms part of the design team for the Central Section HR2SS and is completing both geotechnical investigations and geotechnical design for the project. This includes bridges, retaining walls, embankments, noise walls, ground improvements and other ancillary structures. The geotechnical investigation includes a campaign of over 750 boreholes, test pits and CPTs as well as kilometres of seismic investigation that is required to characterise the ground condition throughout the alignment. The geotechnical design includes a wide variety of ground conditions from hard rock cuttings to thick soft alluvial sediments that require improvement to control stability and settlement.

CGC are also responsible for Construction Phase Services including pile certification of more than 1800 piles, monitoring and reporting on settlement, MSM review and verification, shallow footing and subgrade inspections, and supplementary site investigations where requested from FHHJV.



OUR CAPABILITY

DESIGN AND ANALYSIS PROJECTS







Following extensive damage from the South East Queensland coastal trough on Tamborine Mountain Road in December 2020, CGC worked with SEE Civil to remediate and repair this severely damaged area. Reconstruction works started in July 2021 and included rock anchoring, rock catch fencing and pavement rehabilitation works.

CGC provided design management to support design and construction of repair works. Including review of reference design, development of draft options report, design coordination of multidisciplinary team to support design development, specialist inputs, slope risk assessment using RMSv4 methods and liaison with project stakeholders, to facilitate funding and approvals.

CGC also oversaw design and construction certification team delivering all minor works sites along Tamborine Mountain Road.

This project widened an 11km stretch of the Bruce Highway from 4 to 6 lanes between Caboolture-Bribie Island Road and Steve Irwin Way. The \$662.5 million project helps to reduce congestion and improve flood immunity. The project expands the highway from two to three lanes in each direction and provides emergency stopping bays and safety barriers. The project included new bridge structures and creek crossings, as well as improvements to interchange entry and exit ramps.

CGC built a collaborative partnership with the client, providing geotechnical advice from the successful tender stage through to ongoing investigation and construction services for package 2 of this project. CGC has provided tender advice, geotechnical investigations, laboratory testing, earthworks and materials advice, certifications and construction support for the duration of the project.

The project involved the construction of a new two span prestressed concrete overpass structure built over a busy highway. It also included relocating the intersection, changing the location of off-ramps, upgrading the existing on-ramps and constructing new merge lanes. The overpass bridge is supported on bored piles at the abutments and a central pier. The abutments are VSL reinforced soil structure walls (RSS). CGC provided the detailed design of the 130m VSL reinforced soil retaining walls. The geotechnical design included sliding, bearing and overturning analysis of the retaining walls, global slip analysis and settlement analysis.

Challenges included a variable backslope profile and the bridge abutment not perpendicular to the wall, requiring the development of detailed geotechnical models. CGC was able to optimise the design to provide cost saving opportunities in the MRTSO6 design and construct process.

OUR CAPABILITYCONSTRUCTION SERVICES

CGC has extensive experience in construction phase services for civil and transport infrastructure projects.

We have a track record of delivering value for money outcomes for our clients within a hard dollar environment.



OUR CAPABILITYCONSTRUCTION PROJECTS







The Bruce Highway Maroochydore Road Interchange Project aimed to address the congestion and safety issues at both interchanges by upgrading the Maroochydore Road interchange, reconfiguring entry and exit ramps at Mons Road, constructing new service roads and widening the underpass.

The upgrade consisted of a combination of greenfield and brownfield construction methods. The upgrade included separated intersections, bridges, culverts and retention structures. CGC provided geotechnical specialist services from tender to construction phases, including pile certification, temporary works designs, instrumentation and monitoring, foundation inspections and earthworks advice.

CGC identified cost savings through preload assessments, creating opportunity for early preload release of 6 weeks from planned date.

Upgrade of the Gateway Motorway between Nudgee and Bald Hills with the provision of an 8 lane asphalt pavement configuration using greenfield and brownfield construction techniques. Works included construction and/or widening of 11 bridge structures, embankments up to 8m high, drainage structures, reinforced earth, soil nail and gravity wall systems.

CGC was responsible for delivery of detailed design on behalf of the contractor, including liaison and interfacing with external stakeholders (DTMR, Transurban, BCC, IV). Overseeing 2m detailed design drilling program comprising over 200 boreholes, CPTu, vane shears and associated laboratory testing. Construction support including value engineering, pile construction advice, overseeing instrumentation and monitoring program, temporary works design and value engineering.

The Telegraph Road Upgrade Stage 2, has been designed to improve safety, travel times, facilities for pedestrians and cyclists, and reduce congestion. The development saw the road widened to incorporate a four-lane median divided carriageway, removal of the existing roundabout to allow for a new signalised intersection, as well as parking areas, shared pathways and dedicated turning bays, and a four-lane three span bridge.

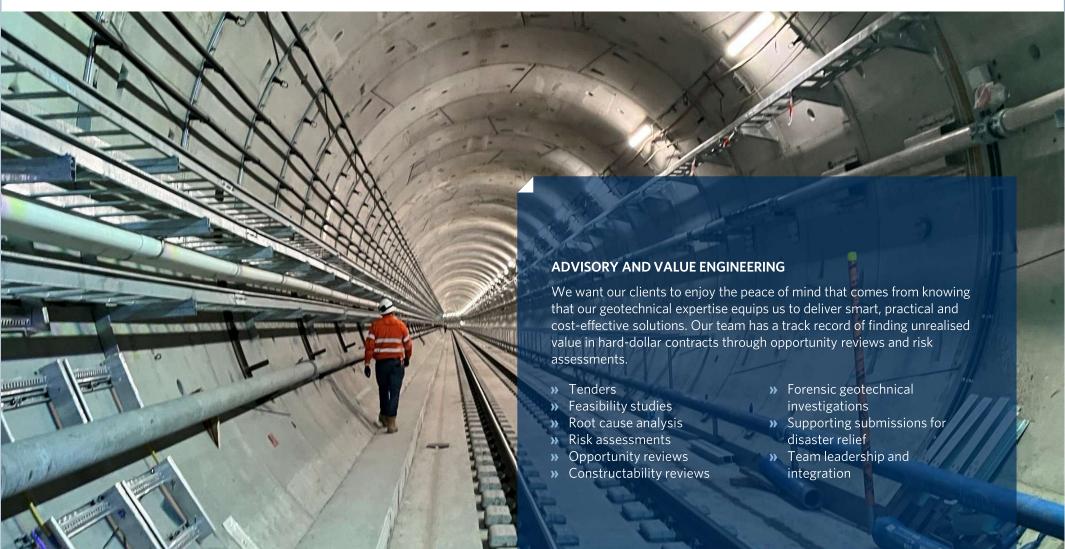
CGC provided geotechnical design and construction phase services for this project. Services involved load transfer platform designs, piling certification lateral pile design for ancillary structures and foundation inspection and certification. Challenges included variable and soft abutment soils, high temporary working platform loads of up to 300kPa and weak underlying mudstones which were prone to collapse during piling.

OUR CAPABILITY

ADVISORY AND VALUE ENGINEERING

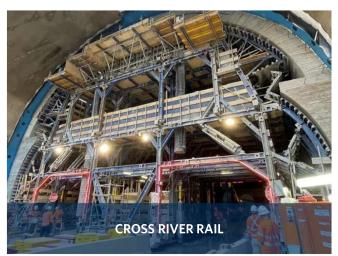
CGC's value lies in our highly experienced staff that understand geotechnical challenges and take an open, collaborative approach with clients.

We pride ourselves on creating innovative, practical solutions to save our clients time and money across project phases.



OUR CAPABILITY

ADVISORY AND VALUE ENGINEERING PROJECTS







Toowoomba Second Range Crossing is one of the central elements of the South West Queensland economic development plan. It is built at the north of Toowoomba and allows the city to be bypassed on a faster and safer route for freight traffic to the ports and South West Queensland. This highway project comprised a 41km bypass with an 800m viaduct above the railway line, and length of 30m in the mountain. As Geotechnical advisor CGC provided verification of the project design and construction activities as part of an integrated verification team. Tasks included design review, risk management advice and workshops, construction inspections, release of hold/witness points, review of instrumentation and monitoring of the works. Technical challenges included mountainous terrain, reactive subgrade conditions, variable rockmass conditions, major cutting and filling operations, program constraints and stakeholder interfacing.



The Bruce Highway Upgrade Project consisted of 7km of highway upgrade between Caloundra Road Interchange and the Sunshine Motorway from 4 lanes to 6 lanes along with the upgrade of Caloundra Road, Steve Irwin Way and the Sunshine Motorway to 4 lanes. In addition to this the Service Interchange at Caloundra Road and the System Interchange at Sunshine Motorway have been upgraded. A new Service Road was also provided to the west of the highway to provide access to the residences and Aussie World as a result of removing the existing highway ramps at Pignata/Frizzo Road along with Shared Path Provisions in accordance with the SEO Cycle Network. CGC delivered geotechnical design, advisory and value engineering of the geotechnical aspects relating to the permanent subgrade and geotechnical design. This included retaining walls and batter slopes, ground treatments, subgrade treatments, earthworks and materials management.

OUR CAPABILITYAERIAL MAPPING

CGC's innovative approach to geotechnical solutions has seen it become an industry leader in the field of geotechnical mapping and 3D design.

We have the software capability, infrastructure investment and in house drone capability that enables us to deliver detailed, accurate mapping and modelling for geotechnical challenges. CGC uses mobile mapping systems such as UAV's to provide a cost efficient way to collect large amounts of high resolution data.



OUR CAPABILITY

AERIAL MAPPING PROJECTS







The Howard Smith Wharf redevelopment in the Brisbane CBD experienced significant rock fall events following the opening of the site. The site is surrounded by vertical and in some places overhanging cliff faces up to 35m in height. CGC provided detailed digital mapping of the cliff faces to identify and map slope risk hazards. CGC utilised photogrammetry techniques to capture slope features in high detail that allowed for the assessment of the risks associated with each identified hazard. High definition orthoplane images were developed along the 550m length of cliff face to facilitate the slope risk assessment and remediation process. A 3-D model of the site was developed with hazards identified and annotated on the 3D form for further assessment by council and subconsultants. Utilising the features of the 3D model cross sections of specific areas of the site were extracted for use in rock fall modelling.

CGC were engaged to provide a geotechnical slope risk assessment and remedial designs for at risk slopes on Magnetic Island in North Queensland. This involved identifying geohazards, providing a risk assessment, proposing viable options for mitigation and a design solution. CGC added value to this project by utilising our in-house Photogrammetry mapping technology to produce precise data capture information. Townsville City Council used this information to assess the slope risks and hazards associated with the community hall at the crest of the slope and ongoing monitoring as part of the site slope risk management plan into the future.

Site plans, contours and orthomosaic and orthoplane images were generated from the digital mapping. This captured critical cross sections and locations, facilitating in-depth analysis of the slope and geohazards of the site. CGC's qualified geotechnical engineers used this information to provide risk mitigation options and design solutions for the client.

Following extensive damage from the South East Oueensland coastal trough on Tamborine Mountain Road in December 2020, CGC worked with SEE Civil to remediate and repair this severely damaged area. Emergency works along Tamborine Mountain Road involved removal of a number of large boulders and debris from the site. CGC undertook photogrammetry mapping of the site to aid in the remedial concept and detailed design development. The photogrammetric mapping developed a highly detailed 3D model of the site. Mapping results were used to geologically map the slope, assess slope stability risk determine geometry for rockfall analysis and anchor design and set design extents. Ground Sample distances of 7mm were achieved on the 75m high slope which enabled high precision for design setout and as constructed data collection, CGC operates all RPA activity under a CASA approved Remote Operations Certificate (ReOC).

C.GC | Capability Statement

OUR CAPABILITYASSET MANAGEMENT

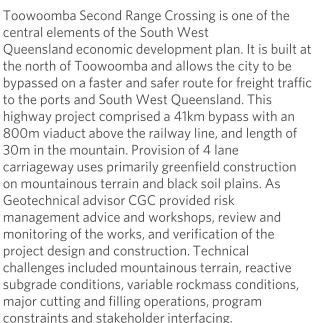
CGC understands the importance of taking proactive measures to help maintain the asset life and minimise the ongoing maintenance costs of infrastructure assets.

CGC has experience and extensive skills across a range of asset management services.



OUR CAPABILITYASSET MANAGEMENT







Disaster recovery works were being undertaken on the Springbrook Road, Gold Coast hinterland after significant damage was caused by landslips, rock and tree falls following the extreme rainfall and flooding events in early 2022. The reconstruction work included removing large rocks and fallen debris, installing slope stabilisation above the road including rock anchoring with soil nails and shotcrete, installing rock catch mesh piling and pavement rehabilitation works.

CGC were engaged by Mcillwain Civil to provide slope risk assessments, site inspections and construction phase support. CGC also provided value add aerial mapping services to further inform slope risks and hazards. CGC also assisted with soil set out, reviewed on site drilling conditions, provided site surveillance, identified onsite hazards and assisted with design inputs for permanent and temporary works design.



This project formed part of Department of Transport slope remediation works at a number of locations along the Mulligan and Kennedy Highways, in North Queensland. The works improved safety for road users by stabilising slopes and mitigating the effects of erosion. CGC were engaged to Stage 2 Slope Risk Assessments (SRA) for 117 sites along the Mulligan Highway.

CGC's role included assessment of risk of slope instability with respect to road users and adjacent landholdings/ stakeholders. CGC undertook detailed slope risk assessments in accordance with the RMS SRA (V4) methodology and provided Slope Risk Inspection Reports, Slope Risk Management summaries, Slope Summary Spreadsheets and a brief covering summary that compiled required data and highlighted any urgent issues.

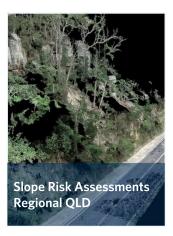
OUR PROVEN CAPABILITIES

ACROSS AUSTRALIA

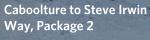
CGC provides geotechnical expertise for critical transport, energy and civil infrastructure projects across Australia.

Our extensive experience, knowledge, and highest possible geotechnical accreditations enable us to identify geotechnical risks early, recommend practical solutions, and work alongside clients to help them deliver the best possible outcomes for their projects.

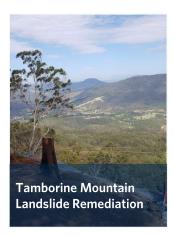






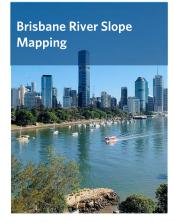


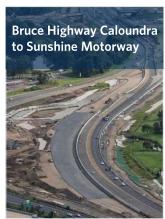


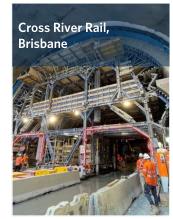




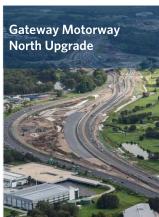














BUSINESS FOR GOOD CERTIFIED B CORPORATION

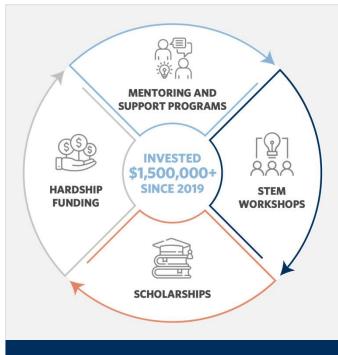
CGC is a certified B Corporation and was a social enterprise for over 6 years. We are verified to meet the highest standards for social and environmental impact, transparency and accountability. We prioritise our people, planet, communities, clients and governance - this is committed in our constitution.

CGC is a Supply Nation member, supporting indigenous businesses through procurement. We utilise local, social benefit or indigenous businesses where possible.

To date, CGC has invested over \$1.5 million in our local communities, with a focus on improving opportunities for young people facing disadvantage.







INVESTED \$1.5 MILLION













OUR CLIENTSAND AFFILIATIONS





















































OUR DIRECTORS AND TEAM



DAVID CARSON
DIRECTOR - PRINCIPAL GEOTECHNICAL ENGINEER

David has extensive experience in roads, rail and tunnelling across NSW, Queensland and Sri Lanka. He is a Fellow of Engineers Australia, an accredited slope risk assessor and is on the Individual Expert Panel with TMR (Geotechnical Engineering and Engineering Geology).

David's in-depth knowledge of geotechnical design, along with his track record in analysing risk and identifying opportunities, has resulted in project cost savings and helped him build trusted client relationships.



IAN THOMPSON
DIRECTOR - PRINCIPAL GEOTECHNICAL ENGINEER

Ian manages CGC's Sunshine Coast office and is an industry leader in UAV (drone) applications. Ian has proven capability for developing practical and cost-effective engineering solutions across geotechnical site investigations, design and construction in Australia, Asia and the Pacific.

lan has developed bespoke design and risk management monitoring portals to manage high-risk slopes for clients such as Brisbane City Council and TMR.



BARRY LAND
DIRECTOR - PRINCIPAL GEOTECHNICAL ENGINEER

Barry's expertise in managing projects and delivering geotechnical content across feasibility, design and construction has resulted in CGC's involvement in many of Queensland's nation-building projects.

Barry is on the Individual Expert Panel with TMR (Geotechnical Engineering and Engineering Geology) and has led large, complex teams, bringing an intimate understanding and robust knowledge of geotechnical investigation, design and construction requirements to the delivery of his projects.



NICK WARD
NATIONAL GENERAL MANAGER

Nick manages CGC's growth, strategy, partnerships, opportunities and operations. Nick is a Civil & Structural Engineer with extensive experience in delivering projects within the infrastructure, commercial, residential, industrial, retail and education sectors. With previous experience as owner and director of medium sized, multi-disciplinary engineering consulting businesses, Nick brings a proven track record of delivering projects, developing partnerships, and managing business operations.



T 07 2104 2751 **E** info@cgc.net.au

CGC

www.cgc.net.au

