CLL Company Profile and Capabilities

CLL
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CLL GROUP (CLL) is a well-established construction company specializing in piling, ground improvements, slip stabilization, ground anchors, retaining walls, civil structures, drainage, and contaminated site remediation. With extensive experience across these disciplines, CLL has built a strong reputation as a reliable and innovative industry leader.

At CLL, we pride ourselves on being at the forefront of ground improvement and piling techniques, leveraging advanced European technologies that set us apart. These cutting-edge systems allow us to tackle complex challenges efficiently, often eliminating provisional tags from tenders and streamlining project delivery. Our collaborative approach ensures that we work closely with your design consultants to develop cost-effective, fit-for-purpose solutions for in-ground challenges.

As part of our commitment to strong partnerships, we offer our expertise and time at no cost—providing indicative pricing and tailored recommendations to help achieve project goals efficiently.

CLL employs 250+ professionals, including engineers, project managers, estimators, machine operators, tradesmen, and skilled labourers. Our workforce includes specialist piling crews and industrial rope access teams, as well as tradesmen such as carpenters, mechanics, and formwork specialists.

OUR EXPERTISE

Geotechnical & Civil Engineering Solutions

- Piling solutions (Olivier Piling, CFA, Bored, Driven, Sheet Piling)
- Retaining and stabilization systems
- Ground anchors and soil nailing
- Deep foundation and ground improvement techniques

Critical Slip Rehabilitation & Drainage

- Earthworks and slope stabilisation
- Cross road drainage and culvert installation
- Swale and water diversion systems
- Manhole and bored drain installations

Specialized Construction Services

- Bridge and structure foundations
- Marine piling and coastal protection
- Infrastructure resilience solutions
- Sustainable construction initiatives

WHY CHOOSE CLL?

- **Industry Leadership:** Cutting-edge European piling and ground improvement technologies.
- **Experience & Expertise:** Decades of experience in delivering large-scale infrastructure projects.
- **Innovative Methods:** Leaders in advanced piling and geotechnical stabilization.
- **Sustainability Focus:** Commitment to environmentally friendly construction practices.
- **Safety & Quality Assurance:** Adherence to the highest industry standards.
- **Project Delivery Excellence:** Proven track record of delivering projects on time and within budget.

LET'S WORK TOGETHER

We welcome opportunities to collaborate on upcoming projects. Get in touch to discuss how CLL can bring value to your project by contacting the person who gave you this brochure or via our branches located on the last page of this document.

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DESIGN & CONSTRUCT

CLL takes care of the design and build of your in-ground projects, simplifying the process for our clients and reducing costs.

Our 35 years of experience across complex landscapes provides valuable insight into pre-purchase and pre-design feasibility assessments, and the overall design of the project.

We work with a small number of expert geotechnical consultants who have experience and an appetite for design and build projects. Ground improvement work, by design, does not structurally connect with the rigid floor structures, therefore our Geotech experts are involved from the very beginning. This ensures that what is constructed below the ground is fit for purpose for what will be built above it.

EARLY CONTRACTOR INVOLVEMENT - ECI

Getting us involved from the outset of your project means a seamless end-to-end solution.

Our 35 years of experience across complex landscapes provides valuable insight into pre-purchase and pre-design feasibility assessments, and the overall design of the project.

The construction industry is trending towards a more unified approach to projects and CLL offers significant experience in design and construction as well as ECI. Consultant led designs are fraught with risk due to the lack in understanding of site specific methodologies, real time innovation and evolution of construction techniques, and current market costs.

We offer significant experience in design and construction as well as ECI with a robust understanding of design, method, and cost relationships and an understanding of the connection between the foundation and structure.

DISPLACEMENT & GROUND IMPROVEMENT PILING

GROUND IMPROVEMENT

CLL trialled and developed liquefaction mitigation techniques for the EQC after the Christchurch earthquakes which set the team on a path of learning about the whole spectrum of ground improvement methodologies - which at the time were more prevalent in Europe and the United States. Through close connections with European, and U.S. geotechnical experts, manufacturers, and suppliers, CLL has become experts in a wide range of ground improvement techniques.

Being primarily a piling contractor with significant design experience we are acutely aware of the comparative costs between various foundation techniques and it became obvious among the team that ground improvement provided remarkable efficiencies to foundation design.

An understanding of the geology, geotech, in addition to retaining highly competent design and engineering staff, forms an essential part in developing these solutions.

GEOPIER

Geopier came to Christchurch in 2011 with their proprietary patented techniques and the aim of growing their business which specializes (among other things) in liquefaction damage prevention.

They took part in the EOC funded trials in the red zone immediately after the earthquakes and it is well documented in the engineering papers distributed worldwide just how successful the Geopier techniques were.

CLL took the opportunity to become the Geopier licensed operator in NZ. This involved significant investment in training and an investment of $12m in plant to reliably and consistently serve the demand which has evolved in NZ.

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RAMMED AGGREGATE PIERS (RAP)

A Rammed Aggregate Pier (RAP) is an intermediate foundation system which provides superior support capacity, increased bearing capacity and superior settlement control.

Weak soils are removed or displaced with columns of dense aggregate. This dense aggregate pier also densities the matrix soils between the piers. The result is a stiffened mass of soil that provides improved bearing capacity and excellent settlement control.

The direct ramming with variable moment hammers greatly densities the ground, significantly increasing horizontal stresses and stiffness in the matrix soils. The RAPs technique using the leader mounted variable moment, and variable speed hammers, provide superior strength and stiffness of the pier without generating resonance in the surrounding ground thus eliminating the negative effects usually associated with vibration techniques in piling works.

OLIVIER PILES

An Olivier pile is a patented drilled displacement pile made of concrete (or reinforced concrete) with a screw-shaped (helical) shaft which is performed without soil removal. Due to its screw-shaped shaft, the Olivier pile is particularly suitable for use in soils with low load-bearing capacities, such as clay and loam, but can be applied in almost all types of soil. Contrary to traditional FDP piles, the Olivier pile is 100% displaced to the bottom of the pile and no soil is transported to the surface.

An Olivier pile can be made with any foundation machine with a minimum torque of 10t/m. The Belgian Gerdi Vankeirsbilck applied for the production patent for the Olivier pile in April 1996. This technique was implemented by his own company and various licenses have been granted in Belgium and abroad. In 2018, a new patent was applied for and involved a method of drilling without the use of a lost bit.

RIGID INCLUSIONS

Rigid inclusions are ground improvement elements used to transfer loads through weak compressible soils, to deeper underlying competent soils. They are also known as grouted rammed aggregate piers.

They are made from plain concrete, aggregate/grout and other combinations, and a very economical alternative to deep foundations such as driven or drilled piles.

This allows the use of conventional shallow footings, and as they are not structurally connected to the foundation, eliminating the need for heavily reinforced pile caps, grade beams and structural slabs.

Rigid inclusions are especially suited to soft soil profiles such as peat or organics, soft silt, or clay, as they take a structural load from the top of concrete column all the way down to a the soil‘s hard layer.

DISPLACEMENT PILING AND GROUND IMPROVEMENT

Full displacement technology has been developed in Europe. There are several versions for this process, some which partially displace soils and others which completely displace soils (FOP). CLL has invested in technology, plant and equipment which covers all versions of the technology.

There are obvious advantages with displacement techniques being that no spoil is generated, and the ground is densified, however there are some complex issues to be considered before displacement works may be designed.

When they suit the intended structure and the geology, they are superior in cost and time, and we have on several occasions provided astonishing savings to projects by changing from conventional piling techniques to displacement techniques.

SECANT WALLS

CLL have been constructing secant walls for 12 years.

Secant walls are needed under specific conditions where soft saturated soils exist and excavating holes in the material allows water to drain into the excavation both through the excavation walls and by migrating down and up through the base of the excavation.

Secant walls may be extended to a depth below the base of the excavation to prevent the flow of water down, across and up into the basement cavity.

The construction of secant walls is technically demanding. The process involves constructing a series of soft piles with low MPa concrete and with no reinforcement.

COMPENSATION GROUTING

Compensation grouting is a type of repair, a way of lifting a structure.

It is an active technique, which counteracts ground relaxation caused by building settlement, or changes caused by tunnelling or other ground changes.

Compensation grouting requires precise measurement of the grout injected, and real time monitoring of the process, and displacement of soil and structures. It either mitigates settlement or actively heaves the strata above to compensate for settlement.

The grout itself is injected under pressure through single port or multiple port pipes - often referred to as tube-a-manchette (or TAM).

PERMEATION GROUTING

Permeation grouting is a complex technique which can involve the use of various grades of cement with and without chemical additives and it can be carried out with only certain chemicals.

Immediately after the Christchurch Earthquakes, the EOC went out to expert contractors and asked for ideas to mitigate the liquefaction risks as had occurred during the earthquakes.

CLL were closely aligned with STA and Sireg, manufacturers in Northern Italy. We brought to NZ, Giorgio Borellas who is an engineer with vast grouting expertise and experience in building (and seismic proofing) dams and other structures.

RETENTION PILING

We construct retaining walls of many types and sizes, for commercial, industrial and residential clients, and for public infrastructure projects.

RETAINING SOLUTIONS

Our specialisation is designing problem-solving alternatives for site and circumstances. Our experience allows us to advise and examine cost options, as well as knowledge around design advantages and what the finished look may be.

CLL can provide an integrated, beginning-to-end package, including drainage, ground anchors and waterproofing, along with the design and consent process.

Our retaining solutions and systems include:

- Timber pole walls
- Steel UC pipe walls
- Reinforced concrete pile walls.
- Shotcrete or tilt panels for a high spec finish if required
- Masonry walls
- Composite walls, including geosynthetic materials
- Gabion walls
- Crib walls

DRIVEN PILING

Driven piles transfer their load to layers of rock or soil that have sufficient bearing capacity, and suitable settling characteristics.

Driven piles commonly support buildings, walls and bridges, and can be the most cost-efficient deep foundation method.

The long slender preformed and shaped material is installed by impact hammering, vibrating or pushing into the ground to a design depth or resistance. As an adaptable type of foundation, driven piles can be installed with compression, tension or lateral loads in mind, with consideration of structural needs, budget, and soil conditions.

STEEL CLUTCHED TUBE WALLS

Clutched Tube walls were pioneered by CLL in NZ for the development of basements due to a situation of need.

CLL was called into early design discussions for a two-level deep basement car park development at Ponsonby Central.

The developer Andy Davies wanted two levels of basement car parking directly beside the existing shopping complex within 100mm of double story brick wall and surrounded by dense residential and retail buildings. The resource consent was demanding with no allowance for vibration. Tonkin and Taylor had noted settlement risk from water draw down, so the retaining wall had to be waterproof in both the temporary construction sequence and in the permanent lifetime design.

SHEET PILING AND COMBI WALL PILING

Sheet piles and combi wall systems are shaped steel and tube sections with interlocking edges (or clutches) which are driven into the ground for earth retention and evacuation support. They are often installed with vibratory hammers.

When handled correctly, sheet piles can be used and re-used, whereas combi walls tend to be used in permanent applications.

CLL have brought sheet piling and combi wall systems to projects ranging from basement developments, tunnel portals, protective barriers, and in marine contexts of riverbank protection, seawall, and cofferdams.

DEEP SHAFTS

CLL is capable of digging the deepest shafts in New Zealand. These vertical holes can be up to 4.2m in diameter, and up 80m deep. This capacity is supplied by the Liebherr LRB355 rig, supported by on-site bentonite production to prevent the hole collapsing as it drilled.

CLL is able to guarantee hole straightness through the use of sonar and computer integration, which can tell at any given point how vertical the cavity is. Our deep shaft capability and expertise is a natural progression from CLL's piling expertise.

Being able to dig deep shafts and ensure they're perfectly straight, is a technique we're very proud of.

KELLY CASING PILING

In cases where the ground is not strong enough to be stable while a hole is drilled, the sides of the hole must be supported during the drilling, caging and concreting stages.

There are a number of techniques for supporting the sides of bored holes for pile construction including:

- Kelly casing
- Vibro casing
- Oscillator casing
- Bentonite support
- Polymer support

Kelly Casing is useful for stabilizing bored holes between 600 and 1.5m diameter, up to 50m deep, and does not rely on vibration to penetrate. The specially designed and built casings are fitted with teeth and screwed into the soil with additional sections being added as necessary.

BORED PILING

At CLL we lay the foundations for structures to be built upon, and CLL has many ways to bore a hole in the ground. We bring a unique approach to difficult ground conditions, and our methods often result in increased speed and lower costs for clients.

Our capabilities include holes from 200mm to 2.0m wide, up to 50m deep, as well as a number of specialist piling rigs which can handle all technical difficulties.

Design assessment sits alongside CLL's versatility and extensive knowledge of piling systems, and enables us to advise on optimal cost effective alternatives.

DTH HAMMER

Down the hole hammers, or DTH uses a jack-hammer to shatter hard rock into small cuttings and dust. This is extracted by air, water or drilling mud. It is one of the quickest ways to penetrate rock such as basalt, grit, or welded tuff.

Pneumatics transmit intensive impact energy with low energy loss for excellent rock breakage, high penetration rates and high productivity. The jack-hammer(s) produce a straight, accurately placed clean bore hole.

DTH is significantly quicker than drilling techniques in these hard rock situations.

CLL's DTH hammers produce a quality hole from 450mm to 1000mm in diameter, down to a depth of 26m.

BENTONITE AND POLYMER PILING

Some soil conditions, particularly more sandy environments, require the use of a hole-stabilising lubricant. Both bentonite and polymer fluids have different properties, but their main role is to keep the borehole stable.

CLL carries out this form of pile construction by design, alongside a geotechnical report as well as understanding of structural requirements.

The use of either of these binder/lubricants is a specialised technique that CLL has adapted to local conditions. Our team understand its application, advantages, and its limits.

The use of fluids is to stabilise the hole, and keep it open while you continue drilling.

CFA PILING

Continuous Flight Auger, sometimes known as auger cast piling, is a technique to create concrete deep foundations.

A continuous flight auger drill is the same length as the required hole depth, and concrete is injected through a hollow shaft under pressure as the auger is extracted.

Reinforcement is inserted after the auger is removed, creating a continuous pile without ever leaving an open hole. Fifteen years ago, CLL was introduced to CFA piling when visiting a contractor in Sydney. Soon after, we visited rig manufacturers in Italy, and our first CFA rig was soon on the water heading for Auckland.

DOUBLE ROTARY CFA

From the time we started with CFA it has always been the dream of the CLL team to get a double rotary rig because of the superior accuracy and speed that they enable.

About 7 years after introducing CFA, CLL bought a DRCFA rig from Perth.

The technique is particularly valuable when constructing secant walls and the piles produced form a very accurate clean line.

Unlike conventional top-drive rotary rigs, a double rotary has two counter rotating rotary drives working simultaneously but in opposite directions.

The hydraulic top-drive rotates the drill string. The lower independent rotary drive advances a steel casing through unconsolidated overburden. This casing‘s rotation provides borehole stability.

REINFORCED CONCRETE PILES

Reinforced concrete piles are one of the most common types of foundation. RCPs can be created on-site, or be pre-cast and pre-stressed off-site and placed, or driven, where the construction is taking place.

The advantage of these types of piles is that they reduce settlement at sites that have weak compressible soils.

Concrete‘s relatively low tensile strength and ductility are compensated for by the inclusion of reinforcement. The alkalinity of the concrete protects the steel rebar from corrosion. Reinforced concrete piles are one of the most simple techniques for creating foundations.

BRIDGE CONSTRUCTION

CLL have constructed, and reconstructed, a number of bridges including major roadways and residential bridges (particularly for private access).

Often there are specific challenges around noise, neighbours, resource consent, and attendant marine life.

Our problem-solving approach mitigates these challenges and ensures that projects are delivered on-time and on-budget with minimal disruption to people and the environment.

BANK STABILISATION AND SLIP REPAIR

Continuous Flight Auger, sometimes known as auger cast piling, is a technique to create concrete foundation piles. We specialise in bank stabilisation, slip repair, soil nails/ anchors, and micro piles. Our experienced abseil team will help you get to those hard to reach places.

SLIP / CLIFF REPAIR

We specialise in slip and cliff-face stabilisation and our expert teams can identify both the cause, and ways to repair and secure unstable slopes. Our slip repair process is an integrated service from design and costing, consents, construction, and reinstatement of landscape.

CLL‘s development of innovative techniques used in previous projects enables us to offer cost effective solutions at the design stage - streamlining and reducing the cost of repairs.

Our expertise also includes rapid-response teams for emergency situations. In these distressing conditions our depth and breadth of skills and technology allows us to quickly assess and respond to the specific needs of each situation.

SOIL NAILS, SOIL ANCHORS

Soil nails, and their bigger cousins, soil anchors are a remedial measure to treat unstable natural soil slopes. As a technique it can also allow the safe over-steepening of new or existing soil slopes. Soil nailing inserts relatively slender reinforcements such as rebar into pre-drilled holes in the slopes. The bar is then grouted into place.

CLL is a leading specialist in horizontal drilling and grouting, and we run up to four crews skilled in percussion, and auger, bits. Our auger bit capability means very little mess is created, allowing remedial work close to houses, and in environmentally sensitive areas. Our rigs are very mobile, and able to be deployed on the side of cliffs or steep slopes.

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FOUNDATION & STRUCTURES

Commercial, industrial, civil and residential foundations are a key focus of our groundwork improvement solutions.

FOUNDATION CONSTRUCTION

Commercial, industrial, civil and residential foundations are a key focus of our groundwork improvement solutions. We provide an integrated package, eliminating the need for subcontractors at various parts of the construction process, easing the load of our clients.

CLL also has its own formwork carpenter teams who assemble the foundations for over 200 residential homes each year. Our start-to-finish foundation-construction capabilities include:

- Excavations
- Drainage
- Temporary retaining
- Piling
- Masonry work
- Waterproofing
- Concrete slabs
- Hard landscaping

STRUCTURES AND CONCRETE WORKS

Concrete is a wonderfully versatile material that we have considerable experience working with.

We take pride in offering construction alternatives to suit site requirements and client needs, as well as costing alternatives. We can advise on the finished look and design advantages.

We can construct:

- Bridges - especially for private access
- Decks and stairs
- Noise walls and large fences
- Pedestrian tunnels
- Viewing platforms

Key Project Information & Client Reference Sheets

CLL has successfully delivered projects for government agencies, local councils, and private sector clients across New Zealand. Our portfolio includes major infrastructure projects, slip remediation, and specialized piling solutions that have improved the resilience of transport networks and essential infrastructure.

We are able to provide you with our up-to-date presentations, demonstrating our cutting edge technologies and case studies should you require, and you can visit our LinkedIn page and website for more visual content, or at your request we can provide you with links to these.

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PROJECT INFORMATION SHEET

MANGAMUKA GORGE SLIP REPAIRS

LOCATION	**SH1 MANGAMUKA GORGE, KAITAI, NORTHLAND**
CLIENT	**NZTA WAKA KOTAHI**
START & FINISH DATES	**FEBRUARY 2023 - ONGOING**
VALUE	**$200M CIRCA**

PROJECT OVERVIEW

The Mangamuka Gorge Slip repairs and rehabilitation project is a major infrastructure initiative located on State Highway 1 (SH1) within the Maungataniwha Ranges, an area of significant natural importance in New Zealand. This project involves the remediation of multiple large slips in a highly sensitive environment, focusing on stabilising the terrain, restoring safe road access, and mitigating environmental impact.

CLL has been engaged as the construction contractor for the entirety of this project, bringing our expertise in geotechnical solutions, complex piling, and environmental management to ensure the successful completion of these critical works.

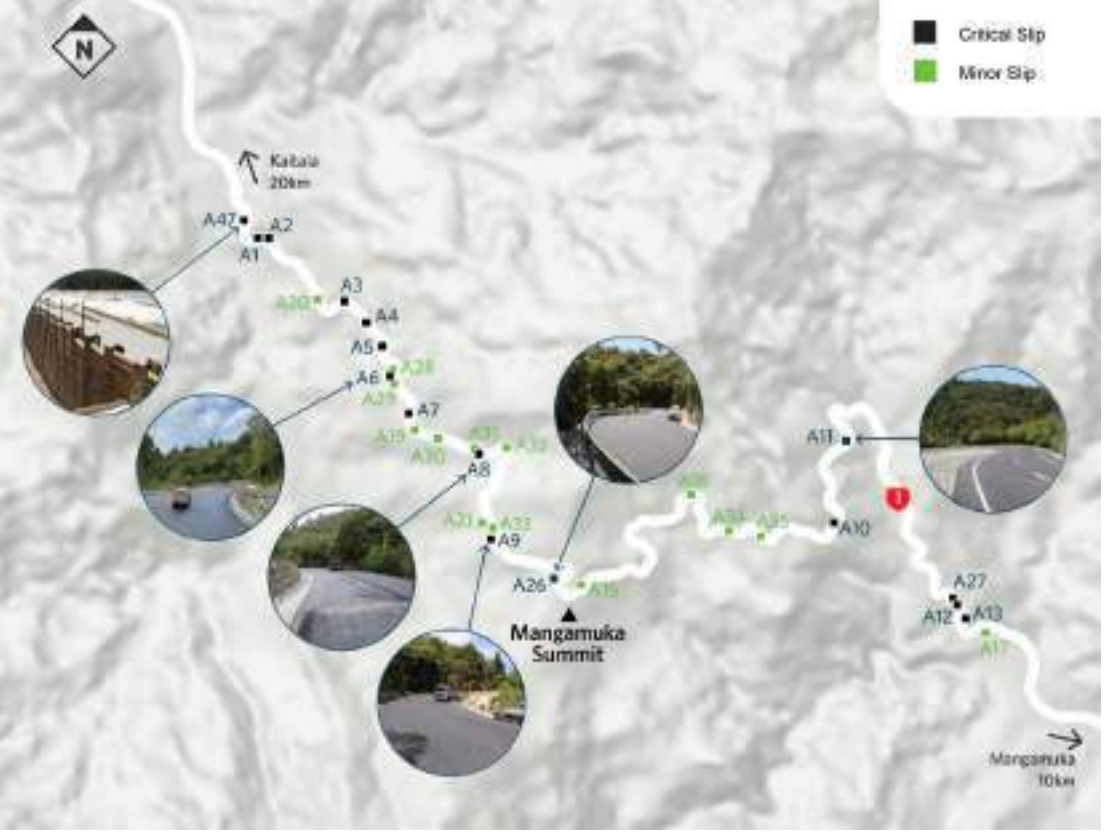
Another innovation on the site is a retaining wall that has now set the standard for such walls on other Waka Kotahi projects, according to Hendrik Postma, NZTA Senior Project Manager.

The wall was constructed by CLL as a subcontractor after the 2020 slips, and after the 2022 slips, the team was surprised to see the wall had held up far better than expected.

“It’s not a cheap fix, but it definitely works and is now being used on other projects because it’s so good,” Postma said.

Mark Ware, NZTA Project Director, highlighted the extreme weather challenges faced during the project: “The past year was one of the wettest on record, with over one metre more rainfall than the historical average in the area. Usually, the region gets approximately 1700mm of rain in 12 months – in contrast, over the past year there’s been over 2800mm of rain.”

Ware further explained the geological difficulties of the region: “Northland’s ground conditions (including through the Maungataniwha Range which surrounds Mangamuka Gorge) have always been fragile. Almost 70 per cent of the geological material which forms rocks in the region is made up of Northland Allochthon, better known as ‘Northland Problematic Rock.’ This type of material has long been challenging for construction and maintenance of roads, and means repairs to slips of this nature need to be carefully planned, since finding competent material to anchor the road to can be difficult.”



DESCRIPTION OF WORKS AND KEY FACTS

The project encompasses extensive earthworks to remove debris and reshape affected slopes, ensuring the long-term stability of the region. Pavement reconstruction involved milling damaged surfaces and installing new asphalt layers, with waterproof membranes applied to enhance durability.

A key component of the rehabilitation was the installation of permanent pile walls, reinforced with anchors to provide additional lateral support, distributing load forces effectively and ensuring slip areas remain stable. Given the project's proximity to waterways, strict environmental management practices were implemented, including erosion control, sediment containment, and ongoing environmental monitoring.

Collaboration with local iwi and environmental stakeholders was central to ensuring that cultural and ecological values were upheld.

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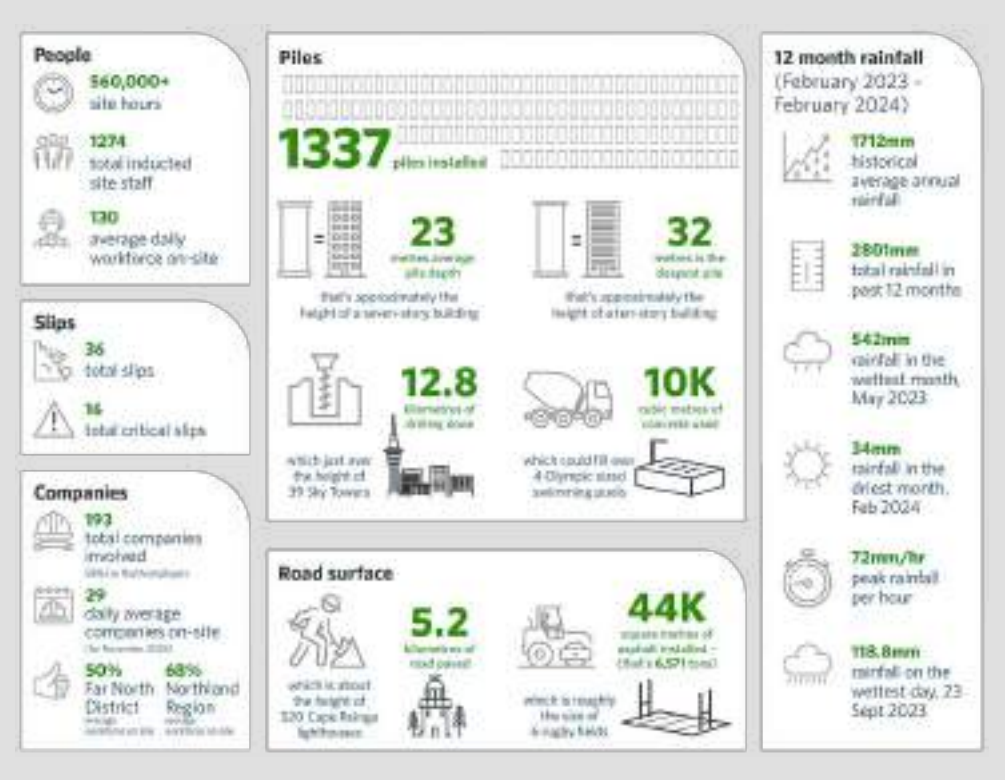
PROJECT FACTS AND FIGURES



ACCELERATED PROCUREMENT PROCESS

The accelerated procurement process used by NZTA for the Mangamuka Gorge project was designed to fast-track the selection of a construction contractor due to the urgency of the repairs. This approach is often used in situations where time is a critical factor, such as emergency road repairs after severe weather events.

Here's what it likely involved:

Key Features Of The Accelerated Procurement Process

1. Direct Engagement with Experienced Contractors – NZTA engaged directly with contractors who had proven expertise in geotechnical and slip remediation works.
2. Cost-Reimbursable Model – A flexible contract structure allowed work to commence before a fully detailed scope was established.
3. Early Contractor Involvement (ECI) – Contractors were brought in early to provide input into design and constructability, expediting the overall timeline.
4. Streamlined Decision-Making & Approvals – Reduced bureaucratic hurdles allowed for quick approvals and project initiation.
5. Collaborative Delivery Approach – Frequent communication and teamwork between NZTA, consultants, and CLL ensured efficient problem-solving and adaptability.

BENEFITS OF THIS APPROACH

- Faster Project Start & Completion – Critical infrastructure repairs progressed without lengthy procurement delays.
- Flexibility for Scope Changes – The ability to adapt to evolving site conditions without significant contract renegotiations.
- Stronger Contractor Commitment – Early engagement fostered a sense of ownership and accountability for successful delivery.

WHY THIS MATTERS FOR CLL MOVING FORWARD

Since this project was CLL's first as a Tier One contractor, the success of the accelerated procurement model strengthens the case for NZTA to continue using cost-reimbursable contracts and direct engagement with capable contractors like CLL for future projects. This model ensures agility, cost efficiency, and effective risk-sharing—key factors in delivering complex infrastructure repairs.

PROJECT EXECUTION AND COST MANAGEMENT

The project commenced as an emergency response under a cost-plus contract due to the absence of a predefined design. As design concepts evolved, procurement of long-lead items, such as 1,050mm-diameter steel casings, led to cost savings estimated at $1 million. Construction budgets were developed in alignment with the progressive design and reported to the Client's Quantity Surveyor (QS).

Throughout the project, financial oversight was maintained through:

- Monthly progress claims
- Cost forecasts
- Cashflow management to ensure budget adherence

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Collaboration with the Client's QS ensured financial transparency and accuracy in reporting. Once the final scope was established, additional budgets were prepared to support funding applications.

CHALLENGES AND INNOVATIONS

- Minimising SH1 Closure: To expedite the project and reduce the impact on local communities and freight operators, night shifts were introduced to enhance productivity while mitigating material supply constraints.
- Adapting to Weather and Site Conditions: The implementation of a Trigger Action Response Plan (TARP) meant construction had to be paused during heavy rainfall or when slip sensors detected movement. Despite these challenges, the team successfully navigated disruptions.
- Holiday and Weekend Works: Approval was granted to work through the Christmas break and long weekends to maintain momentum on critical-path activities. This strategic scheduling helped mitigate delays and ensured steady progress.

CONCLUSION

The SH1 Mangamuka Gorge Slip Repairs Project stands as a testament to CLL's ability to deliver complex geotechnical solutions while balancing environmental stewardship and community engagement. This project highlights our expertise in large-scale slip remediation, sustainable construction methodologies, and effective stakeholder collaboration.

With a commitment to safety, innovation, and excellence, CLL has successfully restored this vital transport corridor, ensuring long-term resilience and connectivity for the Northland region.

NZTA PROJECT REPRESENTATIVES

- NZTA Waka Kotahi Mangamuka Senior Project Manager, Hendrik Postma
- NZTA Waka Kotahi Mangamuka Project Director, Mark Ware
- NZTA Waka Kotahi Project Director, Norman Collier
- Mangamuka-born-and-bred, Tomo Otene, the project's Ngā Hapū o Mangamuka Representative.
- Far North District Councillor, Steve McNally
- Regional Transport Committee Chair, Joe Carr
- Steve Mutton, Director Of Regional Relationships for NZ Transport Agency Waka Kotahi

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PROJECT INFORMATION SHEET

NORTHSLIPS DRAINAGE

LOCATION STATE HIGHWAY 1, MANGAMUKA GORGE

CLIENT NZTA WAKA KOTAHI

DESCRIPTION OF WORKS

EMERGENCY WORKS (PRIOR TO CONTRACTOR CONFIRMATION)

Before the formal appointment of CLL as the construction contractor, emergency works were undertaken to stabilize the site and manage drainage. These works included:

- Installation of 12 cross road drains, all utilizing 800mm PE pipe, designed to act as a self-cleaning systems.
- Three of these drains featured a substantial run along the hillside of the road, requiring the installation of 8 manholes in total.
- All but one of these manholes were fitted with flumes to control water discharge.

CLL DRAINAGE & INFRASTRUCTURE EXPERTISE

Once the project progressed to the next stage, CLL's drainage teams executed extensive drainage improvements, including:

- Installation of 21 culverts, which were of the same 800mm PE pipe size as the cross road drains, ensuring consistent water flow management across the project.
- At two culvert locations, 1200mm PE pipe was used to facilitate fish passage, providing environmentally sustainable waterway connectivity.
- Implementation of swale drains in 10 locations to effectively divert water away from the piled walls, covering a total of approx. 2 lineal kilometre.
- Installation of 11 manholes, strategically placed where multiple bored drains were installed to improve site drainage and water management across the project.

KEY STRENGTHS

- Expertise in **critical slip rehabilitation** and geotechnical solutions.
- Advanced **drainage installation techniques** to improve long-term resilience.
- Commitment to **safety, environmental sustainability, and innovation**.
- Proven track record in delivering projects **on time and within budget**.

PROJECT INFORMATION SHEET

PONSONBY CENTRAL

LOCATION	BROWNS STREET, PONSONBY
CLIENT	ASPEC CONSTRUCTION
START & FINISH DATES	SEPTEMBER 2018 - JUNE 2021
VALUE	$6.2M

DESCRIPTION OF WORKS

The Ponsonby Central Development project required comprehensive foundational work for the development of a multi-level structure which included a three-storey basement car park, a retail and hospitality level, commercial office spaces, and residential penthouse.

CLL carried out the foundational work which included the construction of a comprehensive retaining wall using 136 reinforced concrete (RC) building piles, soil anchors, and steel pipe piles equipped with clutches.

CLL also carried out the bulk excavation process for the two basement car park levels and provided a basement slab.

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PROJECT INFORMATION SHEET

TE KAHA STADIUM

LOCATION	CHRISTCHURCH CBD
CLIENT	BESIX WATPAC
START & FINISH DATES	AUGUST 2022 - MARCH 2023
VALUE	CIRCA $10M

PROJECT OVERVIEW

Our client required a ground improvement solution for the Te Kaha Stadium project in Christchurch, seeking enhanced soil density and load capacity for the proposed arena structure.

In November 2021, CLL partnered with Tonkin & Taylor, to secure a design and build contract for this project. Following an extensive design phase and site trials, we were selected for the project and commenced operations in August 2022.

The project involved enhancing soil density through the incorporation of our innovative *Geopier Rammed Aggregate Piers (RAPs). Using multiple advanced fixed mast rigs, we compacted 20,400m³ of aggregate to depths of up to 12m, significantly improving the ground density and load capacity.

The successful completion of this project resulted in a return engagement for additional RAPs in May 2023 and established a strong foundation for potential future collaborations.

PROJECT INFORMATION SHEET

SUDIMA HOTEL

LOCATION	NELSON STREET, AUCKLAND CBD
CLIENT	GLAMORTON DEVELOPMENTS
START & FINISH DATES	DECEMBER 2018 - JULY 2019
VALUE	$55M

DESCRIPTION OF WORKS

Glamorton Developments required a comprehensive construction works for the new ten-storey Sudima Hotel in Auckland Central, involving extensive site preparation and substructure construction, as well as superstructure and finishing works. CLL completed these works in two distinct phases.

Stage 1 focused on site preparation and substructure construction. This involved demolishing the existing building's upper structure, and removing asbestos-contaminated roof tiles. Earthworks were then carried out and the basement was constructed, which required the installation of foundation piles, a capping beam, basement shear walls, and ground-level beams and footings. Additionally, this phase included constructing car-park ramps and access points to the ground floor.

Stage 2 encompassed superstructure and finishing works, such as coordinating on-site deliveries and installing structural elements, stitching joints and floor slabs, managing interior fit-out works, and applying facade panels to the hotel's exterior cladding. Throughout both stages, CLL maintained strict adherence to traffic management plans to ensure safety and minimise disruptions.

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PROJECT INFORMATION SHEET

PEACOCKE BRIDGES

LOCATION	WHATUKOORURU DRIVE, HAMILTON
CLIENT	DOWNER CONSTRUCTION
START & FINISH DATES	MARCH - JUNE 2023
VALUE	$2.6M

DESCRIPTION OF WORKS

CLL successfully completed the construction of two bridges in Hamilton: the Eastern Gully Bridge and the Mangakotukutuku Gully Bridge, both situated on Peacocke Road. The project comprised the installation of a total of 28 piles, including abutment piles (900mm in diameter, 25m deep) reinforced with permanent casings and pier piles (1.2m in diameter, 30m deep) equipped with a permanent sleeve.

To accomplish this task, specialised equipment such as the LB24, a 110-ton crane, and excavators weighing 36T, 14T, and 8T were used.

Challenging access conditions meant manoeuvring this equipment down a steep ramp, which demanded exceptional efficiency from the team. The soft ground conditions, caused by the site's proximity to a river, also necessitated the use of a bentonite slurry system during the drilling process to bolster pile shaft stability. Stringent sediment control measures were implemented to mitigate pollution risks arising from this proximity to this river.

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PROJECT INFORMATION SHEET

LOOP ROAD

LOCATION	SH1 OTAIKA BRIDGE GROUND STABILISATION AND PILING WORKS
CLIENT	OXCON CLL
START & FINISH DATES	JANUARY 2024 - NOVEMBER 2024
VALUE	$4M

PROJECT OVERVIEW

CLL was subcontracted by Oxcon CLL (sister company) to carry out ground stabilisation and bridge piling works for the SH1 Otaika Bridge project. This project required a range of piling techniques to ensure the structural integrity of the bridge and surrounding infrastructure, particularly given the challenging proximity to the river. Despite the complexities, the project was successfully completed on time and within budget.

SCOPE OF WORK AND KEY FACTS

The project involved four distinct piling methods, each tailored to specific structural and geotechnical requirements:

- **Full Displacement Piles:** 189 piles, each 14 meters deep and 450mm in diameter.
- **Rammed Aggregate Piers (RAPs):** 586 RAPs installed at depths ranging from 12 to 16 meters, with a diameter of 600mm, using 2,400m³ of GAP40 material.
- **Bridge Piling:** 8 piles, each 1,500mm in diameter and 20 meters deep, forming the foundation of the new bridge structure.
- **Retaining Wall Piling:** 50 reinforced concrete piles, averaging 11.5 meters in depth and 750mm in diameter, ensuring slope stability and long-term resilience.

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CHALLENGES AND EXECUTION

- **Proximity to Waterways:** The site's location near and within the river presented environmental and logistical challenges. Mitigation measures were employed to ensure stability and minimize impact.
- **Varied Ground Conditions:** The use of multiple piling techniques allowed for tailored solutions to different soil and load-bearing conditions, ensuring structural integrity.
- **Timely Delivery:** Despite the challenges, CLL delivered the project efficiently, meeting all schedule and budgetary constraints.

CONCLUSION

The SH1 Otaika Bridge ground stabilisation and piling works demonstrate CLL's capability in delivering complex geotechnical solutions with precision and efficiency. By successfully implementing a variety of piling techniques in a challenging environment, CLL reinforced its reputation as a leader in foundation engineering, ensuring long-term stability for a critical piece of infrastructure.

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PROJECT INFORMATION SHEET

MEDALLION DRIVE LINK BRIDGE PROJECT

LOCATION	MEDALLION DRIVE LINK BRIDGE PROJECT
CLIENT	DEMPSEY WOOD CIVIL
START & FINISH DATES	AUGUST 2020 - JANUARY 2021
VALUE	$2.2M

PROJECT OVERVIEW

The Medallion Drive Link Bridge project is a critical infrastructure development aimed at improving connectivity and accommodating increased traffic flow. The project required the construction of key structural elements designed for long-term durability, stability, and functionality.

SCOPE OF WORK AND KEY FACTS

CLL was responsible for delivering core construction elements, ensuring structural integrity and adherence to engineering standards. The project was completed on time and within budget, exceeding client expectations.

KEY STRUCTURAL COMPONENTS

- **Bridge Piling:** Installation of eight piles, each 1,200mm in diameter and extending 11 meters deep, providing foundational support for the bridge abutments. These piles underwent Crosshole Sonic Logging (CSL) testing to confirm they were free of defects.
- **Abutments Construction:** Included excavation, reinforced steel installation, formwork placement, concrete pouring, and backfilling to ensure structural stability and load-bearing capacity.
- **Super T Beams:** Eight beams, each measuring 30 meters in length, 2.3 meters in width, and 1.3 meters in height, installed on rubber bearing pads to allow controlled movement and load distribution, mitigating thermal expansion and seismic activity.
- **Settlement Slabs, Wingwalls, and Retaining Walls:** Precision reinforcement and formwork placement, followed by concrete pouring, ensuring long-term resilience.
- **Scour Protection Measures:** Implemented to safeguard against erosion and potential water damage, enhancing structural durability.
- **Barrier Installation, Electrical & Drainage Works:** Completion of critical safety and functionality components, including pedestrian footpaths for improved accessibility.
- **Anti-Graffiti Protection:** Applied to maintain the bridge's long-term appearance and durability.

PROJECT EXECUTION AND KEY ACHIEVEMENTS

- **No Design, Construct-Only Approach:** CLL successfully delivered the bridge based on provided specifications, demonstrating construction expertise.
- **400-Tonne Super Lift:** Successfully executed as part of the bridge installation, requiring precise coordination and technical expertise.
- **Client Satisfaction:** CLL completed the project on time and within budget, surpassing client expectations in terms of quality, efficiency, and project execution.

CONCLUSION

The Medallion Drive Link Bridge project stands as a testament to CLL's capability in delivering complex bridge construction projects. With meticulous execution, rigorous quality control, and innovative construction techniques, CLL ensured the successful completion of a critical infrastructure project that will serve the community for years to come.

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PROJECT INFORMATION SHEET

BAYFAIR TO BAYPARK

LOCATION	TAURANGA
CLIENT	CPB CONTRACTORS PTY
START & FINISH DATES	MARCH 2020 - 07 MAY 2021
VALUE	$4.5M

DESCRIPTION OF WORKS

The Bayfair to Baypark link (Baylink) project, situated on State Highway 2 south of Tauranga, required an upgrade of two major state highway intersections. This critical infrastructure development posed significant challenges, particularly the need for foundational work for bridge piers near a busy intersection with active traffic.

To address these challenges, CLL carried out a comprehensive foundation solution. 1,289 CFA piles were installed in double rotary mode, each with a diameter of 750mm and depths ranging from 10m to 15m. The use of double rotary drilling ensured that debris was contained within the shroud, allowing for safe and efficient drilling operations close to live traffic.

Our efficient site management was noteworthy, achieving a daily pumping capacity of approximately 250 linear meters. Our coordination of spoil removal and concrete delivery also culminated in an peak production rate of 468 linear meters per day.

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PROJECT INFORMATION SHEET

AUCKLAND CYCLEWAY

LOCATION	GLEN INNES TO TĀMAKI DRIVE, AUCKLAND
CLIENT	NZTA - AUCKLAND
START & FINISH DATES	JULY 2020 - APRIL 2022
VALUE	$30.8M

DESCRIPTION OF WORKS

The Glen Innes to Tāmaki Drive Shared Path - Te Ara Ki Uta Ki Tai (the path of land and sea) was a collaborative project with Oxcon-CLL that delivered a 7km-long pathway connecting Auckland's eastern suburbs to the city centre.

The project comprised two pre-cast concrete bridges totalling 300 meters, with one spanning the Eastern Line of the rail network.

Additionally, it included over 800 meters of timber board walks and nearly 2 kilometres of 4-meter-wide concrete pathways.

We successfully completed Section 2 of the total project, extending from St Johns Road to the Orakei Basin, along with an additional connection to John Rymer Place. Approximately 20% of the work was carried out by selected subcontractors.

This impressive project was delivered ahead of schedule and under budget, representing a significant achievement for both CLL and Waka Kotahi. It now stands as an enduring asset, ready to be enjoyed by the public and local communities for years to come.

PROJECT INFORMATION SHEET

NELSON STREET CYCLEWAY BRIDGE

LOCATION CANADA STREET, AUCKLAND (OLD NELSON STREET)

CLIENT HAWKINS

DESCRIPTION OF WORKS

The project aimed to transform Auckland's old Nelson Street off-ramp into an iconic shared footpath and cycle way, connecting upper Queen Street via a new bridge off Canada Street and continuing through to Nelson Street with a separate cycle way.

CLL played a pivotal role in the project, completing all piling works, grouting the joins of the bridge panels, and constructing the settlement slabs at both the Eastern and Western ends of the bridge (Canada Street and Nelson Street ends).

The renovated off-ramp has become a shared footpath, enhancing connectivity and promoting cycling in the area.

The cycle way earned the prestigious Chicago Athenaeum Museum of Architecture and Design Award, recognising it as one of the world's top international distinguished building, landscape architecture, and urbanism projects.

PROJECT INFORMATION SHEET

WELLESLEY STREET BRIDGE, CYCLEWAY AND UNDERPASS

LOCATION	**AUCKLAND CITY**
CLIENT	**HAWKINS**

DESCRIPTION OF WORKS

On behalf of Hawkins Infrastructure CLL completed works for the Wellesley Street Bridge cycleway and underpass.

The works involved constructing an underpass beneath Wellesley street, which is one of Auckland's busiest streets.

All works were to be completed between Anzac Long weekend and Easter weekend working seven days a week, 15 hours a day to meet the required program.

The scope of work included UC retaining wall along the cycleway, the underpass and wing walls involved with this was 8no reinforced concrete piles, 2,500m3 of bulk excavation placing 2no 60T pre-cast abutments, placing bridge hollow core beams, in-situ deck and placing TL4 barriers.

The project was successfully completed within the allocated time and budget.

PROJECT INFORMATION SHEET

COWIE STREET BRIDGE

LOCATION	COWIE STREET, NEWMARKET
CLIENT	AUCKLAND TRANSPORT
START & FINISH DATES	NOVEMBER 2017 - JULY 2018
VALUE	$7.9M

DESCRIPTION OF WORKS

This project involved removal of a level crossing and construction of a new dual lane single span hollow-core bridge over live rail. Associated works included comprised MSE Stone Strong faced abutments, internal piling, road works and landscaping. The primary goal was to boost the efficiency of the AT Train Network by enhancing connectivity between Britomart and Newmarket train stations, two vital segments of the Auckland rail corridor.

In partnership with Fraser Geologics, we redesigned Auckland Transport's initial design, resulting in a solution that saved the client over $500,000 while significantly reducing environmental impact. As the lead contractor, we managed all aspects of the bridge construction, and carried out 95% of the construction work, subcontracting the installation of handrails.

The constructed bridge was a 22 metres long and 10 metres wide featuring Urban Design embossed concrete-faced MSE wall bridge abutments, with six 750mm diameter reinforced piles drilled 19 metres deep within the abutments.

Extensive collaboration with KiwiRail and engagement with local residents and stakeholder groups were essential. Despite the complexity of the urban environment, the project was completed with minimal disruption to stakeholders, and on-time within an accelerated time-line to facilitate AT's Public Transport time table changes.

In close partnership with KiwiRail, stringent Safe Systems of Work were implemented to facilitate operations near their critical 25,000V OLE structures, supported by a robust 'Permit to Enter' process.

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PROJECT INFORMATION SHEET

COWIE STREET BRIDGE

DESCRIPTION OF WORKS (cont)

Additional Project Components Include:

- Bridge beam and barrier procurement
- Typical bridge detailing including TL5 barriers, Texas rail, wing wall tie-ins, etc.
- Timber board-walk
- Timber & Steel Architectural Fencing
- New Stormwater assets and connections, including rain gardens and planted swale
- Seeded Rip-Rap and Gabion rock gardens
- Footpaths & stencil applied patterns
- Basalt Hand-cut Cobble Thresholds
- Re-vegetation and Specimen Tree planting

Client Feedback:

"The construction environment adjacent to the rail corridor and the consent conditions culminated in a challenging construction environment and it is unlikely a different contractor would have provided the same outcome to Auckland Transport to meet the project requirements. It is also noted that feedback from the community, reiterated throughout construction, was extremely positive regarding both CLL's performance and communication."

- Melissa Feather (AT Project Manager)

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PROJECT INFORMATION SHEET

WAIRERE-COBHAM BRIDGE

LOCATION	HAMILTON, WAIKATO
CLIENT	FULTON HOGAN
START & FINISH DATES	JANUARY 2021 - FEBRUARY 2021
VALUE	$860K

DESCRIPTION OF WORKS

Fulton Hogan required the installation of large-diameter reinforced concrete (RC) bridge piles for the Wairere-Cobham bridge construction.

CLL installed 17 reinforced concrete bridge piles, each with a diameter of 1200mm and reaching 30 meters deep. Challenging ground conditions necessitated the use of the IMT Drilling Rig paired with bentonite slurry for effective pile shaft stabilisation. The operation also involved a 24-ton excavator and an 80-ton crawler crane for vibrating the 6-meter temporary casing and lifting the pile cage and tremie pipes.

Despite the challenges posed by the COVID-19 pandemic, including delays in material and labour deliveries from Auckland, the project for the Wairere-Cobham bridge construction was completed successfully.

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PROJECT INFORMATION SHEET

WOODCOCKS ROAD BRIDGE

LOCATION	WOODCOCKS ROAD, WARKWORTH
CLIENT	NORTHERN EXPRESS GROUP CONTRACTOR
START & FINISH DATES	SEPTEMBER 2020 - OCTOBER 2020
VALUE	$600K

DESCRIPTION OF WORKS

Our client enlisted CLL to carry out bridge piling and groundwork for the construction of the new bridge on Woodcocks Road in Warkworth, as part of the Puhoi to Warkworth motorway initiative. The project faced several challenges, including high groundwater levels and varying founding rock depths.

Using the SR45 crane and a 14T excavator support machine, we installed ten bridge abutment piles, each measuring 900mm in diameter and 26m-34m in depth, using temporary steel casings with an additional sleeve outside the casing. Addressing the challenges posed by high groundwater levels and varying rock depths, each pile was installed with sonic tubes for sonic logging testing, ensuring the bridge's structural integrity.

PROJECT INFORMATION SHEET

STURGES ROAD BOL

LOCATION	STURGES ROAD, HENDERSON
CLIENT	JOUBERT PILAT LTD
START & FINISH DATES	28 DECEMBER 2023 - 10 JANUARY 2024
VALUE	$1.2M

DESCRIPTION OF WORKS

KiwiRail encountered a challenge at Sturges Road, Henderson, where a 160-meter slip had compromised the rail line, necessitating immediate action to restore safety and stability. The solution involved constructing a retaining structure within a tight holiday schedule.

CLL was tasked with installing 108 steel Universal Columns (UCs) to support a concrete panel retaining wall. The UCs, ranging from 7 to 10 meters, were placed in cased concrete piles to address challenging ground conditions. The galvanised casings, treated with anti-graffiti coatings, were vibrated into the ground, drilled out, and the UCs were installed with a strict 50mm tolerance, using UC guide beams for precise alignment.

Due to the complexity of working under non-live overhead wires, CLL used specialised equipment, including two hi-rail 14-tonne drill rigs, a 36-tonne digger, a 23.5-tonne digger, and the MLRB self-propelled Manco Rail trailer to transport the UCs along the tracks.

The project was successfully completed between December 28 and January 10, 2024, with teams working 12-hour days throughout the holiday period to meet the deadline.

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PROJECT INFORMATION SHEET

RAWENE RESERVE LANDSLIP REPAIRS

LOCATION	BIRKENHEAD, AUCKLAND
CLIENT	DOWNER CONSTRUCTION
START & FINISH DATES	MAY 2020 - FEBRUARY 2021
VALUE	$4.6M

DESCRIPTION OF WORKS

Following a landslip at a Birkenhead car park in 2017, the main contractor faced urgent challenges in ensuring safe and efficient recovery operations. The landslip had damaged a sewer line, requiring immediate intervention to stabilise the area and restore functionality.

Our comprehensive approach included designing and installing temporary structures, constructing access points to the pipe location, installing timber poles with back-ties, conducting excavation work, and setting up temporary support for a trench measuring 4.5 meters deep and 2 meters wide.

As part of our scope, we also managed the backfilling process and safely removed back-ties and anchors.

The project encountered unique challenges related to slip debris, necessitating vigilant monitoring of temporary structures to ensure safety, retaining wall stability, and the well- being of personnel within the trench. Addressing concerns about ground stability, we proposed and implemented a revised plan that involved replacing a large excavation with a T&T-concept retained structure. This approach not only enhanced safety and stability but also accelerated the project time-line.

PROJECT INFORMATION SHEET

WAITAKERE ESTATE SLIP REPAIRS

LOCATION	**573 SCENIC DRIVE, WAIATARUA, AUCKLAND**
CLIENT	**MCLARENS NZ**
START & FINISH DATES	**6 WEEKS IN 2021**
VALUE	**$500K**

DESCRIPTION OF WORKS

This client required immediate and effective slip repair solutions for the Waitakere Estate during the Covid Level 4 lock-down. The project needed a custom design solution to address site-specific challenges, ensuring stability and safety.

Utilising early contractor involvement, CLL provided design input and collaborated closely with the design team to develop a custom design solution. The project scope included temporary works, piling, a capping beam, shotcrete, a new reinforced concrete (RC) slab, as well as kerb and channel and edge protection.

The plant used for the project included EK60 and EK40 drill rigs, 21T and 20T excavators with drill gear, a Bobcat, an SKP80 concrete pump, a Hiab, and 4/6-wheeler delivery trucks. The project required coordination across multiple work fronts, and access was restricted in some areas due to lock-down measures.

PROJECT INFORMATION SHEET

WAIKOWHAI ROAD SLIP REPAIRS

LOCATION WAIKOWHAI ROAD, MT ROSKILL, AUCKLAND

CLIENT DOWNER CONSTRUCTION

DESCRIPTION OF WORKS

CLL was approached to devise a solution for a landslip beneath Waikowhai Road in Mount Roskill, which had led to a public closure. In response, our team constructed a no-fines concrete retaining structure, a design courtesy of Andy O'Sullivan Geotechnical Engineering. The structure was reinforced with soil nail tie backs as an alternative to large piles, a strategy that yielded the same level of robustness while minimising the need for personnel and equipment, thereby significantly reducing the overall project cost.

The soil nails, which were permanent, were embedded using a 14-tonne excavator fitted with a drill mast. Our team manually assembled the no-fines retaining structure, an interlocking modular scaffolding frame system provided by United Scaffolding. This frame was subsequently filled with a blend of concrete stones and cement slurry, intentionally without sand. Once the mixture solidified, the frame was disassembled and a layer of shotcrete was applied.

The unique composition of the concrete slurry, devoid of sand, results in a porous mixture which not only offers robust structural support but also allows for water permeation. This innovative approach promotes drainage and ensures the longevity and durability of the structure.

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PROJECT INFORMATION SHEET

ST MICHAELS AVENUE

LOCATION	ST MICHAELS AVENUE, POINT CHEVALIER
CLIENT	HAWKINS

DESCRIPTION OF WORKS

Auckland Council, through Hawkins Infrastructure, required slip stabilisation works at St Michaels Ave, Pt Chevalier. The project needed comprehensive solutions for drainage, pavements, retaining walls, ground anchors, and landscaping.

The overall works carried out by CLL included:

Drainage: Installation of storm-water pipework, manholes, catch pits, kerbs, channels, and the outlet structure to manage water flow and prevent future erosion.

Pavements and Surfacing: Laying of asphalt, construction of concrete footpaths, and installation of residential vehicle crossings and pram crossings to restore access and functionality.

Retaining Walls: Construction of retaining walls using 35 piles ranging from 750mm to 1000mm in diameter, along with capping beams. This also included the installation of 17 ground anchors, which involved drilling, grouting, and fitting galvanized steel plates and flange nuts to ensure structural integrity.

Ground Anchors: Installation of 17 ground anchors, including drilling holes, grouting, and the addition of galvanized steel plates and flange nuts for enhanced stability.

Hard and Soft Landscaping: Completion of all hard and soft landscaping as part of the reinstatement works, providing a cohesive and aesthetically pleasing finish to the site.

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PROJECT INFORMATION SHEET

DAIRY FLAT ROUNDABOUT

LOCATION	**CORNER OF DAIRY FLAT HIGHWAY & COATESVILLE-RIVERHEAD HIGHWAY**
CLIENT	**DEMPSEY WOOD CIVIL LTD**
START & FINISH DATES	**AUGUST 2019 - NOVEMBER 2020**
VALUE	**$1.3M**

DESCRIPTION OF WORKS

The construction of a new roundabout at the intersection of Dairy Flat Highway and Coatesville-Riverhead Highway was initiated to address safety concerns at one of New Zealand's top 100 high-risk intersections. CLL was responsible for installing ground improvement piles at seven distinct locations, with Dempsey Wood subsequently erecting MSC walls to establish the road construction foundation.

The piles varied in depth and required different socket configurations into the East Coast Bays Formation (ECBF). All ground improvement piles were constructed without reinforcement, using 10 MPa concrete. During the project, Wall 3 was found to have a historic slip, necessitating additional remedial work. This phase involved constructing a 30-meter palisade wall comprising 30 piles of 750mm diameter and reaching depths from 15m to 18m. Additionally, a 1250mm x 715mm ground beam was installed, accompanied by 15 13-strand cables ranging from 30m to 40m in length, with bond lengths between 10m and 15m.

The project required multiple set-ups and dismantling due to the diversion and relocation of existing roads as it progressed. Each location presented unique challenges, necessitating the allocation and adaptation of plant machinery to optimise drilling operations.

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PROJECT INFORMATION SHEET

KARORI CRESCENT

LOCATION	22 KARORI CRESCENT, ORAKEI, AUCKLAND
CLIENT	CLEARWATER CONSTRUCTION
START & FINISH DATES	JULY 2022 - MAY 2O23
VALUE	$2.2M

DESCRIPTION OF WORKS

A waterfront residential plot in Orakei, Auckland required a robust and reliable retaining wall solution to secure the property for future development. The project presented several challenges, including difficult downhill access and complex entrance requirements.

CLL addressed this need by constructing piled retaining walls tailored to the specific requirements of the complex. We began by installing 57 reinforced concrete (RC) piles, with diameters ranging from 750mm to 900mm and depths of 6 to 12 meters. To further strengthen the structure, we erected 146 SED poles, standing between 1.2 to 1.5 meters high.

In addition to the pile and pole installation, our team executed the installation of a capping beam, and performed shotcrete and drainage works. Despite the challenging site conditions, our team efficiently ensured that all project objectives were achieved.

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PROJECT INFORMATION SHEET

CRITICAL LANDSLIP PROJECTS

DESCRIPTION OF WORKS

308 STATE HIGHWAY 1, TE HANA I WELLSFORD I JOUBERT PILAT LTD I MARCH 2024 - APRIL 2024 I $140K

KiwiRail faced a critical issue with soil slippage threatening the stability of their rail infrastructure and posing a significant risk to the safety and operational efficiency of the rail line. The solution required the construction of a robust retaining wall to stabilise the soil and protect the rail line from potential slip threats. CLL, in collaboration with JPL as a sub-contractor, designed and constructed a retaining structure for KiwiRail.

The project involved the installation of UC beams and timber lagging to create a 40m long retaining wall capable of withstanding the slip pressures. We installed 39 units of 250 Universal Columns (UCs) as the primary structural elements of the retaining wall, using a vibro-hammer on a 30t Excavator in conjunction with pre-drilling techniques for placement of the beams. Timber lagging (150x50) was installed between the UC beams.

215 SHAKESPEARE ROAD, AUCKLAND I BUFTON CONSTRUCTION I 3 MONTHS I $730K

The client needed to stabilise a slip-prone area to ensure safety and prevent further rockfall or soil movement. To address this, CLL implemented a systematic approach involving the installation of fiber rod soil nails and rockfall mesh. This process included pre-drilling through overburden material, followed by installing casings into competent rock using a rotary hammer and the GEAX EK110 drill rig. The structure was then reinforced with cages and tremie-poured concrete. A significant challenge was ensuring the casings were securely anchored in competent rock to prevent the escape of compressed air, which would otherwise reduce hammer efficiency.

SENTINEL ROAD, HERNE BAY I LINDESAY CONSTRUCTION I 10 WEEKS I $700K

The owner of this multi-million dollar property chose to repair a slip onto the beach as it came within the property line. Access to and from the site was only allowed via the sea, making the project logistically challenging. CLL executed the slip repair using a comprehensive marine-based approach. A 100-tonne and a 30-tonne barge, a tug, and two diggers were utilised to access the site. All necessary materials and equipment were loaded at Sandspit or the Viaduct Basin.

CLL efficiently removed the debris from the slip face into a bin, which was then loaded onto the barge to prevent beach contamination. The debris was transported to Viaduct Basin, craned off, and then trucked away. At least 8-9 trips were required with the 100-tonne barge fully loaded with slip debris. Additionally, a 6-meter crib wall destroyed in the slip was rebuilt from the bottom up, with all components delivered by barge. CLL backfilled the area with scoria using helicopter bags, bringing in approximately 120 one-cubic-meter bags of scoria via the water. This meticulous approach ensured the repair was thorough and environmentally sensitive, addressing both the structural and aesthetic needs of the property.

PROJECT INFORMATION SHEET

CRITICAL LANDSLIP PROJECTS

12 CLARENCE ROAD, NORTHCOTE, AUCKLAND I PRIVATE CLIENT I APRIL 2023 - OCTOBER 2023 I $285K

Following Cyclone Gabrielle, the client's cliff-side property faced a severe threat of erosion due to significant bank slips and erosion on neighboring properties.

Our solution required meticulous surveys and extensive de-vegetation to prepare the site. 103 soil nails, each 4 meters in length, were then installed within 100mm diameter holes to reinforce the slope and prevent further erosion. Additionally, 228m² of Mac Mat R was applied to enhance stability across the terrain. A notable challenge was the limited driveway access, necessitating innovative solutions. Access to the site was achieved via the beach at the base of the property, where we utilised an A-frame drill rig during low tide to navigate the cliff face effectively. The successful execution of these measures garnered significant praise from the client for the performance of CLL and its subcontractors.

123 RANGATIRA ROAD, BEACH HAVEN I PRIVATE CLIENT I APRIL 2023 - DEC 2023 I 300K

After Cyclone Gabrielle, our team effectively addressed slope instability issues at a residential site in Beach Haven. Despite the challenge of restricted access via a narrow driveway, we efficiently removed 400m^3 of slip material using three 6-wheeler trucks and two 14 t diggers and implemented structural solutions to mitigate further risks. We erected a timber palisade wall supported by 15 piles, established a drainage system, and backfilled the area with 400m^3 of compacted cross concrete. To stabilise the 30^o slope, we installed geoweb erosion matting filled with 150mm topsoil. We efficiently addressed all complexities, including the presence of watercare/sewage pipes and removal of asbestos.

8 TE AUTE RIDGE ROAD, BETHELLS, AUCKLAND I PRIVATE CLIENT I JULY 2023 - JANUARY 2024, $190K

After Cyclone Gabrielle, a residential driveway located atop a ridge on a rural property that had suffered a slip beneath the road surface, resulting in a crescent crack in the pavement and posing a significant risk to the stability of the driveway and safety of the property.

The team at CMW Geosciences developed a comprehensive design plan, and CLL executed the solution, which involved installing 62 soil nails, each 9 m in length, arranged in a staggered pattern within a 1.5 by 1.5-meter grid for optimal strength. These soil nails were reinforced with a combination of GRP bars and galvanized accessories, securely placed within the drilled holes and using 30mpa grout. MacMat was applied over the area, reinforced with galvanized wire, to provide a durable layer for erosion protection.

A 14-ton excavator equipped with a drill mast was used with an A-frame drill rig for areas inaccessible to the excavator. To optimize resources and minimize costs, support anchors for the A-frame drill rig were strategically positioned, serving a dual purpose by securing the matting and cable work upon project completion. This eliminated the need for trenching, which could have further compromised the stability of the narrow ridge. Despite the strict deadline, the project was completed on time, ensuring the safety and stability of the residential driveway.

PROJECT INFORMATION SHEET

CRITICAL LANDSLIP PROJECTS

LOCATION WAIKATO EXPRESSWAY, HUNTLY

CLIENT FULTON HOGAN

HUNTLY BY-PASS, FULTON HOGAN

CLL was commissioned by Fulton Hogan to construct debris protection racks for the culverts in the Huntly section of the Waikato Expressway.

The project involved driving poles into the ground next to the culverts beneath the future motorway to safeguard them from falling debris, such as trees.

The process included drilling holes, placing timber poles, and concreting the section to create debris control screens.

Navigating site traffic and access posed challenges due to crowding with large machinery and isolation. Many of CLL's machinery shifts and concrete deliveries had to be coordinated around the downtime of other contractors. However, through planning and professional communication with concrete suppliers and other contractors, the project was completed smoothly, on time, and within budget.

CLL SERVICE & SOLUTIONS

PROJECT INFORMATION SHEET

CENTRAL INTERCEPTOR PROJECT

LOCATION	AUCKLAND
CLIENT	GHELLA
START & FINISH DATES	2020 - 2024
VALUE	$16M CIRCA

PROJECT OVERVIEW

The Central Interceptor Project is a critical sewerage infrastructure upgrade aimed at improving wastewater management in Auckland. Since August 2020, construction contractor Ghella engaged CLL, alongside a competitor, to construct secant walls for deep shaft access. Due to CLL's superior execution and quality control, we have since been entrusted with completing secant bored pile shafts at 13 diverse locations across Auckland. These locations include Miranda Reserve, Blockhouse Bay, Haverstock, Sandringham, Rawalpindi Reserve, Mt Albert, Western Springs, Norgrove, Mt Albert, Tawariki (Ponsonby), Keith Hay Park & Walmsley (Mt Roskill), Mangere Pump Station and Point Erin (Westhaven).

The primary objective was to establish lodging and receiving shafts for tunnel boring machines, vital components for the construction of a sewer line. The project entailed intricate foundation pile installations beneath proposed manholes and chambers, demanding precision and expertise. The construction process employed advanced machinery, the LRB355 drill rig and a 50t crane carrying out works at most of the sites.

Each location posed unique challenges, requiring secant bored pile shafts of varying depths and dimensions. Diameters ranged from 600mm to 1050mm, with specific sizes tailored to individual locations. Notably, Tawariki required three shafts, while Keith Hay Park & Walmsley necessitated two. The project employed the double rotary CFA (Continuous Flight Auger) method, a sophisticated technique renowned for its accuracy and efficiency, particularly in challenging geological conditions.

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PROJECT SITE SUMMARIES

May Road (Māngere East) - 2020

Scope of Work:

- Shaft A: 324 piles, 900mm diameter, 26.4m depth.
- Shaft B: 70 piles, 900mm diameter, 26.4m depth.
- CFA Double Rotary technique.

Performance: Successfully delivered dry shaft despite initial site challenges. Led to CLL securing additional work.

Miranda Reserve - 2021

Scope of Work:

- 68 piles, 750mm diameter, depths of 17-20m.
- CFA Double Rotary technique.

Performance: Successfully delivered with no remedial works required.

Western Springs - 2022

Scope of Work:

- 64 piles, 900mm diameter, 13m depth.
- CFA Double Rotary technique.

Performance: Two soft piles had minor soft spots, but no remedial work required.

Rawalpindi Reserve - 2022

Scope of Work:

- 52 piles, 750mm diameter, 16.5m depth.
- CFA Double Rotary technique.

Performance: One cage didn't reach bottom, but no remedial work required.

Keith Hay Park Deep Shaft - 2023

Scope of Work:

- Three shafts, varying from 15 to 34 piles, depths from 14.6m to 16m, 750mm diameter.
- CFA Double Rotary technique.

Performance: No specific issues reported.

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Walmsley Deep Shaft - 2023

Scope of Work:

- 134 piles, 750mm diameter, 19.5m depth.
- CFA Double Rotary technique.

Performance: No specific issues reported.

Tawariki (Ponsonby) - 2023

Scope of Work:

- Three structures, pile diameters from 600mm to 1050mm, depths from 8.5m to 20m.
- CFA Double Rotary technique.

Performance: Successfully delivered per specifications.

Mangere Pump Station (Māngere) - 2023

Scope of Work:

- 124 piles, 600mm diameter, depths of 12.5m-13m.
- CFA Double Rotary technique.
- Variation work added: 34 piles, 600mm diameter, 12.5m-13m depth.

Performance: Delivered per client variation request.

Haverstock Road - 2023

Scope of Work:

- 50 piles, 750mm diameter, 15m depth.
- CFA Double Rotary technique.

Performance: No remedial work required.

Point Erin (Westhaven) - 2024

Scope of Work:

- 68 piles, 900mm diameter, 24m depth.
- CFA Double Rotary technique.

Performance: Due to restricted access, innovative splicing methods were employed. Successfully delivered as planned.

PROJECT EXECUTION AND ACHIEVEMENTS

- Watertight Construction: CLL's expertise ensured high-quality, defect-free piles.
- Program Adherence: Each shaft was delivered on schedule, meeting project time-lines.
- Budget Compliance: All works were completed within budget.
- Client Trust: Consistently delivering quality results secured CLL's long-term partnership with Ghella.

CONCLUSION

CLL's involvement in the Central Interceptor Project highlights our ability to deliver high-quality, technically demanding foundation solutions. Our proven expertise in secant bored pile wall construction has solidified our standing as a trusted contractor in large-scale infrastructure projects, ensuring long-term partnerships and successful project outcomes as each job was completed to specification, on time, and within budget.

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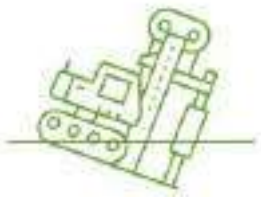
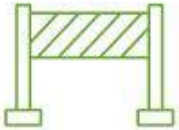
NON-NEGOTIABLES

NO LIFT IS TO BE DONE WITHOUT A LIFT PLAN IN PLACE

NO MACHINE OR VEHICLE MOVEMENT WITHOUT A SPOTTER



GEOTECH APPROVED PILING PLATFORMS MUST BE IN PLACE



ISOLATE PILING ZONE USING SIGNAGE AND BARRIERS

NEVER LEAVE OPEN HOLES UNCOVERED

NO CELL PHONE USE WHILE DRIVING OR OPERATING

DO NOT BREAK GROUND UNTIL PERMIT TO DIG HAS BEEN ISSUED

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Clients benefit from this depth and breadth of services in key areas

VERSATILE EXPERTISE

CLL offer a comprehensive suite of services beyond piling and ground stabilisation, as our company excels in a wide range of civil construction disciplines.

Whether it's foundation work, structural engineering, or infrastructure development, we offer a one-stop solution for all your civil construction needs.

PROVEN TRACK RECORD

Rely on our established reputation backed by a track record of successful projects.

From intricate piling assignments to complex infrastructure developments, our expertise has consistently delivered quality results, earning the trust of our clients.

COST-EFFECTIVE SOLUTIONS

By consolidating various civil construction services under one roof, our clients experience streamlined project management, reducing the need for multiple contractors. This not only enhances overall project efficiency but also leads to potential cost savings.

AT CLL, we extend our footprint across New Zealand, operating seamlessly through specialised divisions strategically established in key regions such as Northland, Tauranga and Christchurch with our head office based in Auckland. Our centralised approach from Auckland allows us to efficiently coordinate and manage projects throughout the country, ensuring a consistent and high-quality service delivery.

INNOVATION AND TECHNOLOGY

Stay ahead in the industry with our commitment to innovation and technology. Our company embraces cutting-edge advancements, ensuring that your projects benefit from the latest methodologies, materials, and equipment, leading to increased efficiency and project success.

ADAPTABILITY TO PROJECT SCALE

With over 200+ employees, whether you're undertaking a small-scale project or a large-scale development, our team is equipped to adapt to the unique requirements of each endeavour. Enjoy the flexibility and scalability of our services to match the specific needs of your civil construction projects.

CLIENT-CENTRIC APPROACH

Experience personalized service with our client-centric approach. We prioritize open communication, collaboration, and a thorough understanding of your project goals, ensuring that our solutions are tailored to meet your expectations and contribute to the overall success of your endeavours.

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CORE VALUES

Integrity

We are straight forward and ethical.
We are astute and considerate.

Courage

We take personal responsibility.
We are confident in our ideals.

Selflessness

We put service and people first.

We respect and share knowledge with each other.

We give others confidence and promote growth.

Innovation

We are strive to think, feel and act - rather than react.

Weare innovative and receptive to new ideas.

Respect

We have respect for ourselves, each other, our clients, the environment, and our plant & equipment.

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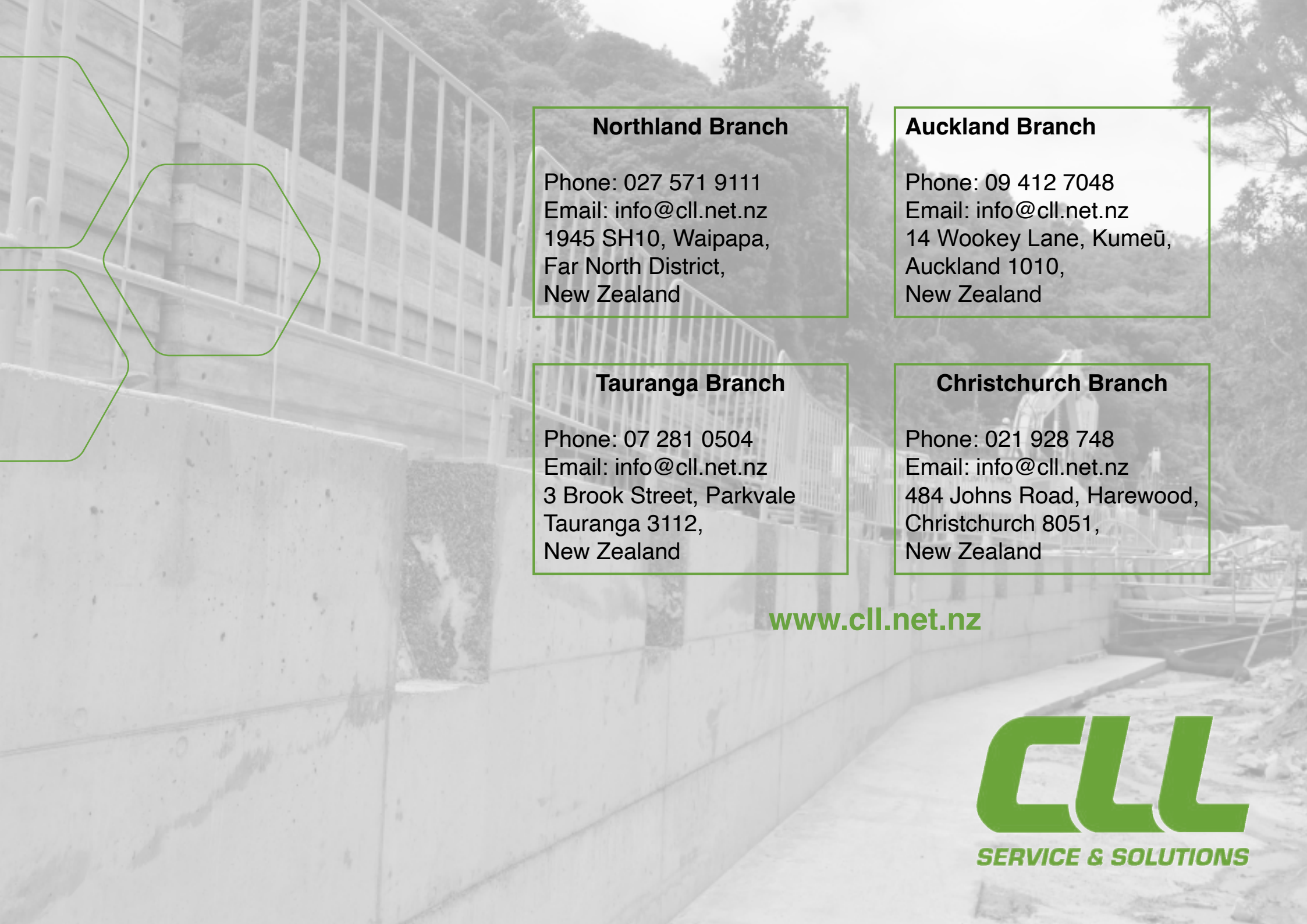

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