JDK

CAPABILITY STATEMENT

TRUSTED LEADERS IN THE CIVIL CONSTRUCTION, MINING & TUNNELLING INDUSTRY

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ABOUT US

JDK Geotech Pty Ltd (JDK) provides industry leading project management and technical services solutions for large-scale projects. Our success is built through the consistent delivery of high standards and professional responsibility across all levels within our organisation.

As a leading engineering and project management firm, we deliver unparalleled support and innovative solutions within Australia and internationally. JDK was established in 2016 to provide professional engineering and project management services tailored to specific project requirements. Today, we are proud to represent government agencies, tier-one construction companies and consulting firms throughout Australia.

We have built a strong reputation across multiple markets, specialising in the seamless delivery of large-scale projects. Our suite of geological, geotechnical, environmental and project management solutions are delivered by highly experienced professionals, well regarded throughout the industry.

Our core values uphold the importance of personal customer service and professional responsibility. Our technical and management team prioritise effective communication aimed at exceeding the expectations of all stakeholders. As an Australian owned organisation, our engineering and management solutions supports a strong collaboration of teams fostering innovative thinking upheld by every JDK team member.

Our capabilities

SECTORS	ENGINEERING DESIGN	MANAGEMENT SOLUTIONS	TECHNICAL SCOPE	TESTING SERVICES
INFRASTRUCTURE	Mining design	Civil construction management	Project engineering	Compaction and deflection testing
MINING	Feasibility studies (mining, civil and environmental)	Owner representative	Geotechnical engineering	Nuclear density testing
POWER (HYDROELECTRICITY)	Tunnel stability analysis and design review	Project management	Mining and exploration	NATA approved reporting
TRANSPORTATION	Third-party design review	Waste management	Geology environmental engineering	Proctor compaction testing
GOVERNMENT	Geotechnical interpretative and baseline reports	Environmental management	Surveying	SPT and CPT testing
	Blast design	Systems engineering management	Quality	Hazardous material assessment
	Foundation design	Quality management	Assurance and quality control (QAQC)	Asbestos assessment
	Rock cut and tunnel design for roadways	Occupational health and safety		

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SURVEYING

JDK Surveying can complete detailed land surveying procedures to ensure each project areas' foundations.

We review each survey carefully and take all necessary steps to guarantee your project's stability and safety. We specialise in the following survey types:

Drone Aerial Surveys:

- High-resolution aerial photography, videography, and photogrammetry
- Generation of large scale geo-rectified orthomosaics and digital terrain models (DTM)
- Aerial videography for scouting or promotional purposes
- Precondition and postcondition aerial surveys for documenting environmental impacts and minimising disputes
- Trimble RTX DGPS system for the absolute accuracy of 4 cm for orthomosaics and DTM models
- Rapid data collection and analysis
- No environmental footprint
- Advanced processing using state-of-the-art "Pix4D" Software
- CASA qualified remote pilot

Ground Magnetic Surveys:

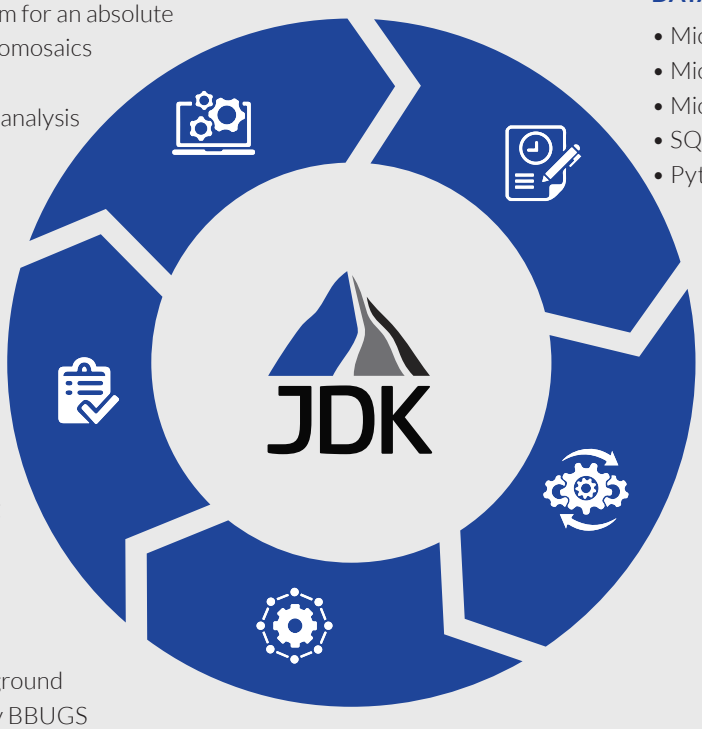
- Rapid data collection and analysis
- On-board GPS receiver to eliminate expensive gridding procedures
- No environmental footprint
- Advanced processing
- Compact, robust, easy-to-assemble field kit
- Works together with a magnetic susceptibility reader
- TMI, DEM, RTP, and 1VD

DRONE AERIAL SURVEYS

- High-resolution aerial photography, videography, and photogrammetry
- Trimble RTX DGPS system for an absolute accuracy of 4 cm for orthomosaics and DTM models
- Rapid data collection and analysis
- Advanced processing

DATA MANAGEMENT

- Microsoft Project
- Microsoft Excel
- Microsoft Database
- SQL
- Python



AFFILIATIONS AND ACCREDITATIONS

- Engineers Australia
- Australian Tunnelling Society ATS
- AUSIMM
- Geological Society of Australia
- Bowen Basin Underground Geotechnical Society BBUGS

GROUND MAGNETIC SURVEYS

- Rapid data collection and analysis
- Advanced processing
- Compact, robust, easy-to-assemble field kit
- Works together with a magnetic susceptibility reader
- TMI, DEM, RTP, and 1VD

INTERGRATED MANAGEMENT SYSTEM

- ISO 9001:2015 Quality Management
- ISO 45001:2015 OH&S
- ISO 14001:2015 Environmental Management
- ISO 55001:2014 Asset Management

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INTEGRATED MANAGEMENT SYSTEM

JDK strives to ensure our management standards are proficient with industry best.

Our integrated management system is compliant with the following workplace standards:

- ✓ Quality Management to ISO 9001
- ✓ Occupational Health and Safety Management to ISO 45001
- ✓ Environmental Management Systems to ISO 14001
- ✓ Asset Management Systems to ISO 55001:2014

JDK's streamlined, integrated management system aims to provide high-quality outcomes delivered in a safe and efficient manner. Our specialist management team can provide the know-how to ensure your project complies with all regulatory requirements.

Quality assurance

Each project is an opportunity to build on our knowledge. JDK sets and follows project-specific guidelines that always meet and often exceed project specifications. We never compromise on standards and follow a strict work ethic based on professional accountability and attention to detail.

Workplace health & safety

JDK is dedicated to all aspects of workplace health and safety.

We make the following commitments to the people who define our success:

- We provide valuable employment opportunities for emerging professionals
- We encourage education and professional connections through industry conferences and functions
- We pride ourselves on consistent training to ensure continuous improvement
- We meet and exceed all occupational health and safety guidelines
- We promote ongoing performance improvement through management and risk mitigation
- We are committed to personal health and safety at all times

JDK observes occupational health and safety systems aligned to ISO 45001. We are committed to ongoing reporting, health assessment and workplace evaluation of HIRAC (Hazard Identification, Risk Assessment and Control process) protocols to eliminate work-related injuries.

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NOTABLE PROJECTS

NARROWS INLET HYDRO PROJECT

Client	BluEarth Renewables / MPMSI
Value	$287 Million
Expertise	Project coordination, engineering services, tender management (procurement)
Sectors	Infrastructure, government, power and water
Location	British Columbia, Canada

Project Description

The project included the delivery and installation of the following infrastructure:

- Three hydroelectric generating stations with a combined design capacity of 33 megawatts.
- Chickwat Creek – Conventional run-of-river hydroelectric generating station with a design capacity of 19 megawatts.

Approach and Innovation

JDK's professional interaction with relevant stakeholders, extensive geotechnical expertise and interpretation of the methodology used to manage and control risk proved highly successful. JDK completed all work safely, within budget and on time while meeting the requirements of the contract's design. Our precise inferences of ground conditions allowed the client to adhere to their deliverables schedule and utilise their resources efficiently.

WESTCONNEX M4–M5

Client	Acciona Samsung Bouygues Joint Venture ASBJV
Value	$3.2 Billion
Expertise	Geotechnical engineering
Sectors	Infrastructure, transportation and government
Location	Sydney, NSW

Project Description

The WestConnex 3A project consisted of constructing the M4–M5 Link twin mainline tunnels between the M4–M5 to the Rozelle Interchange. The WestConnex is Australia's largest infrastructure project to date.

Approach and Innovation

Under the direction of senior ASBJV management, JDK was responsible for providing extensive geotechnical expertise to interpret the practices used to manage and control tunnelling risk. JDK's geotechnical vast knowledge coupled with stakeholder communication enabled the efficient capability of our deliverables to the ASBJV team. JDK was able to utilise industry best practice to ensure geotechnical risk was identified, captured and communicated.

NOTABLE PROJECTS

SYDNEY METRO CITY AND SOUTHWEST

Client	John Holland CPB Ghella Joint Venture (JHCPBG)/Pells Sullivan Meynink (PSM)
Value	$11.5 Billion
Expertise	Project engineering, geotechnical engineering
Sectors	Infrastructure, transportation and government
Location	Sydney, NSW

Project Description

The Sydney Metro City and Southwest project aims to provide rail tunnels and associated transportation infrastructure to Sydney's commuters and surrounding communities. The Sydney Metro project is Australia's second largest infrastructure project to date.

Approach and Innovation

JDK was engaged to work on the Sydney Metro City & Southwest project, communicating successfully with multiple stakeholders and providing extensive geotechnical expertise throughout the project. The implementation of monitoring controls was completed at the highest quality and no client issues, or damage to existing infrastructure. Innovative data collection methods were employed by JDK throughout the project to deliver high-quality data capture for future works.

SYDNEY METRO CENTRAL WALK PROJECT

Client	Laing O'Rourke and Tunnelling Solutions
Value	$955 Million
Expertise	Tunnelling, geotechnical engineering, project engineering
Sectors	Infrastructure, transportation and government
Location	Sydney, NSW

Project Description

The Sydney Metro Central Station Main Works (CSM) – Central Walk contract included the Central Advanced Adit tunnel and the adjacent Central Walk project providing an underground concourse to Australia's busiest train station.

Approach and Innovation

JDK was engaged in applying their systematic capture of geotechnical and geological information and expertise to control tunnelling risk for the Central Adit Tunnel project. After completing the Central Adit project, JDK was re-engaged to provide project engineering services delivering industry best reporting and reviewing methodology to systematically capture project requirement information to the client based on the design.

NOTABLE PROJECTS

GRASSTREE COAL MINE / AQUILA COAL MINE

Client Anglo American Metallurgical Coal Pty Ltd

Expertise Geotechnical engineering, sub-IC

Sectors Mining

Location Bowen Basin, QLD

Project Description

Anglo American's Grasstree Coal mine is an underground coal mine located in Queensland's Bowen Basin.

Approach and Innovation

JDK was engaged to undertake ongoing Critical Area Audits (CAA) within the CapCoal Complex. Extensive geotechnical review of the risk assessment system and methodology. The mines CAA represents an ongoing safety measure that Anglo American conducts as part of the Operations Management System. In addition to the CAA's, JDK provides ongoing geotechnical and geological recommendations and site coverage to ensure the daily requirements of the technical services department are met throughout the project's remaining production years.

OAKY NORTH COAL MINE / OAKY 1 COAL MINE

Client Glencore Pty Ltd

Expertise Geotechnical engineering, sub-IC

Sectors Mining

Location Bowen Basin, QLD

Project Description

Oaky Creek Coal mine is an underground coal mine located in Queensland's Bowen Basin, 46km south west of middle mount. Oaky No.1 was developed from the highwall of a worked-out opencut pit and began producing in 1990. The larger scale Oaky North was developed in 1995 and boasts thicker seams, wider longwall blocks and more powerful mining equipment. In 2006 a second longwall was installed at Oaky No.1 using recycled equipment from the Xstrata-owned Cumnock mine in the N.S.W. Hunter Valley.

Approach and Innovation

JDK was engaged to undertake ad-hoc underground geotechnical coverage as required by the client (Glencore). Under the supervision of site management, JDK was responsible for providing extensive geotechnical expertise to interpret the practices used to manage and control underground coal mining risk. JDK's vast geotechnical knowledge coupled with stakeholder communication enabled the efficient capability of our deliverables to the Glencore team. JDK was able to utilise industry best practice to ensure geotechnical risk was identified, captured and communicated.

NOTABLE PROJECTS

GROSVENOR COAL MINE

Client Anglo American

Expertise Geotechnical engineering

Sectors Mining

Location Bowen Basin, QLD

Project Description

Anglo American's Grosvenor Coal mine is an underground metallurgical coal mine located in Queensland's Bowen Basin. The mine utilises the longwall method to extract coal from the Goonyella Middle coal seam. The project has an expected mine life in excess of 30 years. Geotechnical Engineering site coverage was provided to ensure adequate strata control management and compliance to the mine's Strata Control Principal Hazard Management Plan (PHMP).

Approach and Innovation

JDK was able to systematically capture geotechnical data for the effective delivery of:

- Collaboration between technical and operational personnel to ensure key project milestones achieved safely, on time and as per the mine's requirements/ expectations.
- Pursual of process improvement opportunities where possible. E.g. review of existing site geological/ geotechnical processes/procedures to improve process flow/efficiency/practicality.

CENTRAL SUBWAY PROJECT

Client San Francisco Municipal Transportation Agency (SFMTA) / JACOBS

Value $1.57 Billion

Expertise Tunnelling, geotechnical engineering

Sectors Infrastructure, transportation and government

Location San Francisco USA

Project Description

This large-scale project adds two new underground tunnels and four subway stations providing, a direct rapid transit link between downtown and the existing train line. The third Line Route on 3rd Street will vastly improve transportation from some of the city's busiest, most densely populated areas once commissioned.

Approach and Innovation

Acting as the clients representative, JDK effectively engaged with multiple contractors to safely and effectively deliver the project's geotechnical reporting and instrumentation requirements. Through a systematic review of each project methodology, JDK was able to help achieve project outcomes on time and within budget effectively.

NOTABLE PROJECTS

NORTHCONNEX

Client LendLease Bouygues Joint Venture LSBJV

Value $3.72 Billion

Expertise Project management, QA/QC

Sectors Infrastructure, transportation and government

Location Sydney, NSW

Project Description

The NorthConnex project provides a multi-lane motorway that links the M1 Pacific Motorway at Wahroonga NSW to the M2 Motorway at West Pennant Hills, NSW. This project features twin motorway tunnels around 9 km in length and a height clearance of 5.30 m. The Sydney tunnels were constructed with three-lane capacity in each direction, including two lanes and a breakdown pull off-lane.

Approach and Innovation

JDK Geotechnical Team was engaged to systematically capture geotechnical and geological information to the final installation of support. The JDK team interacted with several client teams across disciplines, providing extensive geotechnical expertise to help manage and control tunnelling risk, add value across critical areas of the project.

CULLITON CREEK HYDRO PROJECT

Client Tetra Tech

Value $4 Million

Expertise Project management, geotechnical engineering

Sectors Infrastructure, government, power and water

Location British Columbia Canada

Project Description

The facility involved the construction management and geotechnical rock-cut design in allowing the installation of a 3.20km long penstock (1.48m diameter buried pipe both HDPE and steel. The project boasted two 7.5 MW vertical axis Pelton turbines supplied by rainwater and 13km of 69 kV transmission lines.

Approach and Innovation

JDK was able to utilise industry best practice for project deliverables effectively. The efficient implementation of blast design, rock anchor support design and rockfall remediation allowed the client to deliver the project on time and within budget. The technical expertise and construction management allowed the successful implementation of the project.

NOTABLE PROJECTS

GAHCHO KUÉ DIAMOND MINE

Client De Beers Group, Tetra Tech EBA

Value $0.90 Million (Engineering fees)

Expertise Geotechnical engineering, mine design

Sectors Mining

Location Northwest Territories, Canada

Project Description

The project is the largest diamond mine globally, producing roughly 5.4 Million carats annually within the Gahcho Kué kimberlite pipes. The Gahcho Kue Diamond Mine is a 49%–51% joint-venture between Mountain Province Diamonds and De Beers Group Canada.

Approach and Innovation

JDK was engaged for the pre-feasibility mine design, geotechnical support and kinematic stability analysis of mine. JDK's professional interaction with relevant stakeholders, extensive geotechnical expertise and interpretation of the methodology used to manage and control geotechnical risk proved highly successful. JDK completed all work safely, within budget and on time while meeting the requirements of the contract's design.

TRANSPORT ACCESS PROGRAM – REDFERN STATION

Client Novorail and RedHill Civil

Expertise Project management, project engineering

Sectors Infrastructure, transportation, government

Location Sydney, NSW

Project Description

The transport access program is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. The project at Redfern Station is a major suburban railway station (6th busiest station in NSW) with an estimated patronage of 70,000 on an average workday (2018 figures). Redfern resides within the local government area of City of Sydney.

Approach and Innovation

JDK was able to package a suite of onsite roles to help reduce the overall project cost. JDK delivered project management, estimating, quality, programming and construction administrative services to fit the needs of the client.

NOTABLE PROJECTS

DENDROBIUM MINES

Client South32 - IMC

Expertise Geotechnical engineering

Sectors Mining

Location Wollongong, NSW

Project Description

Dendrobium mine is an existing underground coal mine owned and operated by Illawarra Coal, a subsidiary of South32. The mine is located in Kembla Heights in New South Wales, Australia. The mine extracts coal from the Wongawilli Seam of the Southern Coalfields. Longwall mining is currently being undertaken, and they are primarily producing coking coal for steelmaking.

Approach and Innovation

JDK was engaged by South32 for the provision of underground geotechnical shift coverage. The duties assigned to JDK's Geotechnical mining team included:

- Mapping of development panels
- LW mapping
- Compilation of geotechnical information & hazards for environmental reports
- Reporting on mining hazards and autonomously included and reported into the mine hazard plan

JDK was able to undertake the scope of work effectively under the management of Illawarra Metallurgical Coal (IMC).

M6 PROJECT - STAGE 1

Client Coffey - A Tetra Tech Company

Expertise Geotechnical engineering

Sectors Infrastructure, transportation, government

Location Sydney, NSW

Project Description

The M6 Stage 1 will deliver the missing link from Sydney's south to the wider Sydney motorway network.

- Twin four-kilometre tunnels linking the M8 Motorway
- Ramps between the main motorway tunnel and the surface intersection at President Avenue
- Tunnel stubs for a future connection to extend the M6
- A new intersection at President Avenue
- Provision of new shared cyclist and pedestrian pathways

Approach and Innovation

JDK was engaged to undertake geotechnical site investigations under the management of Coffey. Our organisation was able to apply the systematic capture of geotechnical and geological information to suit the current AS1726 and was able to work autonomously in conjunction with the effective management of site safety and documentation protocols.

NOTABLE PROJECTS

SYDNEY GATEWAY PROJECT

Client	Coffey - A Tetra Tech Company
Expertise	Geotechnical engineering
Sectors	Infrastructure, transportation, government
Location	Sydney, NSW

Project Description

The Sydney Gateway is a major road interchange between the WestConnex and the airport terminals of Sydney Airport. Construction began in early 2021 and is expected to open in December 2024. The Sydney Gateway will provide a high-capacity connection from Sydney Airport and Port Botany to the new Westconnex St Peters Interchange once completed. Sydney Gateway is part of the NSW Government's vision to complete the missing links in the motorway network, improve traffic flow and reduce travel times.

Approach and Innovation

JDK was engaged in the geotechnical site investigation work under the management of Coffey. JDK was able to undertake geotechnical investigation work autonomously alongside site safety and documentation management protocols effectively streamlining the delivery of Stage 2 of the investigative works of the project.

CONTACT US

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PROJECT MANAGEMENT | TUNNELLING | MINING | ENVIRONMENTAL | GEOTECHNICAL ENGINEERING | SURVEYING