



ORANA Engineering

**ELECTRICAL | MECHANICAL | STRUCTURAL | CONTROL SYSTEMS
ENGINEERING DESIGN AND DRAFTING | DRAWING AND PROJECT MANAGEMENT**

TOWNSVILLE

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CONTACT DETAILS

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Year Established: 2005

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Townsville Office (Est. 2005):	Office:	70 Ross River Road, Mundingburra, QLD 4812
	Postal:	PO Box 1489, Aitkenvale BC, QLD 4814
Chinchilla Office (Est. 2013):	Office:	39 Bell Street, Chinchilla, QLD 4413
	Postal:	PO Box 677, Chinchilla, QLD 4413
Mackay Office (Est. 2021):	Office:	4 Malcomson St, North Mackay, QLD 4740
	Postal:	PO Box 652, Mackay, QLD 4740

CAPABILITY INFORMATION

MAIN BUSINESS ACTIVITIES & INDUSTRIES SERVED

Orana Engineering is an engineering consultancy that is large enough to respond to our client's needs while being small enough to develop and maintain close business relationships. Orana Engineering personnel have extensive experience in projects, operations and maintenance activities in heavy industry including coal and metalliferous mining and processing. Orana Engineering's excellent reputation is built on the commitment and dedication of all of its employees working toward understanding our client's needs and delivering outcomes that consider the uniqueness of every site.

Orana Engineering has a head office in Townsville and successfully serves its clients in the coal and metalliferous mining and processing industry as well as surrounding heavy industries throughout Northern and Central Queensland, within the Northern Bowen Basin and western remote Queensland. Orana Engineering has an office in Chinchilla dedicated to serving the oil and gas, mining and surrounding heavy industries in the Surat Basin. Orana Engineering also has an office in Mackay supporting Central Queensland and the Northern and Southern Bowen Basin.

Orana Engineering operates in demanding environments and prides itself on its reputation for delivering projects and services on time and on budget. Our personnel have a unique combination of technical and practical ability and understand from previous site experience that mistakes during the engineering design and drafting stage have cost implications that can far exceed the design cost and sometimes even the project budget. It is for this reason that since its foundation, Orana Engineering has been driven to operate as an engineering, drafting and drawing management resource with robust, refined and efficient quality assurance processes to ensure the utmost quality and accuracy of all deliverables.

Quality assurance is not a cliché statement used at Orana Engineering, it is at the core of what we do and as such evidence of these transparent QA systems can be provided for all projects.

Safety in our designs and in our everyday activities is an integral focus of our business. Our extensive experience and exposure to operating in heavy industrial and mining sectors has helped us to build and develop a culture that places the highest priority on safety.

Orana Engineering is quick to realise opportunities within a process and our experience promotes a holistic approach to every project to ensure that value for money is achieved in the end project result. With our Engineers drawing from many years' of experience in site-based roles, Orana Engineering routinely delivers practicality in our designs, providing us with a highly competitive advantage over that of our competitors. Our people are aware of the complexities involved in scheduling projects at remote sites with narrow shutdown windows.

KEY WORDS

Mechanical Engineering Consultant, Electrical Engineering Consultant, Control System Engineering Consultant, Structural Engineering Consultant, Design Drafting, Drawing Management, Engineering Project Management

PRODUCTS & SERVICES

Orana Engineering capabilities and services include but are not limited to:

- ✓ Client's Engineering Representative, Project Management & Project Engineers (site and office based)
- ✓ Mechanical, Structural, Electrical & Control System Engineering & Detailed Design
- ✓ Engineering Designs & Calculations
- ✓ 3D Laser Scanning & Scan Data Processing
- ✓ Autodesk Plant 3D Modelling & Drawings (Multi-Discipline)
- ✓ Autodesk Advance Steel 3D Modelling & Steelwork Detailing
- ✓ Autodesk Inventor 3D Modelling (Multi-Discipline)
- ✓ AutoCAD 2D Drafting (Multi-Discipline)
- ✓ Ongoing Site Support & Maintenance for Control Systems
- ✓ Client Document & Drawing Office Management & Maintenance
- ✓ Audit & Establishment of Client Document Control Systems & Procedures
- ✓ Registration of Drawings, Drawing Register Management & Revision of Drawings
- ✓ Concept Design, Capital / Budget Estimates, Feasibility Studies
- ✓ Technical Document Writing (Scopes of Work, Functional Descriptions, Engineering Specifications etc)
- ✓ Engineering Investigations, Inspections, Assessments & Audits
- ✓ Tailored Control System Training Courses
- ✓ Site Installation Management & Commissioning
- ✓ Hazardous Area Classification, Design & Equipment Selection

To ensure the security and integrity of project data, Orana Engineering's Data Network system has the features and capabilities typical of major global businesses. The network includes an offsite back-up storage system that in real-time securely backs-up the entire business such that in the unlikely event of a major catastrophic failure, Orana Engineering would lose no more than 30 minutes of client data.

PREFERRED BUSINESS

Orana Engineering has mechanical, structural, electrical and control system engineering and drafting resources capable of providing detailed design, engineering and drafting services for medium sized projects (typically project values up to \$2.5M). At Orana Engineering we recognise that what sets us apart from our competitors is how we effectively and efficiently perform brownfield "breadcrumb" projects. Typical projects completed have design costs in the order of \$1k - \$50k with Orana Engineering having the capacity and systems to effectively execute projects with design costs of up to \$500k.

APPROACH

Orana Engineering prides itself on excellence in communication and understands this is a key component to a project's success and client satisfaction. Orana Engineering has a team dedicated to providing services in all project climates, including but not limited to, arranging services after hours and non-work days and scaling up to match increased demand as required to meet project needs. Orana Engineering personnel will always provide a timely response to all communications as it is our goal to be a preferred supplier. Offering a committed and thorough document control service using the latest technologies, combined with our professional engineering and drafting resources, we have the capability to holistically manage and resource sites from a technical perspective.

We uphold the highest standard in multidisciplinary engineering, project management, drafting and document control services, but it is the customer service, attention to detail, quality assurance processes and the background of the people at Orana Engineering that makes our company unique and the preferred supplier to our wide range of clients. We find our clients appreciate our company values.

COMPETITIVE SKILLS

Among other traits Orana Engineering prides itself on attention to detail, through which we have proven that in conjunction with our quality assurance systems and thorough accuracy, we create a higher quality product at a lower overall cost to the project. Orana Engineering is focused on building long term relationships. We adopt a “do it right the first time” approach so that everyone benefits and the client-consultant relationship prospers. Orana Engineering’s growth since 2005 has been a result of upholding our values, which has allowed us to maintain close working relationships with our clients.

SOFTWARE

Orana Engineering operates using Microsoft software business products for network, server and computer applications and MYOB for accounting and financial management of the business.

Orana Engineering utilises the latest in design drafting technology with 2D and 3D AutoCAD, programs and simulators allowing us to provide a multidisciplinary drafting resource backed by our Professional Engineers and Project Managers.

To achieve flexibility and presentation in design, Orana Engineering utilises specialist software modelling packages for modelling and analysis of designs and steel / civil structures (Autodesk Inventor, Advance Steel, Civil 3D, SpaceGass, Scan Data capability), electrical power systems (SKM PTW, PowerCAD), pumping / flow systems analysis and design (Pipeflow Expert and Autodesk Plant 3D) and pipe stress analysis (AutoPipe). Orana Engineering does not assume accuracy in modelled designs, we also perform spot manual calculation checks to satisfy ourselves that the information is reliable.

EQUIPMENT

As a design consultancy, after our people, the network, servers and computers are most critical to the operation of the business. Reflecting this, Orana Engineering has since inception standardised the use of Dell servers and computers, with business critical server equipment having 24/7 4hr same day warranty support and computers having 24/7 next business day warranty support. Orana Engineering’s IT system is fully duplicated, providing full standby redundancy and we maintain all necessary spare network hardware onsite.

For monitoring and logging of power usage and power supply conditions, Orana Engineering has a Powermonics 3-Phase Power Meter available for hire and setup by our Electrical Engineers, with data analysis services available if required.

To perform 3D laser scanning, Orana Engineering has a FARO Focus Premium V9 S70 tripod mounted laser scanner machine. Following a laser scan on a client’s site, the laser scan data is processed in-house and imported directly to our 3D modelling design software. We also have our own surveying equipment such that where only a small number of measurements are required, we can cost effectively obtain levels and measurements necessary for our design during a site visit.

Orana Engineering also has a wide range of printing and scanning equipment suiting all drawing and documentation requirements up to and including A0 paper size.

CERTIFICATIONS HELD

In accordance with the Professional Engineers Act 2002 (Queensland), all engineering designs delivered by Orana Engineering are performed under the direction of Engineers possessing RPEQ (Registered Professional Engineer of Queensland) status.

TRAINING & SKILLS

Orana Engineering annually budgets to provide all staff with training that is strategic and relevant to their field of expertise for the purpose of ongoing professional development and maintaining the highest possible quality of service to our clients.

MANAGEMENT SYSTEMS & RISK MANAGEMENT

GENERAL

Orana Engineering personnel have extensive site work experience at a wide range of sites including those owned by Glencore, BHP Billiton, BMA, Anglo American, Rio Tinto, QGC, Origin Energy, CS Energy, Minerals & Metals Group etc. Our employees hold safety in the highest regard and have comprehensively used onsite risk management and management of change processes.

Orana Engineering utilises and maintains to the highest standard, policies and procedure systems in health, safety, environment and quality assurance.

ACCREDITATION

At Orana Engineering we pride ourselves on our quality assurance systems, and we currently hold accreditation to ISO 9001, ISO 14001 and ISO 45001.



INSURANCES

Orana Engineering maintains the following insurances:

- ✓ \$20M Public Liability Insurance
- ✓ \$5M in any one claim and \$10M in the aggregate Professional Indemnity Insurance
- ✓ WorkCover Queensland

WORKING WITH INDUSTRY & OTHERS

NETWORKS

Orana Engineering is proficient in the utilisation of subcontractors to meet statutory requirements in our designs. As required, we utilise our network of subcontractors for tasks such as civil / structural RPEQ and fire RPEQ project verification and sign-off, high pressure / temperature piping and pressure vessel verification and sign-off, architectural design, HV overhead power line design, substation earthing designs and lightning design.

INDUSTRY ASSOCIATION MEMBERSHIP

Orana Engineering employees with engineering qualifications are members of Engineers Australia and are kept up to date with the latest processes and movements in the industry. We encourage excellence in our staff and have engineers that hold Chartered Professional Engineer (CPEng) status with Engineers Australia, and RPEQ status with the Board of Professional Engineers Queensland.

TRACK RECORD

The following references have been supplied as a brief background of past and current work performed by Orana Engineering. Referees can be provided upon request.

CLIENT	PROJECT PROFILE
Anglo American <i>Grasstree</i>	<ul style="list-style-type: none"> ➤ Underground Mine Electrician Training ➤ MG809 Conveyor Civils & Equipment Layout
Anglo American <i>Grosvenor</i>	<ul style="list-style-type: none"> ➤ Trunk & Longwall Conveyor Commissioning Sheet Development ➤ CVU002 Trunk Conveyor Extension Layout Design & Drafting ➤ Conveyor Pulley Schedule Development & Drafting ➤ Conveyor Idler Schedule Development & Drafting ➤ Equipment Schedule Development & Drafting ➤ CVU104 Concept Chamber Design & Drafting ➤ CVU002 Tripper Concept Layout
Anglo American <i>Moranbah North</i>	<ul style="list-style-type: none"> ➤ CHPP Electrical Drawing Audit ➤ CHPP Train Loadout Automation PLC Configuration ➤ CHPP Control Voltage Upgrade ➤ Reclaimer, Conveyor & Breaker Upgrade Electrical Design ➤ CHPP Reclaim Tunnel Hazardous Area Classification ➤ Tank Farm Storage Area Lightning Protection System Upgrade ➤ Reclaim Tunnels Ventilation Review
Auctus Resources <i>Chillagoe</i>	<ul style="list-style-type: none"> ➤ Client Engineering Assistance for Plant Upgrades ➤ Client Engineering Assistance for King Vol Mine ➤ Project Scoping Assistance & Project Tender Reviews ➤ King Vol Mine Electrical Design ➤ King Vol Mine Preliminary Site Layout Design & Drafting ➤ King Vol Mine Boxcut Sump Engineering & Drafting ➤ Design & Drafting of Access Reaming Platforms
BM Webb	<ul style="list-style-type: none"> ➤ Office & Warehouse Main Distribution Board Electrical Design & Drafting
BMA <i>Blackwater</i>	<ul style="list-style-type: none"> ➤ Industrial Area Services Audit
BMA <i>Broadmeadow</i>	<ul style="list-style-type: none"> ➤ Shuttle Car Earth Fault Current Limitation Study ➤ South Mains & Longwall Vehicle Travel Roads Concrete Study ➤ Super Fans Harmonics Study ➤ PFCU Clients Engineering & Site Assistance ➤ PFCU Substation Footing & Earthing Engineering & Drafting ➤ Drawing Management & Metadata Consolidation ➤ Backup Generator Upgrade & Functional Reviews
BMA <i>Daunia</i>	<ul style="list-style-type: none"> ➤ Helipad Landing Area Civil Design Drafting ➤ Diesel Skid Light Pole Support Engineering & Drafting ➤ Pipe Spool Lifting Point Engineering & Drafting ➤ Sump Pump Piping Modifications Engineering & Drafting ➤ Stacker Fire Hose Engineering & Drafting

CLIENT	PROJECT PROFILE
BMA <i>Gregory Crinum</i>	<ul style="list-style-type: none"> ➤ Drawing Management Audit ➤ Borehole Dewatering Pipe Analysis & Site Engineering Assistance ➤ Underground Mine Dewatering Hydraulic Modelling ➤ Investigation & Testing of Earth Leakage Systems for Variable Speed Drives ➤ VVVF Drive Earth Leakage Relay Install Electrical Design & Drafting ➤ Fire System Audit ➤ Southern Area Ventilation & Electrical Design
BMA <i>Peak Downs</i>	<ul style="list-style-type: none"> ➤ Document Control & CAD Operation Support
BMA <i>Saraji</i>	<ul style="list-style-type: none"> ➤ Reagents Upgrade System Audit & Commissioning Assistance ➤ CV101, 3S & 8S Conveyor Gravity Take-Up Guarding Compliance Audit ➤ CV101, 3S & 8S Conveyor Gravity Take-Up Engineering & Drafting ➤ CV3S & 8S Belt Scraper Mounting Engineering & Drafting ➤ Stacker MCC Platform Design & Drafting ➤ BOS Facility Design & Drafting ➤ Switchroom Replacement
Carpentaria Gold <i>Ravenswood</i>	<ul style="list-style-type: none"> ➤ Tank Access Static Line System ➤ Feed & Tails Slurry Sampler Installation ➤ Leach Tank Bypass Piping ➤ Cyanide Tank Design ➤ Instrument Air Ringmain Design & Drafting ➤ Tails Thickener Overflow Water Recovery
Century Mining Ltd <i>Century</i>	<ul style="list-style-type: none"> ➤ Systems Upgrade & Electrical Site Support ➤ Plant Feed Upgrade Engineering & Drafting ➤ Hydromining Electrical Upgrade Engineering & Design ➤ Hydromining Cannon Prototype Project Management ➤ Hydromining High Pressure Pipework Audit ➤ Jameson Cell Integration Project Electrical Engineering Design & Drafting
Condamine Electric Company CEC <i>Dalby</i>	<ul style="list-style-type: none"> ➤ QGC Kenya WTF Power Island Transformer & Load Bank Electrical Engineering & Drafting ➤ APA Wallumbilla Capital Budget Estimates ➤ APLNG Condabri Capital Budget Estimates ➤ Sunwater Beardmore Dam Electrical Modification Engineering & Drafting ➤ As-Built Drawings Assistance – Various Projects
Conductix Wampfler <i>Brisbane</i>	<ul style="list-style-type: none"> ➤ Structural Analysis for Stacker Cable Reelers at Collinsville Mine
CS Energy <i>Kogan Creek Power Station</i>	<ul style="list-style-type: none"> ➤ Site Engineering Assistance & Concept Design for Various Plant Modifications & Upgrades ➤ Chemical Skid Detailed Engineering & Drafting ➤ Auxiliary Boiler Upgrade Engineering & Drafting ➤ SCC Tail End Tub Design Engineering & Drafting ➤ Safety Shower Flow Rate Engineering Investigation ➤ Boiler Washdown Pumping System Engineering & Drafting

CLIENT	PROJECT PROFILE
Dyno Nobel <i>Moranbah</i>	<ul style="list-style-type: none"> ➤ Hydrogen Demonstration Plant Services Supply Engineering & Drafting ➤ Black Start Generator Feasibility Engineering Review ➤ Generator Protection Engineering Design ➤ NH3 Plant Loop Purge Gas Feasibility ➤ Site Engineering & Project Management Support ➤ Emulsion Oxidiser Tank Feasibility Study
EM Solutions	<ul style="list-style-type: none"> ➤ Radio Wave Propagation Simulation for Indonesian Link
Ergon Energy	<ul style="list-style-type: none"> ➤ Pole Condition Data Program Software Application Development ➤ Defect Reduction Program Software Application Development
Fitzroy Australia <i>Carborough Downs</i>	<ul style="list-style-type: none"> ➤ Mine Dewatering Network Concept Design & Budget Estimate ➤ Project Management & Drafting of Underground Conveyor Installation Drawings ➤ Drawing Registration & Ongoing Site Drawing Management ➤ CHPP MIBC Hazardous Area Zoning ➤ CHPP Arc Flash Study ➤ CHPP Conveyor Capacity Audit ➤ Telehandler Bin Concept & Detailed Design
FMR Investments <i>Eloise Copper Mine</i>	<ul style="list-style-type: none"> ➤ Crushing Plant Upgrade Mechanical & Structural Design & Drafting ➤ Flotation Cell Installation Electrical, Mechanical & Structural Design & Drafting ➤ Jaw Crusher Access Platform Engineering Design & Drafting ➤ Ball Mill Reloading Skip Monorail Engineering Design & Drafting ➤ Feed Bin Column Replacement Design ➤ Concentrate Pad Wheel Wash Engineering & Drafting ➤ Light Pole Footing Rectification Engineering & Drafting
FTEC QLD	<ul style="list-style-type: none"> ➤ Hazardous Area Equipment Selection ➤ Intrinsic Safety Barrier Engineering Calculations ➤ Rib Crane Feeder Engineering Review ➤ MCC Engineering & Drafting
Fuel Fix	<ul style="list-style-type: none"> ➤ Broadmeadow Fuel Farm Electrical Design Drafting ➤ Diesel Supply Electrical Design Drawings
Glencore Coal <i>Collinsville</i>	<ul style="list-style-type: none"> ➤ Collinsville Drawing Registration Project & Ongoing Management ➤ Drawing Revisions to As-Built & Registration to Client Data Management System ➤ 33kV Yard As-Built Drawings ➤ GCOM Building Floor Plan & Office Space Design Drafting ➤ Workshop Waste Oil System Engineering, Drafting, BOM & SOW ➤ Dragline DL02 Platform Engineering & Drafting ➤ AS 4024 Guarding, AS 4775 Eyewash / Safety Shower, AS 1657 Platform / Walkways, AS 1940 Flammable Liquid Storage, Confined Space & Structural Audits / Reporting

CLIENT

PROJECT PROFILE

Glencore Coal
Hail Creek

- Drawing Registration Project Mobile Fleet Electrical Drawings
- Redraw Hardcopy Drawings into AutoCAD Format
- Flotation Plant Upgrade Engineering Checks
- Onsite Electrical Engineering Support

Glencore Coal
Newlands

- Dozer Seeder Mount Design & RPEQ Certification
- Newlands Contractor Camp Electrical Design & Drafting
- AS 4024 Guarding, AS 1657 Platform / Walkways, Confined Space & Structural Audits / Reporting
- Newlands Northern Underground Compressed Air Network Desktop Audit
- Compressed Air System Investigation
- Excavator Digger Planned Maintenance Project Management
- Site Engineering & Project Management Support

Glencore Coal
Oaky Creek Coal
CHPP

- Electrical & Mechanical Drawing Registration & Ongoing Management
- CHPP Power Factor Correction Electrical & Control System Design & Commissioning
- Tailings Disposal System Modelling & Detailed Design
- CHPP Reclaim Tunnels Hazardous Area Classification & Design
- Lake Keith Pump Station Scopes of Work & Electrical Design
- Main Plant Sequence Testing Installation & Commissioning
- CHPP New Control Room & DCS Upgrade

Glencore Coal
Oaky No. 1

- Underground Conveyor Installation Drawings
- LOM Water Supply Study
- LOM Compressed Air Supply Study
- Drawing Registration Project & Ongoing Drawing Management
- Structural Integrity Audit & Reporting
- AS 1657 Platforms, Walkways, Stairways & Ladders Australian Standards Compliance Audits / Reporting
- Design & Drafting of Borehole Pump Wellhead Trenches

Glencore Coal
Oaky North

- Underground Workshop Concept Design
- Drawing Registration Audit Assessment
- Prepare Conveyor Installation Work Procedures & Commissioning Documents
- Confined Space & Structural Integrity Audit / Reporting
- Back-Up Generators Detailed Design & Drafting
- Vent Fan Rapid Seal Specification

Glencore Coal
Rolleston

- Tank Lifting Frame Engineering Design & Drafting
- Steel Plate Rack Engineering Design & Drafting
- Equipment PRT Updates

Glencore Port
Operations
Port Facility

- 11kV Incomer & Transformer Upgrade Project
- Recycled Water Project Detailed Design & Scoping
- Wharf Crane Mother Spreader Beam Modelling & Detailed Design
- Tippler Sump Pump Mechanical & Electrical Design
- HV Metering & Substation Earthing Detailed Design
- Tippler Refurbishment & Upgrade Modifications Detailed Design & Drafting
- MCC2 Upgrade Detailed Engineering & Drafting

CLIENT

PROJECT PROFILE

<p>Glencore <i>George Fisher</i></p>	<ul style="list-style-type: none"> ➤ North Paste Plant Hole 6 Layout and Pipework Engineering & Drafting ➤ Design of Work Table Support for Bore Casing ➤ Front End Loading of Capital Projects ➤ Pipe Work Support Engineering & Drafting ➤ Underground Slick Line Support Structure ➤ Life of Mine Investigation & Report for Process Water & Compressed Air ➤ HV Reticulation Plan & Onsite Engineering Support
<p>Glencore <i>Mount Isa Mines</i></p>	<ul style="list-style-type: none"> ➤ HV 5.2 Conveyor Motor Replacement Engineering Review Report ➤ Dispatch Hut Standby Generator Engineering Review Report ➤ Fan PLC Program Configuration ➤ Rosehill Screw Press Engineering Design & Drafting ➤ Conveyor Head Chute Engineering Design & Drafting ➤ Guarding Design & Drafting
<p>Glencore Townsville Operations <i>CRL</i></p>	<ul style="list-style-type: none"> ➤ High Voltage Audit & Protection Setting Review ➤ Shaft Furnace Gas Conversion Control System Configuration ➤ Redraw Hardcopy Drawings into AutoCAD Format ➤ Arc Flash Study for Main DB's & MCC's ➤ Tankhouse Back-Up Generator & Emergency Generator Automation Concept ➤ Solar Farm Concept Investigation & Report ➤ DCS Engineering Support
<p>Global Power Design</p>	<ul style="list-style-type: none"> ➤ Plant Design Engineering Certification
<p>Goodline <i>BHP Olympic Dam</i></p>	<ul style="list-style-type: none"> ➤ Fogging & Water System Engineering Design & Drafting ➤ Haulage Shaft Spillage Chute Engineering Design & Drafting ➤ Haulage Shaft Guarding Detailed Design & Drafting ➤ Crane Platform Detailed Engineering & Drafting ➤ Underground Skid Conceptual Design & Engineering ➤ Underground Platform Spillage Chute
<p>Goodline <i>BHP Yandi</i></p>	<ul style="list-style-type: none"> ➤ Yandi Region Water Project Detailed Design & Drafting
<p>Goodline Weipa</p>	<ul style="list-style-type: none"> ➤ Access Platform Engineering Design & Drafting ➤ Workshop Stands Engineering & Capacity Certification ➤ Amrun Accommodation Buildings Electrical Design & Drafting ➤ Amrun Project QA Workpack Compilation & Engineering Assistance
<p>Hutchinson Builders <i>Toowoomba</i></p>	<ul style="list-style-type: none"> ➤ QGC Aquifer Injection Water Treatment Project Design Review
<p>Incitec Pivot <i>Dyno Nobel</i> <i>Moranbah</i></p>	<ul style="list-style-type: none"> ➤ Prepare Drawing Template ➤ Redraw Ammonia Plant Single Line Diagrams into AutoCAD Format ➤ Develop Site HV Switching Diagram

CLIENT

PROJECT PROFILE

Incitec Pivot
Phosphate Hill

- Anhydrous Ammonia Loadout Facility Functional Specification
- Train Loadout PLC-DCS Data Transfer
- Bagging Plant PLC & SCADA Configuration, Maintenance & Site Support
- Port Facility PLC & SCADA Configuration, Maintenance & Site Support
- Port Facility Rebuild Citect Servers
- Site Based Mechanical Engineering & Project Management Support
- Site & Townsville Based Electrical Engineering & Project Management Support

Incitec Pivot
Townsville Operations

- Product Stockpile Conveyor Tripper Car Engineering Investigation
- Inloading Conveyor No.3 Tail Pulley Shaft Engineering Verification
- Assistance with Compilation of Risk Assessment Documentation

Kestrel Coal Resources
Kestrel Coal North

- Magnet Installation Engineering Design & Drafting
- Thickener Panel Engineering Design & Drafting
- Fire Deluge System Engineering Design & Drafting

MBD Energy
James Cook University

- Tank Farm Area Civil Detailed Design
- Site PLC & SCADA Network Conceptual Design
- 10m TAGS Sled Electrical, Mechanical & Control System Design
- Ayr Prawn Farm High Recovery Algal Pond Civil & Electrical Design
- Ayr Prawn Farm High Recovery Algal Pond Paddle Wheel Design & Drafting

Metal Maintenance
Currumbin Waters

- QGC Kenya WTF Sediment Pond Piping Design Drafting
- QGC Kenya WTF BWRO HP / LP Interface Pressure Relief System Engineering & Drafting

Maintenance Fabrication & Engineering
Chinchilla

- QGC Kenya WTF Vapour Compressor Drive Jack Shaft Lifting Beam Design & Drafting
- Kenya WTF BC Drain Pump System Design & Drafting

MMG
Century Mine

- Concentrator Upgrade Project Electrical & Mechanical Project Engineering
- Concentrator Upgrade Project Mechanical Project Engineering
- Jameson Cell Electrical & Instrumentation Design & Drafting
- Detritor Mill Electrical & Instrumentation Design & Drafting
- IMT Project Site Engineering & Commissioning Support
- Lead Dam Vehicle Wash Civil, Structural & Electrical Engineering & Drafting
- Lead Re-Slurry Project Management

MMG
Dugald River Mine

- Site Lightning Audit, Upgrade & Drafting
- Vent Fan Vibration Monitoring Electrical Engineering Design & Drafting
- Crusher Fines Curtain Mechanical Engineering Design & Drafting
- Agitator Maintenance Support Stand Civil & Structural Engineering Design
- Conveyor Drive Upgrade Electrical Engineering Design & Drafting
- Site Electrical & Mechanical Engineering Support
- Oil Filtration Pump Power Supply Electrical Engineering Design & Drafting

MMG
Karumba

- Sealant Plant Technical Review, Design & Drafting
- Recycled Oil Electrical Engineering Design, Drafting & Project Engineering
- Vehicle Wash Pad Design & Drafting
- Care & Maintenance Electrical Engineering Support

CLIENT	PROJECT PROFILE
Monadelphous Group Limited	<ul style="list-style-type: none"> ➤ APLNG Talinga PCF Plant Structural Inspections & Form 16's ➤ APLNG Wandoan IF Plant Structural Inspections & Form 16's
Navarre Minerals <i>Mt Carlton</i>	<ul style="list-style-type: none"> ➤ Structural Audit & Reporting ➤ Chemical Storage Assessment & Reporting
Nordev Contractors <i>Townsville</i>	<ul style="list-style-type: none"> ➤ MIM Crushing Plant Supply Detailed Electrical Design & Drafting
O'Donnell Griffin <i>Queensland</i>	<ul style="list-style-type: none"> ➤ Townsville Airport Power System SCADA & Communications Network ➤ Lake Lindsay Coal Water Management PLC Control Systems
Origin Energy <i>Condabri IOC</i>	<ul style="list-style-type: none"> ➤ Flexible Hose Register Updates ➤ Water Treatment Facility Tank Replacement Engineering Design & Drafting ➤ Flush Trailer Design & Drafting
Origin Energy <i>Darling Downs Power Station</i>	<ul style="list-style-type: none"> ➤ Wellhead Degasser Engineering Design & Drafting ➤ PEECC Inverter Replacement & Site Commission ➤ Hydrogen Storage Hazardous Area Zoning Design & Audit Report ➤ Degasser Temporary Tanks Hazardous Area Classification, Report & Drawings ➤ GCB Enclosure Engineering Design & Drafting ➤ Wilkie Creek Bore Hazardous Area Classification, Report & Drawings ➤ Fire Hydrant Extension Engineering & Drafting
Origin Energy <i>Mt Stuart</i>	<ul style="list-style-type: none"> ➤ Fire Pump System Flow Testing & Analysis ➤ ICES Water Treatment Plan Electrical Design & SCADA Configuration ➤ Hazardous Area Reclassification Drawing & Report ➤ MCC Air Conditioner Upgrade Engineering Design & Drafting ➤ Fuel Bund Inspection Scope of Works Report
Origin Energy <i>Talinga Gas Processing Facility</i>	<ul style="list-style-type: none"> ➤ Oily Water Pond Treatment System Engineering Design & Drafting ➤ Waukesha Engine Upgrade Drafting Services ➤ Site Engineering & Project Management Support
Origin Energy <i>Talinga Water Treatment Facility</i>	<ul style="list-style-type: none"> ➤ Brine Reduction Options Investigation ➤ Arkal Filter Skids Assess Select Report ➤ Loss of Containment Mitigation Options Assess Select Report
Origin Energy <i>Uranquinty Power Station</i>	<ul style="list-style-type: none"> ➤ GCB Enclosure Engineering Design & Drafting
Peabody Energy <i>North Goonyella</i>	<ul style="list-style-type: none"> ➤ Investigation & Testing of Earth Leakage Systems for Variable Speed Drives ➤ Crushing Plant Conveyor Skirting Modifications ➤ CHPP Distributor Modification Concept Design ➤ Drawing Management Services ➤ PLC & SCADA Training ➤ Fine Coal Centrifuge Concept Design, Schedule & Capital Breakdown ➤ Shuttle Car Earth Leakage Testing
Peter Dunstan Electrical	<ul style="list-style-type: none"> ➤ Transformer Platform Engineering Design & Drafting ➤ Cathode Crane Reeler Engineering ➤ Electrical Engineering Support

CLIENT	PROJECT PROFILE
Regional Instrumentation & Electrical Services RIE <i>Chinchilla</i>	<ul style="list-style-type: none"> ➤ APLNG Combabula Bore Pump Fault & Protection Study ➤ CS Energy Kogan Creek Power Station Hazardous Area Blocked Chute Rectification ➤ APLNG Gas Buster Hazardous Area Certification ➤ Drafting & Drawing Management Assistance ➤ Origin Bore-Head and Degasser Modifications Engineering & Drafting
Rimfire Constructions	<ul style="list-style-type: none"> ➤ APLNG Lucky Gully Capital Budget Estimates
Rio Tinto Alcan <i>Weipa</i>	<ul style="list-style-type: none"> ➤ Distributor Stand Structural Engineering ➤ Sizer Platform Modification Structural Engineering ➤ Cyclone Feed Pump Structural Engineering ➤ Trommel Southern Guard Structural Engineering ➤ Apron Feeder Shaft Stand Engineering & Drafting ➤ Apron Feeder Torque Arm Structural Engineering ➤ AF14 Power Pack Access Platform Modelling & RPEQ
Safetylec Management Solutions	<ul style="list-style-type: none"> ➤ Site Lightning Audit ➤ Diesel Tank Temperature Analysis
Senex <i>Roma</i>	<ul style="list-style-type: none"> ➤ Generator Capacity Study
Sodexo <i>Collinsville Village</i>	<ul style="list-style-type: none"> ➤ Concrete Slab Site Inspection & Recommendations Report
Sodexo <i>Talinga Village</i>	<ul style="list-style-type: none"> ➤ Excavator Bucket Project Assistance
South 32 <i>Cannington</i>	<ul style="list-style-type: none"> ➤ Overhead Gantry Crane Rail Realignment Project Management ➤ QB80 Fan HV Switchroom Design ➤ H2SO4 Tank Repairs & Control System Upgrade ➤ RO Plant Controls Upgrade ➤ Site Safety Shower System Reticulation & Upgrade Project ➤ Yurbi Stormwater System Upgrade Project Management ➤ Tailings Reclamation Process FEED & Estimating
South 32 <i>Townsville Port Facility</i>	<ul style="list-style-type: none"> ➤ Storage Shed Extension Project Management ➤ Stormwater System Upgrade Project Management ➤ Recycled Water System Electrical & Mechanical Design, Scope & Commission ➤ Water Treatment & Polishing Plant Electrical Design, Scope & Commission ➤ General PLC & SCADA Configuration, Maintenance & Site Support ➤ Site Drawing Management ➤ Water Polishing Plant Access Platform Design Drafting
Sun Metals Corporation <i>Townsville</i>	<ul style="list-style-type: none"> ➤ Cathode Crane Reeler Review ➤ IGBT Failure Study ➤ Isolation Transformer Earthing Engineering Design ➤ Precipitator Controllers Engineering Design & Drafting ➤ Site-Based Engineering Support ➤ Electrical Protection Study

CLIENT	PROJECT PROFILE
Sunwater <i>Brisbane</i>	<ul style="list-style-type: none"> ➤ Hydraulic Weir Door Mechanical & Structural Engineering & Drafting ➤ Manhole Cover Structural Drafting ➤ Culoga Weir Gates Drawing Revisions ➤ Callide Manhole Design Drafting
Total Eden	<ul style="list-style-type: none"> ➤ Senex Pump Station Engineering Design & Drafting ➤ Mt Morgan Pump Station Engineering Design & Drafting
True North Copper <i>Cloncurry</i>	<ul style="list-style-type: none"> ➤ Electrowinning Shed Bags Monorail Design & Drafting
Veolia Water Operations <i>QGC Kenya Water Treatment Facility</i>	<ul style="list-style-type: none"> ➤ Brine Concentrator Vapour Compressor Spool Removal Concept Study & Capital Estimates ➤ Relocatable & Main Plant Water Treatment Plant Condition Assessment & Reporting ➤ Power Island Transformer & Load Bank Footings Civil Engineering & Drafting ➤ Orana 4 Pond Pump Station Options Analysis ➤ Brine Concentrator Gas Engine Feed Piping Modifications Engineering & Drafting ➤ BC Engine Overhead Crane Engineering & Drafting ➤ Brine Concentrator Tower Rescue Lift Engineering & Drafting
Veolia Water Operations <i>QGC Northern Water Treatment Facility</i>	<ul style="list-style-type: none"> ➤ Hydrochloric Acid Structural Audit ➤ Pond Gauge Boards Site-Based Engineering, Surveying & Reporting
Wesfarmers <i>Curragh Coal</i>	<ul style="list-style-type: none"> ➤ MIBC Flow Measurement ➤ New Coal Prep Plant Client's Electrical Representative ➤ Investigation & Testing of Earth Leakage Systems for Variable Speed Drives
Woodfield Engineering <i>Townsville</i>	<ul style="list-style-type: none"> ➤ SAG Mill Cover Engineering Design & Drafting ➤ Fabrication Drawings for Flat & Curved Fill Walls
Yancoal <i>Cameby Downs Mine</i>	<ul style="list-style-type: none"> ➤ Crane Pad & Stands Engineering