DESIGN ENGINEERING
TRUSTED SPECIALISTS
FOR 35+ YEARS

COMPANY CAPABILITY STATEMENT

DESIGN ENGINEERING
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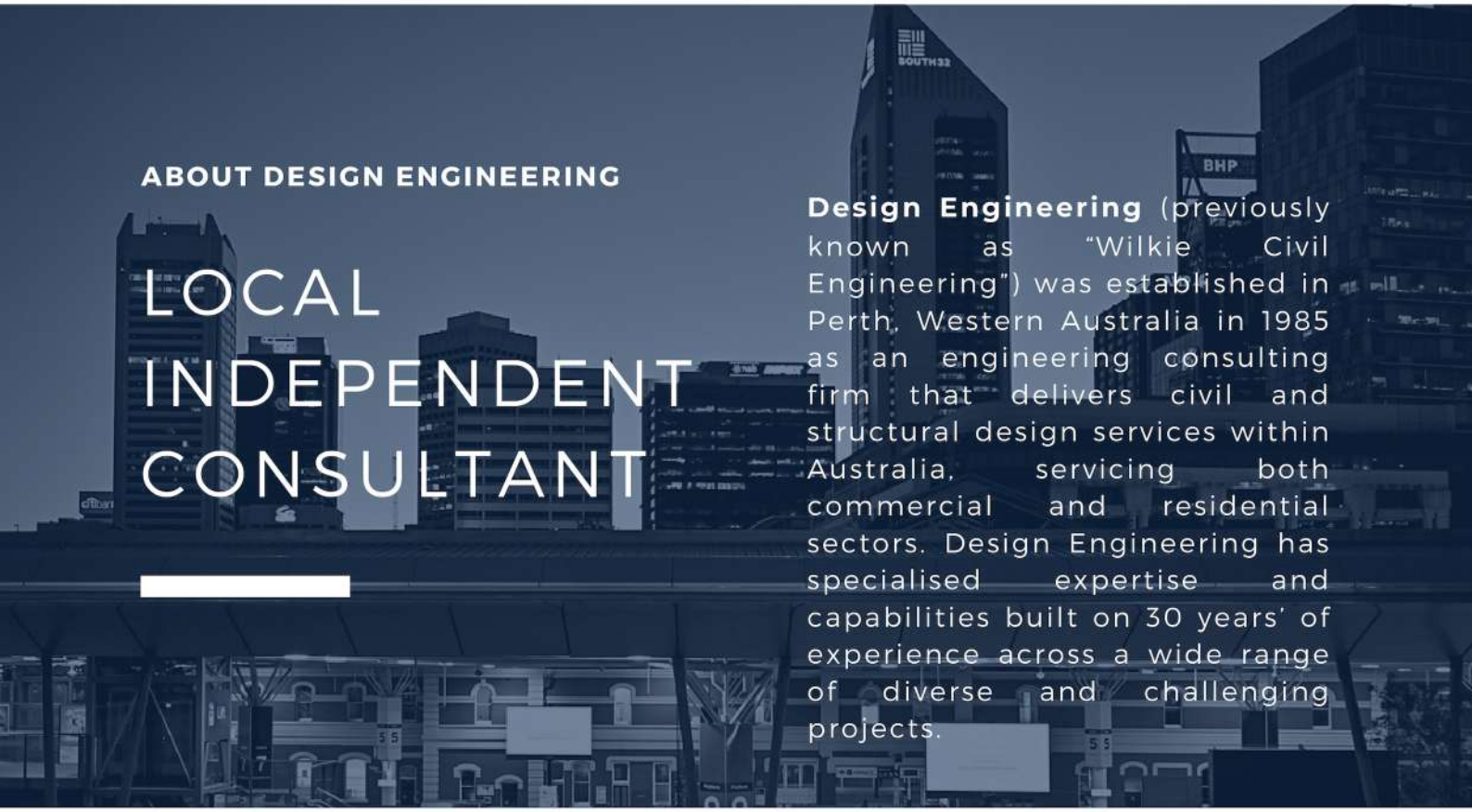
Design
ENGINEERING



ABOUT DESIGN ENGINEERING

LOCAL INDEPENDENT CONSULTANT

Design Engineering (previously known as "Wilkie Civil Engineering") was established in Perth, Western Australia in 1985 as an engineering consulting firm that delivers civil and structural design services within Australia, servicing both commercial and residential sectors. Design Engineering has specialised expertise and capabilities built on 30 years' of experience across a wide range of diverse and challenging projects.

Our company focuses on residential engineering solutions together with land developments and subdivisions. We are a dynamic group of professionals who are able to deliver on time and focus on providing customized services tailored to suit a client's individual needs. Design Engineering brings a mix of skills and expertise within multiple disciplines such as civil, structural and mechanical services. The group has served a wide variety of clients including private residence owners, builders, developers, councils and strata management companies.

This wide range of experience developed across many industries, demonstrates the wealth of knowledge and vital skills that allow Design to tackle everything from small technically challenging designs right through to large major projects.

Design provides outstanding services to clients through unrelenting commitment to excellence. Our engineers are able to complete jobs on time, on budget and above the expectations of our clients.

ABOUT DESIGN ENGINEERING

OUR SPECIALIST SERVICES

What differentiates Design from other firms is our unique combination of specialised services combined with a 30 year proven track record of delivering successful projects to our clients.

- STRUCTURAL ADVICE
- CRACKING WALLS
- DILAPIDATION REPORT
- RETAINING WALLS
- WALL REMOVAL
- WATER/DAMPNESS ISSUES
- ADDITIONS
- ALTERATIONS
- STRUCTURAL CERTIFICATION
- RETROSPECTIVE APPROVAL
- ASSISTANCE WITH COUNCIL APPROVAL
- SWIMMING POOLS
- CAR PORTS
- SHEDS
- TEMPORARY FENCING
- SUBDIVISION
- INDEPENDENT OPINION
- DISPUTES
- HOUSES
- TOWNHOUSES
- UNITS/APARTMENTS
- PERGOLAS
- PATIOS
- BOUNDARY FENCES
- SCREEN WALLS
- HELP WITH RESIDENTIAL ISSUES
- COMMERCIAL BUILDINGS
- SIGNAGE STRUCTURES
- ROOF TIE DOWNS
- COMPLIANCE INSPECTIONS

OUR CORE VALUES

RESPECT
Respect is a core value underlying all our relationships between work colleagues, our clients and key suppliers.

CUSTOMER FOCUS
We are dedicated to supporting our clients. We provide services that are of high quality, responsive and customer focused.

CONTINUOUS IMPROVEMENT
We aim to continuously improve our performance and always look for innovative solutions.

INTEGRITY
We commit to delivering solutions to our clients through service which is honest, reliable, trustworthy and accurate.

SAFETY, ENVIRONMENTAL & QUALITY
We prioritize safety in design and are environmentally aware to ensure that engineering solutions meet the requirements of all stakeholders.

COLLABORATION
We believe the best solutions come from working together with both colleagues and clients.

ABOUT DESIGN ENGINEERING

KEY ATTRIBUTES

Delivering quality engineering services to WA since 1985.

Dynamic and innovative niche consultancy.

Dedicated team providing customised service.

Specialist in civil, structural and mechanical engineering design.

Unique solution finder.

15,000+ jobs completed to date.

We work as a dedicated team and as a result, projects are planned, managed and completed in a timely, on-budget manner with few surprises. As a single point of contact for engineering deliverables, we offer total responsibility and efficiency in controlling costs at every phase.

Our Design Engineering Team's core experience has been built on the residential, commercial, and industrial industries so with over 30 years of experience you can be assured that we understand your specific needs. Whether it be a structural inspection or fully fledged design, we can look after the full scope of your structural engineering needs.

SERVICES

AREAS OF EXPERTISE

What differentiates Design Engineering from other firms is our unique combination of services. By integrating the skills and experience of our engineering staff, our teams bring greater efficiencies and service know-how to all client projects.

Subdivisions

Demolition & Lifting Studies

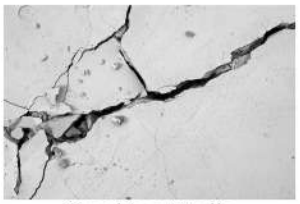
Infrastructure & Light Construction

Residential Buildings

Commercial Buildings

Stormwater & Drainage

Retaining Walls


Cracking Walls

Geotechnical

Environmental

Inspections

Swimming Pools & Spas

Patios

Sheds

Carports

Decks & Slabs

SERVICE HIGHLIGHTS

- SUBDIVISONS
- DEMOLITION & LIFTING STUDIES
- INFRASTRUCTURE & LIGHT CONSTRUCTION
- RESIDENTIAL BUILDINGS
- COMMERCIAL BUILDINGS
- STORMWATER & DRAINAGE
- CRACKING WALLS
- RETAINING WALLS
- PATIOS, SHEDS & CARPORTS
- SWIMMING POOLS

Design ENGINEERING

SERVICES

SUBDIVISIONS

Including:

- Sewerage
- Water supply
- Earthworks
- Drawings
- Design
- Roads
- Retaining walls
- Gas reticulation
- Power and communication
- Planning and approvals
- Construction supervision
- Contract specification
- Contract administration
- Project management

EXAMPLE OF PREVIOUS WORK

Job Name: *Wandoo Valley Estate*
Client: *Hay Property Trust*
Location: *WA*
Type: *Subdivision*

Design was approached by Hay Property Trust to develop a 36 hectare rural piece of land in Northam Perth.
Design provided engineering design, consultancy, construction supervision, contract administration and overall project management. The objective of the project was to successfully subdivide the land and facilitate all the services and utilities that go hand in hand with obtaining clearances for new titles.

SERVICES

DEMOLITION & LIFTING STUDIES

Including:

- Certification for cutting penetrations through slabs
- Certifications of method studies for the demolition of structures
- Lifting studies
- Assessment of slabs for placement of machinery and other loads
- Assessment of wall removals
- Renovations
- Temporary bracing / propping

EXAMPLE OF PREVIOUS WORK

Job Name: *Structural Engineering Designs of Propping System*
Client: *Delta Group*
Location: *WA*
Type: *Demolition of Buildings*

Design Engineering has provided structural engineering consultancy services for the part or whole demolition of various buildings (residential and commercial) in the Perth Metropolitan Region. Design provided efficient engineering design solutions for the assessment of existing suspended slabs for the use of plant and equipment to perform the demolition works.

This includes traditional reinforced slabs, pretensioned slabs and precast decking systems. Engineering checks were performed on adjacent structures to design efficient propping system to maintain their stability and functionality during demolition works. Challenges overcome included analysing old buildings without structural drawings and limited client budget. Design worked with Delta group to develop the most efficient demolition strategy with minimal propping while remaining on schedule.

SERVICES

INFRASTRUCTURE & LIGHT CONSTRUCTION

Including:

- Small bridges for pedestrian use and light vehicle access
- Driveways, car parks and hardstands
  - Levels and drainage
  - Access/turning circles
  - Pavement design
- Roads
  - Geometric design
  - Pavement design
  - Signage
- Culverts
- Hardstands / Pavements
- Jetties for mooring of boats
- Designs comply with the relevant Australian Standards as well as local council requirements

EXAMPLE OF PREVIOUS WORK

Job Name: *Works Depot*
Client: *City of Perth*
Location: *WA*
Type: *Hardstand Upgrade*

Design was commissioned by the City of Perth to review the existing hardstand trafficable area at their works depot in Osborne Park and provide design solutions for the repair and construction supervision.
Based on the client's scope of works, Design developed three initial design options and provided costs for each option.

Upon review of the options by the client, Design finalized the design and developed tender documentation including tender evaluation. Design then undertook site supervision and contract management to deliver the scheme on time and within budget.
The outcome of the project was that Design prepared three design options with associated costs, designed client preferred option and determined costs, Prepared Tender Documentation, Site Supervision and Contract Administration.

SERVICES

RESIDENTIAL BUILDINGS

Including:

- Engineering designs and drawings for new houses, extensions and renovations
- Design verification of unregistered buildings and structures (retrospective registration)
- Designs incorporate the latest industry practices using up-to-date technology
- Building inspections, damage assessments and reports
- Structural requirements of new buildings, footings and beams
- Transportable housing and base requirements
- Tension membrane structures e.g. shade sails
- Engineering certifications

EXAMPLE OF PREVIOUS WORK

Job Name: *Various*
Client: *Parklyn Construction*
Location: *WA*
Type: *Residential House Engineering*

Design Engineering has provided structural engineering design services for several new residential houses in the Perth Metropolitan region. Design Engineering provides efficient engineering design solutions for the foundations, floor and wall framing, and roof design for various types of home construction.

The challenges successfully overcome included working together with the builder and the architect to provide a workable solution within limited budget and using refined engineering such as piling and underpinning to protect adjacent structures.

Design successfully built several homes according to architectural plan, budget and satisfaction of the client.

SERVICES

COMMERCIAL BUILDINGS

Including:

- Small offices, new buildings, strata developments
- Design and drawings for industrial warehouses, storage units and commercial offices of steel, masonry and concrete construction
- Designing and certifying tension membrane structures
- Pavement slabs with experience in cool room / freezer room temperature effects, heavy machinery loadings, and storage loadings

EXAMPLE OF PREVIOUS WORK

Job Name: *Junior Club House and Wave Protection*
Client: *Fremantle Sailing Club*
Location: *WA*
Type: *Engineering Design*

A committee member of the Fremantle Sailing Club requested Design's services to design a new junior club house including wave protection to provide a calm area for junior club members to rig their boats and set sail.

Design provided structural design, detailed drawings and architectural drawings for the clubhouse, and designed the wave protection breakwater groyne to protect the building against heavy seas. Design carried out this work on a pro bono basis, so that the Fremantle Sailing Club got a first-class junior clubhouse at minimum cost.

SERVICES

STORMWATER & DRAINAGE

Including:

- Soak wells and drainage pits
- Provide practical and effective drainage solutions
- Stormwater runoff assessment and management plans
- Assess rainfall and corresponding run off quantity for pre and post development
- Hydraulic design
- Design the passage of water, channel/pipe size, grade weirs/drops and energy dissipaters
- Basins and ponds
- Retention
- Detention

EXAMPLE OF PREVIOUS WORK

Job Name: *Crawford Court*
Client: *Shire of York & 4 Local Landowners*
Location: *WA*
Type: *Subdivision*

Design was approached by the Shire of York to provide storm water drainage services for an 11 lot subdivision at Crawford Court, York, WA.
Design firstly had to undertake a geotech investigation to determine the soil classification and infiltration properties.

Secondly, Design had to determine the surface water catchment areas and determine the impact of the proposed subdivision on the existing hydrology. Once the infiltration rate and soil classification were determined, Design then had the appropriate information to prepare a stormwater management plan. Thereafter, Design produced a Stormwater Management Plan which was submitted to the local council.

SERVICES

CRACKING WALLS

Including:

- Structural inspection to determine the cause of the cracking
- Advise if cracks are structural or non-structural, as well as how to rectify
- Main aim: assess the particular situation and provide specific guidance on repairs
- Addressing issues is crucial for home safety
- Types of cracking:
  - Vertical cracking
  - Angled cracking
  - Horizontal cracking
  - Diagonal cracking
- Uneven foundation setting can cause cracks due to soil conditions and poorly compacted fill
- House footing can be harmed due to tree roots or poor drainage, causing structural cracking

EXAMPLE OF PREVIOUS WORK

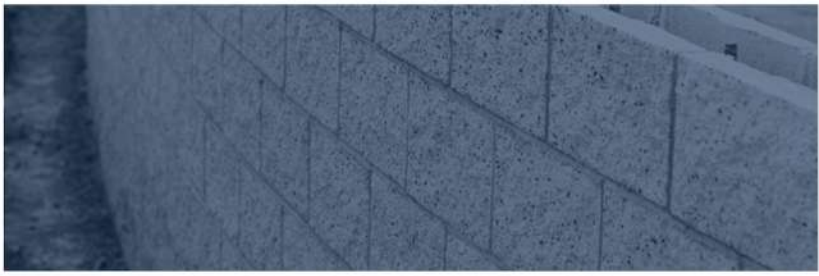
Job Name: *Cracking Wall Inspection*
Client: *Confidential*
Location: *WA*
Type: *Structural Inspection*

Design Engineering has provided structural engineering inspections for residential houses with cracking issues all across the Perth greater area. The structural inspection focuses on the source of cracking. Design provides practical engineering inspections and assessment of cracks to determine the cause of the problem.

The main aim of the structural engineering inspection is to assess the particular situation and provide specific guidance on repairs. An example includes where Design was approached about concerns of cracks in external of home in brickwork. After thorough inspection the report deemed the house to be in stable condition, showing no significant signs of instability or deterioration. Routine maintenance and monitoring was recommended.

SERVICES

RETAINING WALLS



Including:

- Design, certifications and performing retaining wall inspection
- For the following types of retaining walls:
- Cantilevered (Concrete)
- Gravity (Limestone)
- Sheet pile
- Post and panel
- Soil grouting
- Construction supervision
- Non-compliance reports
- Design and drawings
- Compliant with Australian regulations

EXAMPLE OF PREVIOUS WORK

Job Name: *Retaining Walls Certification*
Client: *Confidential*
Location: *WA*
Type: *Structural Certification*

Design Engineering has provided structural engineering certifications for the construction of limestone and concrete cantilever retaining walls including limestone piers for various land estates in the Perth Metropolitan Region.

Design provides practical engineering inspections and assessment of retaining walls during their construction to ensure the walls are built in accordance with the design drawings and Australian Standards. The testing of the compaction, blocks, concrete, mortar are overseen and sighted prior to the certification being released and job closed off.

SERVICES

PATIOS, SHEDS & CARPORTS

Including:

- Drawings, designs, drafts, calculations, inspections, reports, certification, approvals
- Engineering consultation for patios, sheds & carports
- Drafts and structural specifications ensuring to take the structural, civil and geotechnical factors in to consideration
- Planning approval & certification
- Site inspection to check the site conditions
- Retrospective structural cert
- Ensure ready for council application and approval
- Every shire and council can differ, thus contacting local government is recommended
- Planning approval may be needed before applying for a building permit

EXAMPLE OF PREVIOUS WORK

Job Name: *Patio & Carport Design*
Client: *Confidential*
Location: *WA*
Type: *Retrospective Structural Calculations*

Design Engineering was approached about a carport, patio and retaining wall that did not have on site plans nor had it been approved. the carport enclosure need drawings and plans, particularly of the side view.

Design provided calculations and drawings of the patio, carport and retaining wall to meet council approvals. A certificate of structural sufficiency was also accompanied with the description of proposed works. This included checking the design of existing carport and patio as well as confirming the design meets Australian code of practice.

SERVICES

SWIMMING POOLS

Including:

- Suite of structural swimming pools services that is for residential and commercial projects
- Swimming pool design
  - Inground pool plans
  - Small or large pool or yard
  - Design for reinforced concrete to ensure safety and efficiency
  - Concrete and fiberglass
- Structural advice on pool instillation and suitability
- Swimming pool certification
  - Structural engineering certification
  - New or 2nd hand
  - Ensures concrete and fiberglass shells can withstand loads
  - Varying soil textures in Perth
  - Reviewing the results of geotechnical report
  - Direct remediation for getting council approval ready

EXAMPLE OF PREVIOUS WORK

Job Name:
Client: *Confidential*
Location: *WA*
Type:

Design Engineering was approached regarding a 2nd hand fiberglass swimming pool shell. The buyer and installer was concerned of structural integrity, which would effect the longevity and life of the pool shell.

Design provided a certificate of structural sufficiency after thorough inspection. The shell was inspected for defects, blemishes and damages. The old weir has been blocked and repositioned according to council specifications. Any cracks caused from extraction will be repaired using relevant products. Advice was also give non soil preparation, paint, and pipework.

SERVICES

EXAMPLES OF PREVIOUS PROJECTS

Job Name: *Minimum Cove*
Client: *Octennial Pty Ltd*
Location: *WA, Australia*
Type: *Subdivision*

Octennial retained Design to create housing lots on a severely polluted site after completion of the remedial works. The objective of the subdivision was to create river views for all houses, which was challenging due to existing council restrictions on retaining wall
heights and the very gentle upwards slope of the natural ground level from the water.

An additional serious challenge was sewerage removal from the lower level blocks which were finished lower than the existing sewer pipe and hence could not be connected for gravity feed. We designed and detailed a pump station and associated infrastructure to provide sewerage removal from the lower levels houses.

Job Name: *Danmar Homes Settlers Hill Village Centre*
Client: *Rockingham City*
Location: *WA, Australia*
Type: *Infrastructure Design*

Design Engineering was commissioned by Danmar Homes to provide an infrastructure design services for housing schemes comprising of 63 houses on a 2.5 hectare site in Rockingham to sell individual houses to the potential buyer.

Design provided infrastructure design, facilitated all services and utilities and supervised the construction activities on site.

The key challenges faced were sites close proximity to residential area and school as well as tie in external infrastructure.

SERVICES

EXAMPLES OF PREVIOUS PROJECTS

Job Name: *220 KVA Electrical Pilon*
Client: *Armadale Christian College*
Location: *WA, Australia*
Type: *Structural Design*

Design was approached by the sports master of the Armadale Christian College to convert a 220 kVA electrical pylon into an abseiling tower. Design first checked the materials that were available and took measurements. The tower was approximately 15m tall. Compressed fibre sheets were selected to cover the steel tower. The footings were a combination of 2m square x 0.5m deep pad and anchor bolts drilled in lateritic rock for each column to reduce the required blasting, which with a traditional footing required a depth of 2.2m and 2.6m square excavation of rock. Three separate abseiling walls of varying heights were designed and constructed around the tower for the varying abseiling skill levels with a platform at 9m, 17m & 29m.

Job Name: *Fremantle Fishermen's Memorial*
Client: *Fishermen Group*
Location: *WA, Australia*
Type: *Structural Design*

Design was approached by a group of fishermen to assist in creating a memorial for those who pioneered the professional fishing industries in Fremantle and Rockingham. Our engineers were involved in all aspects of the structural design of a jetty, which was crafted out of three different materials, each material replicating a different era that the different generations of fishermen had worked in.

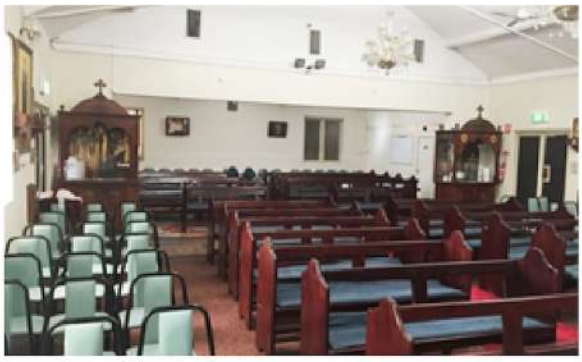
SERVICES

EXAMPLES OF PREVIOUS PROJECTS

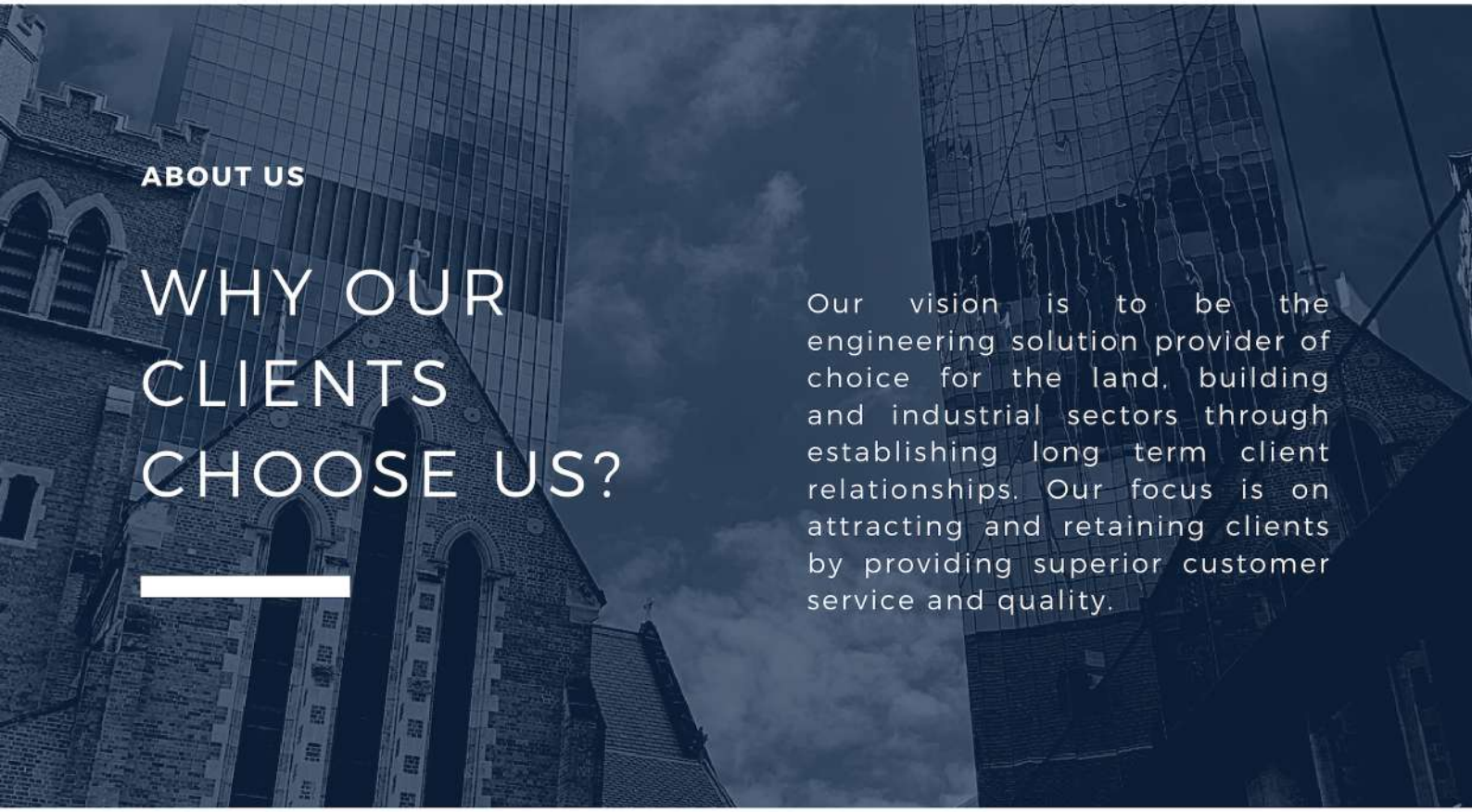
Job Name: *Lot 2 Foreshore Drive, Singleton*
Client: *Private Developer*
Location: *WA, Australia*
Type: *Engineering Design*

Design was approached by a local developer to design a sewer extension that would service a newly planned subdivision of a beachfront lot in Singleton, WA. Design had to design the sewer to conform to Water Corporation requirements, meet stakeholder's needs and relevant standards while keeping the client costs reasonable. We were successfully granted approval for a non-standard alignment for a portion of the extension. Design tendered to a range of contractors to ensure the client got the best price and quality, and followed through as the construction engineers for the project.

Job Name: *St Mary & Archangel Michael Church*
Client: *Coptic Orthodox Church of WA*
Location: *WA, Australia*
Type: *Structural Design*



Design's services were requested for the structural engineering design of the removal of an existing load bearing wall at the St Mary & Archangel Michael Church. Design began with a structural inspection and assessment report to determine the proposed methodology for the demolition and the design criteria for the new lintel beam to be installed. The designs complied with Australian Standards and building code regulations for strength and serviceability.



ABOUT US

WHY OUR CLIENTS CHOOSE US?

Our vision is to be the engineering solution provider of choice for the land, building and industrial sectors through establishing long term client relationships. Our focus is on attracting and retaining clients by providing superior customer service and quality.

1. We share their prioritising of safety and the environment
2. We respect, cooperate and build lasting relationships
3. They prefer our commitment to client satisfaction
4. We deliver quick turnaround times
5. They trust our professional expertise
6. Our multi-disciplinary expertise provides full project delivery
7. We provide value engineering to give economic results
8. We understand the client's needs and objectives
9. They rely on our accuracy and efficiency
10. We engineer solutions that minimise business risks
11. Our services are supported by personalised practical solutions
12. We add value to their projects through technical innovation

METS ENGINEERING
PROCESS + INNOVATION

PROCESS & METALLURGY

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