

SECTOR CASE STUDY

Defence



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RAAF Woomera Redevelopment

WOOMERA, SA, AUSTRALIA

CLIENT: WRJV (DOWNER / CPB)

BG&E was engaged to undertake a significant role for the Woomera Redevelopment JV (WRJV) project, serving as a DSSC to provide civil and structural engineering services, ensuring coordination and meeting project outcomes.

PROJECT OVERVIEW

The aim of the project is to meet the short term needs of the Woomera Range Complex (WRC) to bring service infrastructure into compliance with Defence standards and to provide infrastructure and facilities sufficient to support the WRC 2030 Projected Personnel and 2040 Operations Tempo.

The WRC is in the north-west of South Australia, 445 kilometres from Adelaide. The predominant landform is a gibber plain or stony desert that dominates arid central Australia.

PROJECT SCOPE

BASE SECTOR WEST

- Living in Accommodation (LIA).
- Headquarters.
- Syndicate room.
- Dining facility.
- Upgraded infrastructure, including water, power, sewer, fire protection, communications, drainage and lighting.
- Demolition of redundant facilities.





BASE SECTOR NORTH – TECHNICAL AREA & AIRFIELD

- Beneficial refurbishment and/or replacement of two hangars. One hangar to suit a Code 4E aircraft (One airframe at a time) and the second hangar to suit a smaller airframe (Super Hornet size) with an approximate two hour maximum capacity at a time.
- Refurbishment of the aprons that can accommodate up to a Code 4E aircraft.
- Taxiway and road upgrades.
- Ordnance Loading Aprons (OLAs) and supporting infrastructure that can accommodate one large aircraft and one fighter aircraft.
- Headquarters and operation command office for the operating squadrons.
- Refurbishment of the Mechanical Equipment Operations and Maintenance Section (MEOMS) workshop.
- Upgraded infrastructure, including water, power, sewer, fire protection, communications, drainage and lighting.
- Demolition of redundant facilities.

BASE SECTOR SOUTH – WOOMERA VILLAGE

- New accommodation, including LIA for short to medium term stay and hotel rooms.
- New social and community facilities.
- Upgraded infrastructure including, power, wastewater treatment, communications, water, fire protection, drainage, erosion control and irrigation.

BG&E'S ROLE

- Civil engineering, including drainage and traffic.
- Flood modelling.
- Structural engineering, including façade and durability (materials).
- Geotechnical engineering.
- Explosive ordnance, including blast and ballistic engineering.
- EO planning.

PROJECT VALUE

\$750,000,000.00

CONTRACT VALUE

\$3,156,600.00



RAAF Base Tindal Perimeter Fencing & Site Security

KATHERINE, NT, AUSTRALIA
CLIENT: IPSA AUSTRALIA

BG&E provided civil services for the works inclusive of scoping requirements and replacement works alongside Defence and other contractors on base.

PROJECT OVERVIEW

RAAF Base Tindal is located 15 kilometres outside Katherine and 320 kilometres south-east of Darwin in the Northern Territory.

This project aimed to address functional security deficiencies of the existing fencing infrastructure whilst adhering to the Obstacle Limitation Surface requirements (OLS) surrounding the airspace of the runway.

The project also aimed to address risks associated with non-compliance to ensure site security and visibility is maintained. A refresh was requested totalling approximately 10.7 kilometres of security perimeter fencing remediation and replacement.

BG&E'S ROLE

- Civil engineering, including drainage and traffic.
- Geotechnical engineering.

CONTRACT VALUE

\$86,300

Irwin Barracks Redevelopment & Leeuwin Consolidation

KARRAKATTA, WA, AUSTRALIA
CLIENT: DORRIC CONTRACTORS



PROJECT OVERVIEW

The works comprise design and delivery of redevelopment investment at Irwin Barracks (including works to relevant services), and provision of working and living accommodation at Irwin to accommodate elements relocating from Leeuwin Barracks.

PROJECT SCOPE

- Delivery of designs.
- Assistance in siting board and project approvals.
- Procurement of design subconsultants and trade packages.
- Management of the following and related works to redevelop and provide facilities for relocated agencies:
 - » on-site consultation and coordination for design and for construction activity with resident (or proposed resident) agencies, and other key stakeholders including CIOG;

- » assembly of asset assessment, contamination survey and disposal, master planning (in accordance with Irwin Zone Plan), indicative construction program, likelihood of overflow storage works into Palmer Barracks, and initial concepts and costings to facilitate scope definition within budget constraints;
- » GDL and data assembly for GEMS, with GDL shells completed before or during the 90% design stage;
- » demolition of facilities and infrastructure that is inconsistent with the required redevelopment/consolidation scope or other use;
- » upgrade of relevant existing services and in-ground infrastructure, the capacity to provide for the increased Leeuwin dependency demand;
- » upgrade and refurbishment of relevant existing facilities, including working accommodation, physical fitness facilities, base access, headquarters buildings and training facilities;
- » new facilities, including those required to replace existing facilities and to accommodate the increased dependency;
- » new services and in-ground infrastructure, including those required to replace existing services/infrastructure and to accommodate the increased dependency of additional personnel; and
- » office removal services to relocate Leeuwin dependencies to Irwin Barracks.

The works are to meet Irwin Barracks' area sustainment and operational support capabilities, considering the expected dependency increase arising from the Leeuwin personnel and need to avoid disruption.

BG&E'S ROLE

- Structural engineering.
- Durability engineering.

ESTIMATED PROJECT VALUE

\$360,000,000.00

CONTRACT VALUE

\$206,300.00





RAAF Base Curtin – Air Force

DERBY, WA, AUSTRALIA
CLIENT: MULTIPLEX

BG&E's responsibilities for the RAAF Base Curtin project included design, planning and construction of facilities and infrastructure to ensure the base can continue its important role supporting regional Defence operations.

PROJECT OVERVIEW

The proposed project is set to deliver upgraded facilities and infrastructure throughout the base. This includes enhancements to roads, buildings, electrical systems, water infrastructure, communication systems, airfields, landscaping and accommodations.

BG&E'S ROLE

- Structural engineering.
- Civil engineering and interfacing.
- Stormwater engineering.
- Traffic engineering.
- Services coordination.

ESTIMATED PROJECT VALUE

\$250,000,000.00

CONTRACT VALUE

\$19,800.00

PROJECT SCOPE

INFRASTRUCTURE

- Electrical.
- Hydraulics.
- Wastewater.
- Stormwater.
- Information and Communication Technology (ICT).
- Security and emergency infrastructure.
- Spatial data.
- Roads and parking.

FACILITIES

- Working accommodation.
- Domestic facilities.
- Hangars and explosive ordnance.

Naval Capability Infrastructure Sub-Program (NCIS) NCIS-4A

STIRLING, WA, AUSTRALIA
CLIENT: LENDLEASE

The Navy Capability Infrastructure Sub-Program (NCIS) aims to upgrade and construct facilities and infrastructure to support the introduction of Supply Class Auxiliary Oiler Replenishment (AOR) ships, Hunter Class Frigates (HCF), and Arafura Class Offshore Patrol (ACOP) vessels.

PROJECT SCOPE

TRAINING FACILITIES

The NCIS will deliver an integrated training precinct to provide individual and group training for the Arafura Class Offshore Patrol Vessel and Hunter Class Frigate crews. The training precinct will feature a training centre with classrooms, theatre, specialists training rooms, bridge simulator and office accommodation.

STORAGE FACILITIES

Works also include the construction of logistics support, storage facilities, and maintenance facilities for equipment and small boats.



ACCOMMODATION & DOMESTIC SUPPORT FACILITIES

Include the construction of medium density living-in accommodation for additional permanent staff and trainees. The existing senior sailors' mess and medical facility are also slated for upgrade.

ENGINEERING SERVICES INFRASTRUCTURE

Existing engineering services, including reticulated potable water, power and storage, will be extended to cater for the new and refurbished facilities. The capacity of the existing wastewater treatment plant is being assessed against the proposed increase in personnel on HMAS Stirling.

Delivery of all the approved scope is expected in 2027.

BG&E was the external infrastructure Design Services Sub-Contractor (DSSC) lead on NCIS-4A responsible for ensuring services coordination, including the civil and hydraulic infrastructure design across 17 simultaneous packages of work to deliver 30%, 50% and 90% designs and milestone reports.

BG&E'S ROLE

- Civil engineering and interfacing.
- Stormwater engineering.
- Traffic engineering.
- Hydraulic (water, fire and sewer) engineering.
- Services coordination.
- Design services leadership.
- External BIM lead and federation.

ESTIMATED PROJECT VALUE

\$300,000,000.00

CONTRACT VALUE

\$1,429,300.00





Naval Capability Infrastructure Sub-Program (NCIS) NCIS-3

STIRLING, WA, AUSTRALIA
CLIENT: LENDLEASE

BG&E provided civil services for this project. BG&E is currently the Lead External Infrastructure Consultant responsible for sitewide coordination amongst various DSSCs.

PROJECT OVERVIEW

First stage of essential land-based facilities and infrastructure requirements at HMAS Stirling and Henderson, WA, under the Navy Capability Infrastructure Sub-Program (NCIS).

This project involved the provision of dedicated training facilities, new LIA and structures to enable berthing and land-based infrastructure.

BG&E'S ROLE

- Civil engineering and interfacing.
- Stormwater engineering.
- Traffic engineering.
- Hydraulic (water, fire and sewer) engineering.
- Services coordination.
- Design services leadership.
- External BIM lead and federation.

ESTIMATED PROJECT VALUE

\$300,000,000.00

CONTRACT VALUE

\$137,000.00

At BG&E, we are united by a common purpose – we believe that truly great engineering takes curiosity, bravery and trust, and is the key to creating extraordinary built environments.

Our team of more than 700 highly skilled people, in offices across Australia, New Zealand, Singapore, the United Kingdom and Middle East, design and deliver engineering solutions for clients in the Property, Transport, Ports and Marine, Water, Defence, Energy and Resources sectors.