

Client: South African Department of Public Works

Value: R1.2 billion

Services: Airport planning and design; technical site support

Project Duration: 2008 – 2013

# Waterkloof Air Force Base, Gauteng

## Airport Upgrade: Detail Design Phases 1 and 2

### The Task

Aurecon, together with Nurizon personnel, were appointed as part of a 3-member JV to undertake the design works associated with the upgrades for the Waterkloof Air Force Base (AFB) primary and secondary runways.

Upgrade works were required at the AFB due to its strategic and national importance in South Africa and to bring the aerodrome facilities in line with International Civil Aviation Organization (ICAO) standards, e.g. physical characteristic compliance and visual aids compliance. The base was also to serve as a strategic diversion airport for OR Tambo International Airport A380 (and other wide body aircraft) operations.

### Design Services

The Aurecon/Nurizon consulting team was responsible for the geometric and stormwater designs, pavement design review, paint marking layouts and electrical design works; the latter which included new airfield ground lighting installations. Both runway profiles (longitudinal and cross-sections) were improved together with a large stretch of Bravo Taxiway. Runway end safety areas were also designed by the team.

The airport site is in within a dolomitic area and as such remedial design (and construction) measures were undertaken to reduce the likelihood of sinkhole formation beneath aircraft pavements. HDPE pipes were used as part of the stormwater reticulation design and dynamic compaction was utilised beneath critical airside pavement areas, together with the construction of large raft foundation structures beneath the runway threshold zones.



Preliminary designs for a new aircraft apron to accommodate a fleet of Airbus A400M military transport were also completed as part of the Phase 2 works appointment.

## The Result

Primary and secondary runways, together with the additional aircraft movement areas were successfully upgraded to accommodate new aircraft operations at the airport, as well as improve the aerodrome's physical characteristic compliance with ICAO standards.



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