

# SGS PAVEMENT INVESTIGATION FOR AUSTRALIAN MACMAHON

JULY 2012



In early June, 2012, SGS accepted a contract from Macmahon of Australia to provide complex pavement engineering services for an asphalt beam recovery project in Perth. From mid-June until late July, SGS experts performed pavement and sub-grade testing investigation services using state-of-the-art testing methods which included deflectometer laser profiling, falling weight deflectometer technology, the South African deflectometer cone penetrometer method and geotechnical analysis.

### **SURF'S UP FOR SGS TESTING SERVICES IN PERTH**

Headquartered in the western Australian city of Perth and a leading Australian contract mining and construction company, Macmahon boasts operations throughout Australia, New Zealand, Asia, Mongolia and Africa. Macmahon has played a major role in the execution of many of Australia's largest multi-disciplinary construction and mining projects for almost fifty years.

In its mission to ensure the quality completion of its substantial asphalt beam recovery project in Perth, Macmahon pursued both a trusted and experienced partner to conduct independent testing and certification services. Because of its proven

expertise and extensive experience in this area and a successful cooperation in the past, SGS emerged once again as the clear choice to support Macmahon in this particular project.

SGS was entrusted to examine pavement and sub-grade testing, test construction material and perform geotechnical services for the Macmahon Perth asphalt beam recovery project, only the second of its kind in Australia.

### **SGS TIP TOP DOWN UNDER**

During the project, SGS carried out expert investigation of pavement and sub-grade testing services to guarantee the quality and sustainability of the pavement systems and extend the overall lifecycle of the pavement. SGS conducted comprehensive testing of construction materials to include soils, rock, concrete, blocks and bricks to ensure quality and to avoid costly repercussions of implementing substandard construction components. SGS geotechnical specialists analysed soil, rock and bedrock properties as well as fault distribution on and below the Perth asphalt beam recovery project site.

Using deflectometer laser profiling (DLP), highly-skilled SGS professionals applied 3-D laser sensors to analyse pavement profiles by measuring surface roughness, texture and rutting at prescribed speeds. Experienced SGS inspectors verified the pavement compliance in accordance with international standards.

SGS engineers, implementing falling weight deflectometer (FWD) technology, evaluated the physical properties of



the Perth project pavement. FWD enabled SGS specialists to measure the capacity of the pavement to tolerate expected loads by measuring the vertical deflection response of the surface to an impulse load. Deflection sensors utilised by SGS inspectors provided measurement of pulse waves and enabled examiners to determine the strength of the surface material. Based upon the FWD data and layer thickness, SGS professionals further analysed the bearing capacity of the pavement, the surface life expectancy and the requirements for the overlay design.

The South African deflectometer cone penetrometer (SADCP) method, also administered in the SGS testing of the

Perth pavement, allowed SGS examiners to accurately estimate the sturdiness and modulus of compacted materials by specifically measuring penetration and deflection.

The project team of five designated SGS specialists additionally analysed pavement samples, classified asphalt and tested aggregate strength.

#### **SGS "NO WORRIES" PAVEMENT ENGINEERING PORTFOLIO**

The world's leading inspection, verification, testing and certification company, SGS specialises in the evaluation, design, implementation and maintenance of pavement, asphalt

and concrete surfaces. SGS offers unrivaled technical expertise, extensive experience and a unique global network capable of serving operations worldwide. SGS comprehensive technical accreditations and highly-qualified experts ensure the thorough, accurate and successful completion of any project.

SGS is proud to have impressed Macmahon once again and looks forward to challenging and prosperous collaboration in the future.

#### **CONTACT**

**[INDUSTRIAL.GLOBAL@SGS.COM](mailto:INDUSTRIAL.GLOBAL@SGS.COM), [WWW.SGS.COM/CONSTRUCTION](http://WWW.SGS.COM/CONSTRUCTION)**

**SGS IS THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY**

**WHEN YOU NEED TO BE SURE**

**SGS**