



Vale Teluk Rubiah, Manjung, Malaysia



PROJECT SUMMARY

NAME: Manjung Iron Ore Handling Plant

YEAR: 2014

CLIENT: Vale Malaysia Minerals Sdn Bhd

MAIN CONTRACTOR: WCT Construction Sdn Bhd

CONSULTANT: Keller Malaysia Sdn Bhd

INSTRUMENTATION SPECIALIST: Getec UK



OVERVIEW

Vale Malaysia Minerals Sdn Bhd a subsidiary of Brazilian metals and mining giant VALE S.A the world's largest iron ore exporter is developing a \$5.6 billion iron ore distribution centre in Manjung, Perak, Malaysia. The project includes a deep water jetty and onshore stockyard.

The centre in Manjung will receive iron ore from Brazil for blending purposes and later be shipped to customers throughout the Asia Pacific region. Construction of the facility will be in three phases. The first phase is to start with operations in June 2014 and will have a throughput capacity of 60 million dry weight tonnes per year (mty).

As part of the construction work, Vale awarded a STG30 million (RM148.5 million) contract for piling and groundworks to Keller Sdn Bhd, a Malaysian subsidiary of UK's Keller Group plc. The instrumentation and monitoring during construction is being carried out by Getec, Keller's specialist instrumentation division.

MONITORING

The onshore stockyard consists of 5 bays approximately 800m long by 40m wide with iron ore stockpile material up to 19m high. The underlying soils are silty clays and completely decomposed granites containing sand layers. The objective of the instrumentation is to measure:

- Soil settlement at the stockyard area (underneath iron ore stockpile)
- Soil movement at the edge of each stockyard
- Lateral movement of the berms
- Pore pressure during the loading of iron ore

Due to the large distances involved and to minimise the amount of cable a system of remote multiplexers was used all of which were connected into a central automatic data acquisition system. The data is read real time and displayed on the Getec monitoring software gtcVisual and will continue for two years.

PRODUCTS USED

VW-3000 piezometers

Used to monitor pore water pressures.

VWLSS-200

Liquid settlement system to measure ground settlement.

XC inclinometer casing

To allow placement of inclinometers

In-place inclinometer

Automatic measurement of lateral displacement of ground.

Portable inclinometer

Portable measurement of lateral displacement of ground.

Flexi-Muxes

Remote channel expansion to minimise cable.

GeoLogger GL

Automatic data logger which can be used for a wide range of sensors and outputs.