CASE STUDY
DETAILED ENGINEERING DESIGN

TITAN
ICT CONSULTANTS

Client: Australian Premium Iron Joint Venture
Project Name: Definitive Feasibility Study
West Pilbara Iron Ore
Completion: 2012

Project Overview

The West Pilbara Iron Ore project managed by API (a joint venture between Aquila Resources Limited and American Metals and Coal International Incorporated) shall be developing a 30MTPA pisolite mine and associated rail and port infrastructure. To support the business case and understand the operating and capital spend required, a DFS (Definitive Feasibility Study) was initiated. Titan ICT Consultants were engaged to utilise their extensive telecommunications expertise supporting the resources sector to provide API with the communications backbone component of their DFS

The Challenge

API's systems encompass mine, port, rail and Perth offices. Each required careful evaluation of application and service requirements over the projected project operating lifetime.

Access to existing infrastructure and services was insufficient to support the project. The site design, acquisition and build costs had to be determined in order for the project to be approved.

Solution

Titan ICT consultants developed, defined and costed the communications systems which included digital radio systems, optical fibre transmission networks and cabling. Supporting infrastructure included towers, poles, shelters and power systems were also included in the design.

Challenges
To understand the application and service requirements to determine the technology infrastructure for future mining operation.

Solution
Titan ICT Consultants are vendor neutral thus ensuring fit for purpose solutions were evaluated and realistic cost to the business was considered.

Benefits
A complete budget and validated communications design and that complied with the business requirements. The composite DFS enabled API to proceed with development.



The following approach was used in developing the costed design:

- An application bandwidth analysis model supporting the definition of digital radio, optical radio and carrier network demands
- Radio Coverage Analysis
  - > Evaluating alternate radio technologies and frequencies supporting the identification of candidate site locations for radio infrastructure
  - > Identifying the candidate site locations for radio infrastructure
- Optical fibre network design which included identifying the candidate site locations for active and passive optical infrastructure and route planning
- Cost modelling determined the capital and operational expenditure costs associated with building the optical fibre communications paths between the port and Perth including materials, freight, labour while taking into consideration the associated risks over the overall communications infrastructure

Conclusion

API combined the DFS components from other disciplines including railway, power, mines and others with the communications DFS compiled by Titan ICT consultants to support the determination of a complete “cost of project” for investors to establish confidence to commit collateral to proceed with construction.

Titan ICT consultants also supported a third party auditor performing a value improvement process (VIP) to identify options to reduce CAPEX while considering the Net Present Value.

The DFS outcome resulted in a CAPEX estimate of $AUD5.77 billion including EPCM and contingency with the communications infrastructure component estimated at $AUD59.5 million. The DFS was an important milestone for the API joint venture owners to obtain project execution approval.

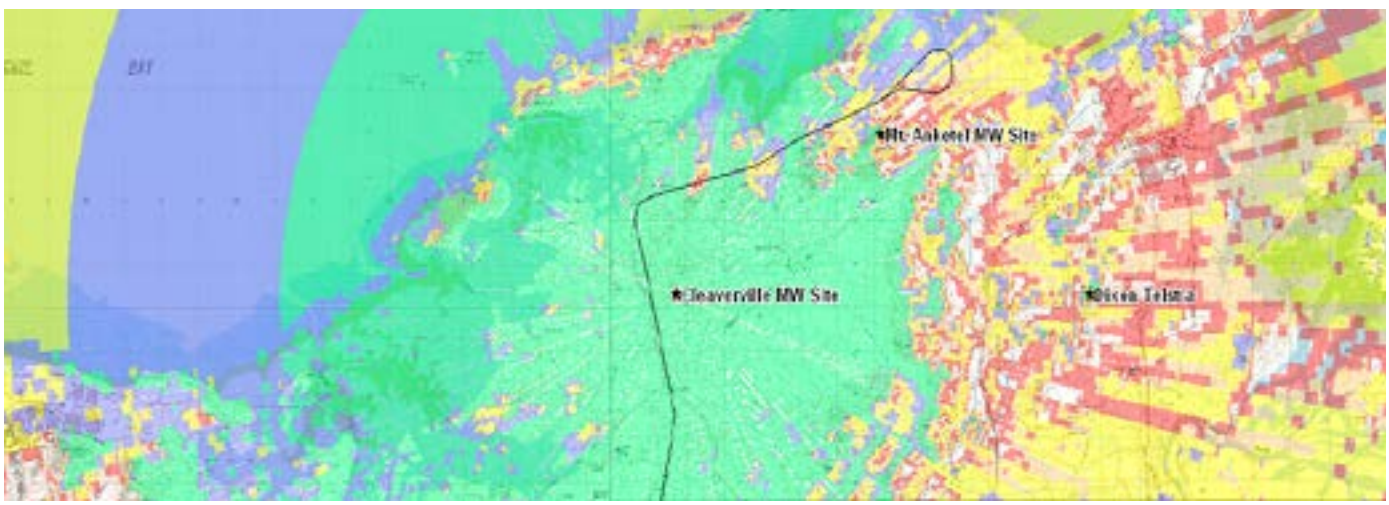

Figure: Radio Coverage Analysis for Proposed Railway

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