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FIDIC EMERALD BOOK: THE REVOLUTIONARY CHANGES FOR FUTURE UNDERGROUND AND TUNNEL PROJECTS

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On 7 May 2019, a new standard form contract, the FIDIC Emerald Book, to be used for underground construction and tunnelling work was released. This is an exciting development and, in our opinion a healthy departure from the traditional risk allocation adopted for these types of projects.

This contract is an adaptation of the FIDIC Yellow Book, Plant Design and Build Contract 2017 form, but there are some significant differences.

Perhaps the most significant and unusual feature of the contract is that time for completion can be reduced, for example where ground conditions on average are better than those anticipated at tender stage.

Fundamental to the risk allocation inherent in this contract is that ground and ground water related risks are born by the employer. Where conditions are worse than expected, the employer pays. If they are better, he benefits.

Performance related risks arising from expected ground conditions are assigned to the contractor. He gains or loses where his performance is better or worse in the anticipated ground conditions.

Sub surface conditions, the excavation design and methodology are stated in a document entitled the “Geotechnical Base Line Report”. This also states the allocation of risk for sub surface conditions between the Parties.

The Baseline Schedule is effectively a bill of quantities containing items for all the work anticipated by the Geotechnical Base Line Report together with production rates and unit prices for each type of work anticipated.

A major benefit contained in this contract and which is a constant bone of contention on many underground work related contracts is that the contractor is entitled to rely on the information provided in the Geotechnical Base Line Report notwithstanding that there may be contradictory information provided elsewhere by the employer such as in the site data and items of reference.

There is also a limit of liability accruing to the contractor. His risks are limited to those allocated by the Geotechnical Base Line Report notwithstanding that he could have discovered other risks by the exercise of due skill and care in examining the site and the employers requirements whilst preparing his tender.

Unforeseeable conditions are also objectively determined for underground excavation as well as all other purposes.

In order to manage time, there are now stringent programming requirements and the programme is updated to reflect the actual ground conditions and work, both excavation, support and lining, carried out and may result in a prolongation or a shortening of the Time for Completion. The production rates given in the Baseline Schedule are used for this purpose.

Similarly, all work carried out is evaluated by the engineer in accordance with the unit prices provided by the Baseline Schedule. Where no prices are available, the price for similar work will be applied.

Time related charges such as for supply and maintenance of Contractors equipment are also made dependent on whether the Time for Completion is extended or reduced.

The contract is intended specifically for use of underground and tunnelling projects. In order to understand how this contract can hopefully revolutionise such projects, it is helpful to relook at the past to understand exactly what was the general risks and issues that plagued underground or tunnel projects. To explain this, the famous Du Toitskloof Tunnel project came to mind.

For those not familiar with the history of this project, the idea to construct a tunnel through the Du Toitskloof mountains, was first considered in the 1930's. However, due to the outbreak of World War two, the idea was halted. It was some 43 years later, around 1973, a geotechnical survey was carried out, and designs produced and excavation commenced in 1984. The method used, was to drill and blast from both ends of the mountain to create the tunnel.

This project consisted of two phases. The first phase was to create a pilot tunnel in order to establish geological obstacles. The second phase consisted of boring through granite rock, creating a 5 meter tunnel, a passing line, the construction of entrance portals, drainage and ventilation tunnels.

The project was plagued by challenges, and the tunnel was finally completed and opened on 18 March 1988.

Some of the traditional challenges to tunnelling, and which some were also encountered on the Du Toits Kloof project, included inter alia:

1. unpredictability of ground conditions,
2. how it will behave during blast, drill or excavation,
3. the encountering of existing underground obstacles, for example pipelines cables, underground structures, water, and
4. the quality of the air underground.

Good ventilation is undeniably crucial if it is expected for people to operate and construct inside the tunnel to avoid safety and health risks.

The listed traditional challenges and those encountered on Du Toitskloof, are not exhaustive.

The difficulties on the Du Toitskloof tunnelling project and the fact that the parties could not reach consensus, resulted in a very protracted and costly lawsuit.

Considering the abovementioned, the Emerald Book is aimed to address these traditional challenges and risks.

Had the Emerald Book existed and been used during the construction of the Du Toitskloof Tunnel, it is likely that a lot of time and costs could have been spared as it could have assisted parties to implement better mechanisms in dealing with respective risks (by

agreeing to this even prior project commencement), better recording of relevant underground conditions and information, and better defined provisions of which party remains liable for what risk.

The author looks forward to seeing how the Emerald Book is going to be received and has no doubt it is a game changer for future tunnelling and underground projects.

Considering that the Emerald Book was launched only a month ago, it is predicted that some first-time users, not familiar with the new and unfamiliar provisions, perhaps not properly trained on it, might be caught off guard. You have been warned. Make sure you are ahead of the game and ready for the first contract when it is called for under the Emerald Book.