

## FIDIC's Emerald Book – A contractor's charter or optimum risk allocation?

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It has been suggested that FIDIC's new Emerald Book may be "a contractors' charter for riches".<sup>1</sup> This article examines whether this new form of contract for underground works by FIDIC and the International Tunnelling and Underground Space Association is too contractor-biased or whether it provides a sensible and pragmatic risk allocation process, in an area of construction and engineering which is well known for claims. If more risks are placed on the Employer in this form of contract, what are the benefits of the contract compared to, for example, an unamended FIDIC Yellow Book?

### The Contract

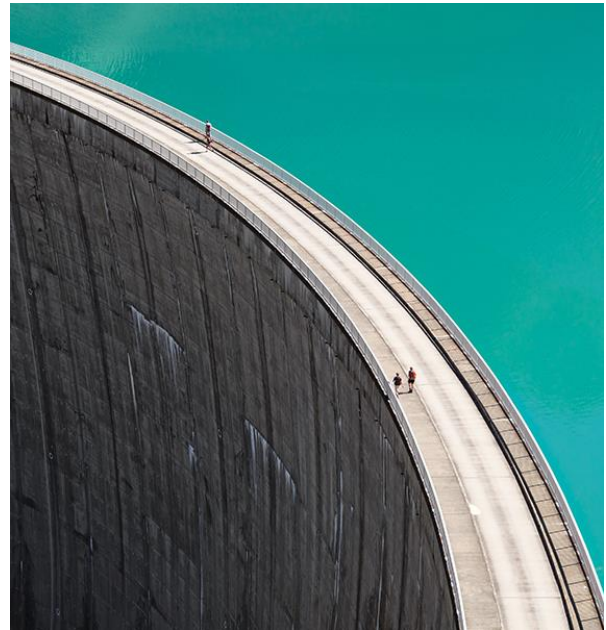
The Emerald Book is the first internationally recognized form of contract specifically drafted for tunnelling. It is based on the FIDIC Yellow Book 2017, although it is a few millimeters thicker with approximately sixty Clauses and Sub-Clauses which deviate from the Yellow Book. It must therefore be considered in its own right.

### Underground Works

The Notes to the Emerald Book state that Underground Works are predominantly characterized by three features:

- "- the method of excavation and ground support are major factors for the successful realization of the project, and therefore part of the Works;*
- physical access to the Works is often limited to just a few locations or even a single location, which places serious constraints on construction logistics and the environment;*
- the land, beneath which the Works are to be constructed, typically belongs to a number of third parties."*

The fact that it may not always be possible to ascertain the subsurface conditions means that there will always be a risk that the Contractor will encounter



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unforeseeable ground conditions. There may also be limits on the methods which the Contractor must adopt for the underground works, having regard to the environment, location and surface conditions.

### Risk Allocation

It is for the Employer at the outset to describe as far as possible the subsurface conditions for the project. This obviously makes sense as the Employer is the only person who can carry out an analysis of the subsurface conditions prior to the date of tendering. The information which the Employer produces will create an expectation of what the Contractor is likely to encounter. The Emerald Book requires that this information be placed into Geotechnical Baseline Report ("GBR"), which provides a single contractual source of risk allocation related to the subsurface physical conditions. All subsurface physical conditions not addressed in the GBR will be considered Unforeseeable. The definition of the GBR refers to it as the document:

"...that describes the subsurface physical conditions to serve as the basis for the execution of the Excavation and Lining Works, including design and construction methods, and the reaction of the ground to such methods. The GBR sets out the allocation of risk

<sup>1</sup> 'FIDIC Issues "Emerald Book" for Underground Works', Lal H., International Arbitration Alert, 20 July 2019. The phrase was first

coined in the article 'A Charter of Riches for the Contractor', Akroyd T., *New Civil Engineer*, 5 July 1973, London



between the Parties for such subsurface physical conditions."

The Guidance Notes to the Emerald Book set out the purpose of the GBR, recommendations for the content of the GBR and an example of Table of Contents for the GBR.

Sub-Clause 4.10.2 [*Use of the Geotechnical Baseline Report*] provides that the Contractor will be deemed to have based its Tender and the Contractor's Proposals for the Excavation and Lining Works on the information described in the GBR. This deeming provision applies even in the event of a discrepancy or ambiguity in any of the other site data provided by the Employer. This is important because otherwise an argument could be raised by the Employer that the conditions encountered were foreseeable, if some of the other data provided suggested ground conditions which might be different to those stated within the GBR.

## Unforeseeable Conditions

The definition of "Unforeseeable" at Clause 1.1.101 includes the following: "all subsurface physical conditions described in the GBR are deemed to be foreseeable, and all subsurface physical conditions outside the scope of the conditions defined in the GBR are deemed to be Unforeseeable." This definition apparently offers a very simple way of determining what are and what are not Unforeseeable subsurface physical conditions. However, Clause 4.12 [*Unforeseeable Physical Conditions*] approaches the definition of Unforeseeable physical conditions in a different way. In the author's view this has led to a contradiction in the contract.

Claims for unforeseeable physical conditions which fall outside the limits of the GBR are covered by Clause 4.12. Claims for subsurface physical conditions which are within the GBR are dealt with by Clause 13.8 [*Measurement of Excavation and Lining Works and Adjustment of Time for Completion and Contract Price*].<sup>2</sup>

A Contractor, when encountering unexpected conditions, must therefore ascertain whether or not the subsurface physical conditions fall within or are outside the GBR. This is important because the requirements for making claims are different.

## Unforeseeable Physical Conditions – Clause 4.12

Unforeseeable physical conditions which are encountered and fall outside the limits of the GBR will be dealt with under Clause 4.12.

A Notice must be given as soon as practicable and in good time to allow the Engineer the opportunity to inspect the conditions. The Notice must also describe the conditions, how they will have an adverse effect on progress or increase Cost and set out the reasons why the Contractor considers them Unforeseeable. If the Contractor suffers delay and/or Cost, having complied with the Notice provision in Sub-Clause 4.12.1 and any instruction from the Engineer (as required by Sub-Clause 4.13.3), it must give a notice under Clause 20.2 if it requires an EOT or Cost.

The Clause proceeds to state that the Engineer, when considering a claim under Clause 20.2.5 or 4.12.4, "shall include consideration of whether and (if so) to what extent the physical conditions were Unforeseeable". The Sub-Clause is therefore at odds with the deeming provision in Sub-Clause 4.10.2 (see above) and the definition of Unforeseeable. The Engineer must then take into account any evidence of the physical conditions foreseeable by the Contractor; however, the Engineer is not bound by such evidence.

The Sub-Clause becomes even more convoluted because the Engineer can consider the effect of more favourable conditions, but not more favourable conditions which are covered by Sub-Clause 13.8.3 [*Adjustment of Time for Completion*]. The Sub-Clause then states that the net effect of all additions and reductions under this Sub-Clause shall not result in a reduction to the Contract Price.

The drafters of the Contract have asserted that the provisions of the Emerald Book provide balanced risk, in particular to the subsurface conditions. However, the provisions relating to Unforeseeable physical conditions are drafted so obtusely that any well-advised Employer should consider amending the General Conditions to add clarity.

## Measurement of Excavation and Lining Works – Clause 13.8

This Clause is a radical addition to a standard Yellow Book 2017. The Excavation and Lining Works are

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<sup>2</sup> Clause 4.12 sub-paragraph 3



subject to remeasurement. Adjustments to the Time for Completion and the Contract Price are not subject to any of the Notice requirements of Clause 20.2. Similarly, the extension of time provisions in Clause 8.5 do not apply to adjustments of the Time for Completion of the Excavation and Lining Works. The Clause contains its own extension of time provisions at Sub-Clause 13.8.3. The wording of the first two paragraphs make no distinction between changes to the Excavation and Lining Works which fall within or outside the GBR. However, the third sub paragraph of Clause 13.8 states that physical conditions which fall outside the limits described in the GBR will be subject to Clause 4.12.

### **Extensions of Time**

The Time for Completion may be adjusted because of the subsurface conditions, and this can result in it being extended or reduced under Sub-Clause 13.8.3. This idea of risk sharing is not new. It has been around for two decades and was developed from systems used in Norway, where it is seen as a way to avoid disputes.

The time allowed in the Completion Schedule or Programme is adjusted using the production rates provided by the Contractor to the measured quantity of each item of work or activity in the Schedule of Baselines.

If the assessment impacts the Time for Completion, Section or other Milestones then an adjustment to the Time for Completion based on the "logical sequential links provided in the Completion Schedule and/or Programme" needs to be made. This makes the Completion Schedule or Programme a fundamental tool in assessing the Time for Completion.

In summary, if more difficult ground conditions are encountered then the Time for Completion can be extended but conversely if easier ground conditions are encountered with faster production rates then the Contractor may need to complete before the Time for Completion.

### **Adjustments of the Contract Price**

The Excavation and Lining Works undertaken are subject to re-measurement using the rates and prices in the Bill of Quantities. For time-related items in the Bill of Quantities, this is adjusted by any change in the Time for Completion. Adjustments both upwards and downwards can therefore be made to the Contract Price.

## **Conclusion**

In a tunnelling contract the party with the greatest amount of knowledge is likely to be the Contractor who specialises in this type of work. However, it is the Employer that produces the GBR. If there are errors in the GBR or if the Employer has made conservative estimates regarding certain types of ground conditions, these errors can be exploited by the Contractor who can load certain rates. There have been criticisms of the Emerald Book, in particular from lawyers who advise employers. The argument is that employers who want certainty of time and costs should never sign up to the Emerald Book and that a standard FIDIC Yellow Book would be a better option. However, the new Emerald Book has also received some support. This is an area of engineering where disputes are common. While the Employer may have to give up some certainty as to time and cost, the contract is likely to result in there being less disputes because the Contractor will be paid a fair amount and given a reasonable time for the work.

This type of contract has been popular in Norway because of the perception that the "risk sharing" approach avoids disputes. On the one hand the Contractor should not be penalised by risks it cannot properly assess or foresee. On the other hand, the Contractor is also able to take advantage where the GBR provides little more than a guess at the type of ground conditions that could be encountered. In this regard it can be seen as a contractors' charter for riches. An employer, at the outset, will need to ascertain what are its primary aims. If completing the project within a specific timeframe is the employer's main concern, the Emerald Book may not be the ideal contract.

In the author's opinion the drafters of the contract made a fundamental error in starting with a Yellow Book 2017 form of contract and then expanding it. The FIDIC Yellow Book 2017 has received criticism for being too long and too prescriptive. It is made worse in the Emerald Book by the almost incomprehensible changes to Clause 4.12. What is clear is that if disputes arise under this contract it will be a lawyers' charter for riches.

