

FIDIC Conditions of Contract for Underground Works (2019 Emerald Book) - facing practical problems in tunnel construction and operation

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Practical Problems – All Major Infrastructure

- Costs too much to build
- Costs too much to maintain
- Takes too long to build
- Aggressive disputes
- Does not do what we want
- Politics complicates engineering
- Local companies get destroyed

Unfair World

- International trend towards to unfair risk allocation in contracts – especially ground conditions risk
- Naively think the market will absorb ground condition risk
- Unfair contracts often seem as a victory by clients' lawyers
- Contrary to hundreds of years of legal principles of fairness and equity
- Often leads to stressed projects

Governance

At international law Governments have a higher duty than normal contracting parties to contract fairly

The New Emerald Book - How it Happened

ITA Global Research

- ITA's global research revealed common themes in project success including:
 - Informed risk allocation
 - The use of experienced tunnelling experts
 - A strong project culture

Clients

- Demand more certainty
 - Finished product
 - Cost
 - Accountability to contractor

A Global Template?

- ITA approached several international contract writers
- FIDIC agreed to collaborate with ITA to formulate a D&C contract with fair risk allocation of ground risk

FIDIC / ITA Emerald Book

- 40 country contributors over 5 years
- Released in May 2019
- Bespoke global underground works contract

Key Features

Priorities

- Contract data
- Completion schedule
- Schedule of baselines
- Geotechnical baseline report
- Employers requirements
- General conditions

Trigger for Intervention – Employers Engineer

- Completion schedule
- Schedule of baselines

- Contractor is expected to do jobs they tendered in accordance with the agreed schedule

- Contract is not directed at lawyers except for administration with accordance with law – especially with the engineer

The Engineer

- Key role under contract – similar to old fashioned idea of the Project Engineer

DAB – Dispute Avoidance Board

- Engineers decisions can be referred to the DAB

The Employers Requirements (Aspirational)

- Intended purposes of works
- Specify contractors key personnel
- Specify special equipment
- Project scope
- Preliminary design (employers reference design)

Geotechnical Baseline Report (GBR)

- Describes the subsurface physical conditions that serve as the basis for the execution of the excavation and lining works
- Drives design and construction methods
- Drives reaction of the ground to such methods
- Sets the allocation of risk between the parties for the described subsurface physical conditions

GBR

- Often closely describes the basis for execution of the excavation and lining works
- Is not a warranty about conditions – it is just a factual position against which time and money can be adjusted
- Geotechnical data report (GDR)

GBR

- If GBR conditions are encountered, contractor must meet its schedule and technical deliverables
- If ground conditions are not as expected, time and remuneration can be adjusted

Time for Completion

- Completion schedule has a very high priority
- Milestones are anticipated as part of contractors proposal

Extensions

- Change in employers requirements
- Exceptionally adverse climatic conditions (e.g. outside GDR)
- Unforeseeable shortages in personnel or goods caused by epidemic or government
- Delay impediment or prevention caused by employer

Acceleration

- Engineer may drive revised program if milestones not being met or project behind program at contractors expense

GBR

- GBR is paramount
- Outside influences from adjacent sites, climate etc contractor deemed as far as 'practicable' to investigate

Price

- Accepted contract amount for works
- Contractor obliged to do all things necessary for proper execution of works for that price
- Only actual additional costs incurred are recoverable if physical conditions encountered outside GBR

Notice

- Physical condition issue
- Notice to Engineer as soon as practicable
- Set out reasons, conditions unforeseeable
- At the heart of the Emerald Book risk apportionment is the delay and cost provision which clearly states that if the Contractor encounters physical conditions that will have an adverse effect on the progress or increase the cost of the execution of the Works and they are not described in the GBR31 then:

'If and to the extent that the Contractor suffers delay and/or incurs Cost due to these physical conditions [those having an adverse effect on progress and/or increased the cost of the execution of the Works] ... the Contractor shall be entitled ... [to] payment of such Cost.'

Time Related Charges

- Departure to the conditions encountered in the GBR may also lead to an adjustment of the Contractors remuneration for time related charges. The Bill of Quantities for Excavation and Lining Works should distinguish between time related rate items, quantity related items and fixed rate items for the performance of the Works
- The Time for Completion can be shortened or extended and the financial consequences of such changes will depend upon the reason for the change. In all cases the variation in Contract price is adjusted by having regard to measurements, appropriate rates and prices for items in the Bill of Quantities

Payment for Excavation and Lining Works

- Normally only the excavation and lining works are subject to measurement and the accepted Contract amount is deemed to cover all other underground works and all things necessary for the proper execution and completion of the Contract
- Furthermore, if, and only to the extent that the Contractor suffers delay, and/or incurs costs as a result of subsurface physical conditions actually encountered that are outside the limits described in the GBR those costs and delay are also dealt with under the Contracts unforeseeable physical conditions provisions. Practically this means that once such physical conditions are encountered the Contractor must give notice to the Engineer, and a timely investigation be conducted and if factually proven an award for payment to the Contractor made

Process of Awards Payment

- Either party can claim under the Emerald Book. Importantly there are strict timelines for making claims. This means that the common practice of *'keeping your powder dry'* by not making claims as they arise has no place under the Emerald Book. For example, the claiming party must make their claim to the Engineer as soon as practicable, but in any case, not later than 28 days after becoming aware (or should have been aware) of the event or circumstances causing the claim.³⁶ If they fail to make the claim within time they are deemed to be not entitled to any additional payment. However, if the Engineer does not take objection to an out of time claim within 14 days after receiving the Notice, then the Notice is considered valid even though it is out of time. In this way the dynamics of Notice and Claims is maintained while keeping the focus on the engineering events which underly the Claims
- There is also a mechanism with strict time limits for providing the full details of the Claim. In the case of excavation and lining Works it must be to the rates and prices in the Bill of Quantities. Contemporary records are an essential component in substantiating a Claim and have special weight in determining the Claim

Conclusions

- The Emerald Book marks a critical step change in global recognition of the importance of ground conditions when apportioning risk in subsurface construction projects. The collaborative multinational effort of FIDIC/ITA provides a transparent example of how ground risks can be fairly and responsibly managed. This mechanism provides a framework in which Contractors are rewarded for effort and punished for incompetence and Employers gain the benefit of transparent risk sharing including reduced cost
- The global construction industry is in the process of decimation at the hands of unscrupulous legal advisors whom wrongly advise clients that unfair risk allocation is an appropriate approach to delivering subsurface infrastructure. Countries such as Australia are testament to the consequences of unfair risk allocation – its local contracting capacity having been severely eroded in the face of lawful but unfair contracting practices by government

- The world is likely in the process of rediscovering the value of fair contracting practices and the Emerald Book is likely part of that renaissance process
- ITA's continued objective is to cultivate a global appetite and culture for fair risk apportionment in underground works
- A recalibration of focus on the substantive engineering and technical resolution of disputes is a healthy sign that the resources of a project will be directed to achieving the desired infrastructure outcome. The big winners of fairer Contracts will be our societies because it will be easier to maintain competition in a market focused on engineering and not gamesmanship and gambling about ground conditions.
- The use of global Contracts may also provide some comfort to foreign lenders and contractors considering doing business in foreign countries. It is expected that ITA will collaborate with other global Contract providers to provide new examples of fair risk allocation for other procurement strategies serving the global underground construction demand

Paper on the new Emerald Book 2019 Ed

- Published in International Journal of Civil Engineering and Technology (IJCIET), Volume 11, Issue 1, January 2020
- Paper Title:
 - THE RENAISSANCE OF FAIRNESS IN GROUND RISK ALLOCATION – THE NEW ITA/FIDIC EMERALD BOOK
 - http://iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_11_ISSUE_1/IJCIET_11_01_006.pdf



Schedule of Baselines

- Schedule of excavation and lining to be carried out in anticipated ground conditions (e.g. boulders, old ground anchors, old foundations, shear zones etc)
- All hindrances not due to contractor
- Creates an objective construction baseline for time – so that unanticipated conditions can be factored into the time taken to construct the tunnel (must be critical path)
- Allows comparison of time / ground conditions / support between what was anticipated and what was encountered on the critical path

Fit for Purpose

- Sub-Clause 4.1 in the Emerald Book states:

“When completed, the Works (or Section or Part or major item of Plant, if any) shall be fit for the purpose(s) for which they are intended, as defined and described in the Employer’s Requirements (or where no purpose(s) are so defined and described, fit for their ordinary purposes(s))”

The Challenge of Underground Uncertainty

- The appropriate required excavation and lining works of a tunnel depend on the geological/geotechnical situation encountered during the excavation
- It is not possible to exactly estimate the required quantities for the support before excavation and so it is desirable to have a flexible and fair system for remuneration of the Contractor and burden upon the State
- The challenge contractually is how to deal with unforeseen geology (or other circumstances not controlled by the Contractor) are compensated. Project delays (time) is the most expensive aspect of a project
- The Emerald Book foresees different 'Bill of Quantities' items for the excavation and lining works only, which cover Fixed-rate items, Time related items and Quantity-related items. All other costs are covered by lump sums

Who is the ITA

- The International Tunnelling and Underground Space Association (ITA)
- Founded in 1974 by the initiative of nineteen Nations
- Presently, ITA gathers 78 Member Nations and 266 Corporate or individual Affiliate Members
- Aims:
 - to encourage the use of the subsurface for the benefit of public, environment and sustainable development and
 - to promote advances in planning, design, construction, maintenance and safety of tunnels and underground space, by bringing together information thereon and by studying questions related thereto

FIDIC

- International Federation of Consulting Engineers
- The organisation bears a French title as testament to its foundation in 1913 by three wholly or partly francophone countries, Belgium, France and Switzerland
- It is an international standards organization for consulting engineering and construction
- Best known for FIDIC family of contract templates
- Today FIDIC has members in 104 countries

How did this new Emerald Book come to be?

- Member Nations were looking to the ITA to assist with international contracting practices
- I was the Chairman of the legal task group – WG3 Contractual Practices
- I decided the WG should investigate contractual practices for the World
- As a result of that investigation it was realised that the contracts in use were universally deficient
- I sought expressions of interest from the international contracts industry
- FIDIC agreed to work on a collaborative contract project with ITA

- After 5 years and collaboration with 40 nations – ITA and FIDIC published the new Emerald Book in 2019 Edition

Key Features

- Ground conditions are a central feature
- Geotechnical baseline reports (GBR) are a pivot for remuneration for works

Representations

- The client represents to the market the ground conditions and support class to be used
- Contractor represents to client that if the conditions are as described they will produce the infrastructure for a fixed price

Disputes

- Very direct mechanism for dispute resolution
- Typically around 1 month