

DAVID KINLAN AND DIRK ROUKEMA

# ADVERSE PHYSICAL CONDITIONS AND THE EXPERIENCED CONTRACTOR TEST

## ABSTRACT

The assessment of a Project's soil conditions is the most important factor to determine dredgeability, the choice of suitable equipment, production rates and ultimately the associated costs for the dredging works. The basic principle of "adverse physical conditions" is whether or not they are foreseeable and whether or not there is a contract clause that will give the contractor the right to claim for additional time and money in case unforeseeable physical conditions occur, which were not reasonably foreseeable by "an experienced contractor," the term commonly used by FIDIC.

A prudent tenderer when analysing the site data needs to be assured that the data has been collected and prepared by a competent soil investigation company in accordance with relevant international standards such as British Standards (BS) and American Society for Testing and Materials (ASTM) or others. Three examples are described to illustrate the direct relationship between dredging costs and actual soil or rock conditions encountered with examples of the relationship between soil and rock conditions on production and costs. Variations in soil or rock conditions contribute the greatest cost uncertainty involved in dredging projects.

Rather than rely on a standard adverse physical conditions clause in the case of significant capital works involving excavation of varying subsoil, weathered or solid rock, the suggestion is made that contracting parties should preferably establish limiting reference conditions in the Contract beyond which the Contractor is entitled to claim for additional compensation.

Of the contracts available for use on dredging contracts, only the FIDIC 1999 Red Book and the United Kingdom's NEC 3 Engineering and Construction Contract deal with the broad concept of reference conditions.

Some suggestions and recommendations are outlined therein for both Employers and Contractors. The authors wish to thank Jim Anderson and Bart Graswindel for their peer review of the article.

Above: The Øresund Fixed Link was ground breaking in many aspects, not least of which was the application of reference conditions to deal with adverse physical conditions. A predefined system was used to make the uncertainty involved in "unforeseeable" physical conditions manageable for both the Employer and the Contractor.

## INTRODUCTION

The concept of how adverse physical conditions are dealt with verges on the holy grail of marine infrastructure projects. On the one side they are part of a Marine Contractors "must have" clauses whilst Clients often view it as the equivalent of a "get out of jail free" card. The balance of risk has been hotly debated and fought over the years with the results little published or revealed due to disputes being resolved in arbitration or adjudication.

Added to this mix is the notion of "unforeseeability" and what "an experienced contractor," the term used by FIDIC, can expect. It is no wonder that the vast majority of marine infrastructure claims revolve around the issue of sub-surface conditions.

The assessment of a Project's soil conditions is the most important factor determining dredgeability, the choice of suitable equipment, production rates and ultimately the associated costs for the dredging works. Even a full-scale and technically perfect soil investigation will only test a fraction of the volume of material that is to be dredged by the Contractor. Combined with the fact that natural conditions like rock strength,



# Adverse Physical Conditions The Experienced Contractor

**Robert H. Clarke**

## **Adverse Physical Conditions The Experienced Contractor:**

**Adverse Physical Conditions and the Experienced Contractor** David Kinlan,2014 [A Practical Guide to Engineering, Procurement and Construction Contracts](#) Eric Eggink,2020-02-20 This book is a step by step practical guide on how to achieve successful projects in EPC turnkey contracting and construction Mapping out the shape of a project the book spells out where things often go wrong where and why disputes arise and how to avoid conflicts It is a key reference point for all involved in the contract making it attractive to legal practitioners construction industry professionals and government officials involved with these projects

**The Presentation and Settlement of Contractors' Claims - E2** Mark Hackett,Geoffrey Trickey,2002-09-11 Contractual disputes often involving large sums of money occur with increasing frequency in the construction industry This book presents in non legal language sound professional advice from a recognized expert in the field on the practical aspects of claims This edition has been brought right up to date by taking into account legal decisions promulgated over the last 17 years as well as reflecting the effect of current inflation on claims The new edition is based on the 1998 JCT contract Fully updated second edition of this practical guide Worked examples to back up the advice offered and relate it to practitioners experience

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[A Contractor's Guide to the FIDIC Conditions of Contract](#) Michael D. Robinson,2011-02-16 This guide will help the contractor s staff overcome some of the difficulties encountered on a typical international contract using FIDIC forms The majority of FIDIC based contracts use the Red Book Conditions of Contract for Construction so this book concentrates on the use of those particular forms Supplementary comments are included in Appendix C for the Yellow Book Plant legal advice should be obtained as and when necessary particularly if the Contractor has little or no knowledge of the local law Armed on site with a copy of The Contractor and the FIDIC Contract the Contractor s Representative will be more able to avoid contractual problems rather than spend considerable time and energy resolving those problems once they have arisen

**FIDIC - A Guide for Practitioners** Axel-Volkmar Jaeger,Götz-Sebastian Hök,2009-11-11 In 1999 a suite of three new conditions of contract was published by FIDIC following the basic structure and wording harmonised and updated around the previous FIDIC Design Build and Turnkey Contract the 1992 Orange Book These conditions known as the FIDIC rainbow were the Conditions of C tract for 1 Construction the so called Red Book for works designed by the Employer 1 Plant and Design Build the so called Yellow Book for works designed

by the Contractor 1 EPC Turnkey Projects the so called Silver Book for works designed by the Contractor The rest is intended for construction works where the Employer is responsible for the design as for the previous so called Red Book 4th Edition 1987 with an important role for the Engineer The other two conditions of contract are intended for situations when the Contractor is responsible for the design The Plant and Design Build Contract has the traditional Engineer while the EPC Turnkey Contract has a two party arrangement generally with an Employer's Representative as one of the parties [The FIDIC Red Book Contract](#) Christopher Seppälä, 2023-04-25 Conditions of Contract for Construction known universally as the Red Book published by the International Federation of Consulting Engineers known by its French acronym FIDIC is the most widely used standard form of international construction contract This book is a detailed commentary on the 2022 reprint of the 2017 FIDIC Red Book For each of the Red Book's 168 Sub Clauses the commentary identifies changes from the 1999 edition analyses the meaning and significance of the Sub Clause and lists related Sub Clauses describes related international arbitration awards national court decisions and legal principles and where appropriate proposes amendments to improve the Sub Clause As the FIDIC Yellow and Silver Books are very similar to the Red Book much of the commentary is equally applicable to those forms of contract The author is a FIDIC insider having served for more than thirty years as Legal Special Adviser to or Member of the FIDIC Contracts Committee which is responsible for preparing FIDIC's contracts This book is an indispensable resource for all parties called on to work with a FIDIC contract With guidance for every stage of a construction project whether in drafting negotiating performing interpreting or administering a FIDIC contract the book's easy to use structure includes such issues and topics as the following introduction to FIDIC and its contracts and to publications of FIDIC and others relevant to the Red Book including the 2022 FIDIC Contracts Guide critical examination of each Sub Clause and advice for amending the same in order to better adapt it to the interests of each party the Employer or the Contractor special attention to each Sub Clause relating to the Contractor's and the Employer's claims and claims procedure and to how to assert claims effectively as well as to time bars and other pitfalls and how they may be overcome detailed examination of Sub Clauses relating to the referral of issues or disputes to the Dispute Avoidance Adjudication Board and if necessary to international arbitration and optimal strategies for doing so discussion of the changes required to the 2017 Red Book by The World Bank's Conditions of Particular Application COPA reference where appropriate to the UNIDROIT Principles of International Commercial Contracts and trade usages comprehensive discussion of practical issues that arise under common law civil law and international legal principles especially when a contract is with a state or public body comparison of common law and civil law methods of contract interpretation and a suggested practical approach to interpretation given a FIDIC contract's international arbitration clause and overcoming problems that can arise when a contract is governed by the law of a less developed country Legal and technical terms are clearly defined and numerous figures and tables are included to illustrate steps in contract procedures Detailed attention is paid to terminological distinctions among the various legal

traditions including a comparison of British English and American English construction contract terms Unquestionably the most detailed and thorough commentary ever published on the FIDIC Red Book this highly practical work enables preparers of FIDIC contracts to amend and adapt the Red Book's provisions to a particular project Dispute adjudicators arbitrators and judges will welcome the book's authoritative guidance on interpreting the provisions of a FIDIC contract and engineers and other construction professionals involved in contract administration will appreciate the book's many practical features

**Contracts for Infrastructure Projects** Philip Loots, Donald Charrett, 2022-05-18 Contracts for Infrastructure Projects An International Guide provides a guide to the law relating to construction contracts for infrastructure projects it is intended for the use of engineers and other professionals who are involved in the negotiation and administration of construction contracts to enable them to understand the risks involved and how to minimise them The principles of construction law outlined in this book apply to small construction contracts as well as very large contracts for which the contract sum may be in the billions of dollars The focus of the book is on construction contracts entered into by commercial organisations operating in a business environment Contract law generally assumes that such parties are of equal bargaining power and puts relatively few fetters on their ability to agree on the terms of their bargain However where legislation impacts on the execution of construction projects or the operation of construction contracts it may be of major importance in protecting the rights of weaker parties or third parties It is assumed that the users of this book will be familiar with the general concepts of tendering and contracting for engineering and construction projects but may not have any formal knowledge of the law To the extent possible the emphasis is on general principles of contract law that are widely accepted in many jurisdictions Examples are drawn from case law in a number of common law jurisdictions as well as from civil codes

**Delay and Disruption in Construction Contracts** Andrew Burr, 2016-02-05 Delay and disruption in the course of construction impacts upon building projects of any scale Now in its 5th edition Delay and Disruption in Construction Contracts continues to be the pre eminent guide to these often complex and potentially costly issues and has been cited by the judiciary as a leading textbook in court decisions worldwide see for example *Mirant v Ove Arup* 2007 EWHC 918 TCC at 122 to 135 per the late His Honour Judge Toulmin CMG QC Whilst covering the manner in which delay and disruption should be considered at each stage of a construction project from inception to completion and beyond this book includes An international team of specialist advisory editors namely Francis Barber insurance Steve Briggs time Wolfgang Breyer civil law Joe Castellano North America David John Gibbs BIM Wendy MacLaughlin Pacific Rim Chris Miers dispute boards Rob Palles Clark money and Keith Pickavance Comparative analysis of the law in this field in Australia Canada England and Wales Hong Kong Ireland New Zealand the United States and in civil law jurisdictions Commentary upon and comparison of standard forms from Australia Ireland New Zealand the United Kingdom USA and elsewhere including two major new forms New chapters on adjudication dispute boards and the civil law dynamic Extensive coverage of Building Information Modelling New appendices on the SCL

Protocol Julian Bailey and the choice of delay analysis methodologies Nuhu Braimah Updated case law to December 2014 linked directly to the principles explained in the text with over 100 helpful illustrations Bespoke diagrams which are available for digital download and aid explanation of multi faceted issues This book addresses delay and disruption in a manner which is practical useful and academically rigorous As such it remains an essential reference for any lawyer dispute resolver project manager architect engineer contractor or academic involved in the construction industry *Construction Contracts*

Dictionary Kok Fong Chow,2006 **Conditions of Contract (International) for Works of Civil Engineering**

**Construction with Forms of Tender and Agreement** International Federation of Consulting Engineers,1957 *Civil Engineering Contracts* Charles K. Haswell,Douglas S. De Silva,1989 Different contract procedures adopted on civil engineering projects are studied in this revised edition taking into account the new developments The new coverage includes comments on various related books and new forms of contract that have been published **Journal of the Construction Division** American Society of Civil Engineers. Construction Division,1964 ICE Conditions of Contract for Ground Investigation Institution of Civil Engineers (Great Britain),1983 This ICE contract has been designed specifically for use on ground investigation contracts Guidelines for Contracting for Industrial Projects in Developing Countries United Nations Industrial Development Organization,Friedrich Giersig,Stuart R. Matthews,1975 **Aspects of Civil Engineering**

**Contract Procedure** Raymond John Marks,1978 *Site Supervision* Robert H. Clarke,1984 A book which provides useful reading material for all who assume or aspire to assume the responsibilities of Engineer or Resident Engineer It combines a clear understanding of the administrative contractual and legal framework within which site supervision must take place

*The International Construction Law Review* ,2000 The International Civil Engineering Contract Ian Norman Duncan Wallace,1974 Conditions of Contract and Forms of Tender, Agreement and Bond for Use in Connection with Works of Civil Engineering Construction Institution of Civil Engineers (Great Britain),1973

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