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CONSTRUCTION CONTRACT DAMAGES: THE "MEASURED MILE" METHODOLOGY

Steven C. Bennett*

I. INTRODUCTION

Generally, under New York law, a contractor who claims damages as a result of an owner's interference with performance of a construction contract must prove a "causal relationship" between the delay or interference claimed, and the damages for which the contractor seeks compensation. However, such damages calculations need only be a "fair estimate" of actual damages.2 The court may thus accept a damage calculation even if it is "imprecise."3 Moreover, "[i]t is well settled that where the trial court’s apportionment of damages can be reasonably supported by the evidence, it should not be disturbed."4

An estimate of damages, however, cannot simply be a guess by the contractor or its experts. How, then, can a contractor establish a reasonable estimate of the impact of an owner’s interference or delay on completion of the project? The decision in Clark-Fitzpatrick suggests that the "measured mile" methodology for damage calculations is one approach that will be accepted in New York courts.5

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2 Id. at 687. An award may not be denied merely because “the quantum of damage is unavoidably uncertain, beset by complexity or difficult to ascertain.”


4 Id. at 127, 128, 410 N.Y.S.2d at 926 (citing Rusciano Constr. Corp. v. State of New York, 37 A.D.2d 745, 747 (3d Dep’t. 1971)).

II. CLARK-FITZPATRICK INC. V. NEW YORK: THE BACKGROUND

The Clark-Fitzpatrick project involved rehabilitation of the Coney Island viaduct — which is essentially a bridge over land obstructions. Rehabilitation required construction of a detour road, removal of concrete on the structure, repair of corrosion-damaged steel, replacement of concrete, and restoration of the site. Originally, the project was planned to be completed in less than three years; however, the project actually required more than five years to complete. In addition, the claimant alleged that costs on the project had escalated from around $20 million to well over $30 million.

The claimant alleged that the State had caused the delay in the project and that the extra cost associated with the project was a result of a series of problems in investigation, design, and coordination of the work. For example, one of the major problems on the project concerned additional steel repairs (“ASRs”). The original inspection of the bridge was conducted in 1977-1978, but the project did not begin until 1983, while steel repairs did not begin until 1984. A State engineer observed, even before the project began, that there was some doubt regarding the validity of the extent of the planned repairs given the delay in beginning the project. Nevertheless, the approved plans gave no

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6 Id. at 2. The project began in 1983 and was completed, after delays, in 1988. A claim in connection with the project was filed in 1990. The case was not tried until 1996. Trial of the claim required nearly four months, and involved review of more than one thousand exhibits. Id.
7 Id. at 3.
8 Id. at 2. The court found that “[t]he contract was awarded to Clark-Fitzpatrick Inc. on March 3, 1983... Work was to commence within ten days after the award and to be completed by December 15, 1985... In fact, the work was not finished until June 11, 1988, a delay of 909 days.” Id.
9 Id. at 2.
10 See id. at 3-107 (summarizing the delays encountered in all phases of the project).
11 Id. at 65.
12 Id. at 57.
13 Id. at 56.
indication about the age of the inspection and did not suggest that large-scale ASRs were expected.  

As a result of age, incompleteness of the investigation, and design problems, more than 1500 ASRs were added to the 1200 planned steel repairs during the course of the project. Furthermore, the State did not have a regular schedule for inspection of the viaduct during the course of the project. Additional repairs were ordered chaotically, such that the contractor could not complete the demolition, repair, and concrete replacement operations in an efficient, organized “train” of work. As the trial court (the Court of Claims) concluded: “there was an inescapable increase in the amount of labor and equipment usage (and movement) in order to accommodate the hop-scotch fashion in which work was accomplished and the continual revision of plans and order of work.”

III. THEORY OF LIABILITY

In every construction contract, the owner’s duty is to “facilitate the work and to do nothing intentionally or purposefully that would prevent the other party from carrying out the agreement on his part.” Where it is established that the owner’s breach of that duty has made it necessary for the contractor to perform extra work or to incur other damages, and the owner is not otherwise relieved of liability, the owner must pay the damages associated with its breach.

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14 Id. at 57-58.
15 Id. at 62.
16 Id. at 66.
17 Id.
18 Id. at 71.
19 Green Island Constr. Co. v. State, No. 84776, slip op. (N.Y. Ct. Cl. Apr. 4, 1996) (quotation omitted). There is no “all-inclusive” list of owner actions that can be classified as interference. Id. Generally, however, such interference includes “defective plans,” an “abnormal amount of redesign or other changes,” and “failing to process changes and design revisions in a timely fashion.” Id. at 19-20.
Furthermore, where the owner's directions to a contractor constitute a "qualitative change" in the work, such that the contractor is required to "progress the work in a manner not contemplated at the time of the bid," recovery of the additional cost of the changed work may be allowed, even where a unit price for the work already exists. An "unusually large number of change orders" may constitute a qualitative change. The key issue is whether the extra work was contemplated by the parties at the time of bidding.

Moreover, an owner must bear the burden of defective designs and specifications where the contractor performs work in conformity with the owner's plans, but is unable to achieve the desired result. Where the owner makes changes in plans, it must do so "as quickly as possible" so that the contractor is not held back in his work, his workers and equipment are not required to remain idle, and he is not forced to perform in a "hop-skip, hit-and-miss fashion." Where the owner's directions to the contractor are

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21 J & K Plumbing & Heating Co. v. State, No. 78566, slip op. at 34-35 (N.Y. Ct. Cl. Aug. 11, 1995), aff'd, 652 N.Y.S.2d 369 (3d Dep't 1997); see also John Arborio, Inc. v. State, 41 Misc. 2d 145, 148, 245 N.Y.S.2d 274, 276-79 (N.Y. Ct. Cl. 1963) (stating that "[t]he difference between the represented quantities and the actual quantities [was] so great that the State cannot escape the consequences of its misleading and deceptive statements to the financial detriment of an innocent bidder . . . ").


23 Triple Cities Constr. Co. v. State, No. 67423, slip op. at 7-8 (Ct. Cl. Nov. 26, 1991) (noting that a qualitative change is where extra work was "much more difficult and costly" and "not originally contemplated"), aff'd, 194 A.D.2d 1037, 599 N.Y.S.2d 874 (3d Dep't 1993); Tufano Contracting Corp. v. State, 25 A.D.2d 329, 332, 269 N.Y.S.2d 564, 566 (3d Dep't 1966) (noting that a quantitative increase in detour roads was not originally contemplated).


25 Barry, Betty & Led Duke, Inc. v. State, No. 74178, slip op. at 30 (Ct. Cl. Mar. 31, 1994); see also John Arborio, Inc. v. State, No. 65193, slip op. at 18 (Ct. Cl. July 22, 1992) (holding that the State is liable where it "delayed an unreasonable length of time in deciding upon the final solution" to the problem); Ballard Constr., Inc. v. State, No. 64853, slip op. at 21 (Ct. Cl. June 28, 1991) (holding that the State had a duty to respond "immediately" with a solution. Moreover, that the owner has paid some amount of money for the changes is not
not prompt and rational, the owner may be held liable for impacts on the efficiency of the contractor’s work. 26

In Clark-Fitzpatrick, 27 the New York Court of Claims applied these essential principles. Judge James P. King found that “[n]either party persuaded the court to adopt its position completely.” 28 Nevertheless, the court held that the “principal factor” that “guaranteed” that there would be a “substantial delay” on the project was the “staleness” of the State’s plans and the “inadequacy of its prior investigations,” as well as the State’s “planning oversights.” 29 Thus, the issue became the measure of the “true damages resulting from this breach of duty on the part of the State.” 30

IV. THE THEORY OF THE “MEASURED MILE”

The “measured mile” theory, 31 which is sometimes referred to as the “measured productivity method” of damage calculation, has been recognized as a “superior” method of measuring inefficiency
This method of damage calculation compares the "cost of the work that was accomplished during the disruption period" to the "cost of work accomplished without the disruption." Therefore, instead of using "industry averages" for comparison, the control figures come from the project itself, such that the measure of lost productivity will more closely relate to "the particular project and the particular circumstances of delay" actually experienced.

In addition, the "measured mile" methodology does not depend upon the contractor's planned productivity rate. Thus, "any underlying errors in the bid estimate are eliminated from consideration" in the "measured mile" calculation. As a result, the "measured mile" methodology may be used even where the contractor's bid estimates are unrealistic.

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33 Id.
34 Id.
35 See Clark-Fitzpatrick, No.80993 at 135. The Court of Claims determined that "a 'measured mile' factor . . . is based on actual production and costs associated with [a] contractor[s] performing the same work operations repeatedly: 'production or costs that you were actually able to attain.'" Id.
36 THEODORE J. TRAUNER and ANGELA M. SIST, IDENTIFYING, PROVING AND QUANTIFYING DAMAGES IN PLI, HANDLING CONSTRUCTION RISKS: ALLOCATE NOW OR LITIGATE LATER 182-83 (1998); see WILLIAM SCHWARTZKOPF, JOHN McNAMARA and JULIAN HOFFAR, CALCULATING CONSTRUCTION DAMAGES §2.16 (1992) (noting that the "measured mile" calculation is "favored" because it "eliminates disputes over the validity of cost estimates, or factors which may have impacted productivity due to no fault of the owner").
37 Courts in other jurisdictions have frequently approved the measured mile theory to calculate damages. See, e.g., E.C. Ernst, Inc. v. Koppers Co., 476 F. Supp. 729 (W.D. Pa. 1979) (referring to the measured mile method of calculation with approval); Natkin & Co. v. George A. Fuller Co., 347 F. Supp. 17 (W.D. Mo. 1972) (holding that a comparison of unit costs during impacted and non-impacted periods was reasonable method of computing damages), aff'd as modified, 626 F.2d 324 (8th Cir. 1980); Goodwin Contractors, Inc., AGBCA No. 89-148-1, 92-2 BCA (CCH) Para. 24,931 (1992) (approving the measured mile formula to calculate lost labor productivity). But see Kit-San-Azusa, J.V. v. United States, 32 Fed. Cl. 647, 659 (1995) (stating that the measured mile calculation is not possible where "impact of the changes could not be captured by comparing the time and effort involved in, laying a 'normal' stretch of pipeline with that of laying an impacted stretch").
In Clark-Fitzpatrick, the contractor’s principal project manager testified concerning the details of the contractor’s damage claim methodology. She explained the nature of the contractor’s “measured mile” calculation, which was used to compute several categories of damages related to steel reconstruction work on the viaduct. The contractor based this calculation on actual performance:

[It’s based on actual production and actual costs for the State doing the same work operations repeatedly. You can come up with different production and/or cost rates over a period of time for doing the same work operation, and those are called a measured mile. Your measured mile is something you actually did.]

Given that it was actually possible to operate at certain rates of production (as demonstrated by the “measured mile” calculation), the contractor claimed that it “should have been able to attain that production rate more than once.”

The Court of Claims accepted this essential analysis, stating that it found “no reason to question claimant’s method of calculating damages” based on this methodology. The Court noted, in particular, that “the State has neither shown the method to

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38 Trial Record at 4202, Clark-Fitzpatrick (No. 80993). The court analyzed damages “claim item by claim item.” Id.
39 Id. The contractor’s claim contained 32 causes of action. Including subparts, the contractor’s claim totaled 42 separate claims, many of which did not make use of a “measured mile” methodology. Id.
40 Id. at 27. The contractor’s damage claims were based on more than 150 boxes of financial records, which were available in the court room for the State’s review (and which had previously been made available to the state for review by counsel and auditors). Id. Trial Record at 4198 (the financial records were used to calculate damage). See Clark-Fitzpatrick, No.80993, slip op. at 14. The court also admitted summaries of the contractor’s records into evidence, holding that the summaries would be a “tremendous aid” to the court. Id.
41 Trial Record at 4212, Clark-Fitzpatrick (No. 80993).
42 Id. at 4214. In order to be “reasonable and conservative,” all measured mile calculations dropped the lowest of the production costs and used an average of a number of the other achievable production cost rates. Id.
43 Clark-Fitzpatrick, claim No. 80993, slip op. at 167.
44 Id. at 138.
be untrustworthy nor presented an alternate, superior theory of its own.” 45 In particular, although the State conducted an extensive audit of the contractor’s financial records and claim methodology, the State chose not to present any of that analysis at trial. 46

In accepting the contractor’s “measured mile” methodology, the Court of Claims specifically rejected the State’s assertions that the damage claims were flawed by reason of “unsupported” calculations, “based on estimates,” and “duplicative of each other.” 47 The court concluded that “[i]t is beyond dispute that claimant’s work would have proceeded more smoothly and efficiently had there not been the large number of ASRs issued in such a disorderly fashion, and that resulting loss of efficiency directly translates into lost dollars.” 48

The court found that “the only part of [the contractor’s] calculations that seem questionable, or overly-optimistic” was the use of “quite low figures” to establish the analysis of the potential production rates that the contractor should have been able to reproduce: 49

45 Id.

46 The State’s auditors initially reviewed the contractor’s books and records regarding the contractor’s “total cost” claim, and later conducted a detailed review (lasting an entire year) of the contractor’s individual claims. See id. at 148 (finding that the “State had access to all of claimant’s records over a number of years and yet presented nothing to refute” contractor’s damage calculations). Generally, under such circumstances, a trial court is “justified in crediting” a claimant’s evidence “in the absence of any rebuttal by the State with its vast reservoir of engineering and construction experience.” Felhaber Corp. v. State, 69 A.D.2d 362, 369, 419 N.Y.S.2d 773, 776 (3d Dep’t. 1979); see D’Angelo v. State, 46 A.D.2d 983, 362 N.Y.S.2d 283, 284-85 (3d Dep’t. 1974) (noting that it is “readily understandable” that trial court would credit testimony of claimant’s witness “in the absence of any rebuttal”).

47 Id. at 136-38.

48 Id. at 138. Clark-Fitzpatrick’s man-hours and costs to complete the deck replacement work greatly increased because of inefficient operations and acceleration. See Trial Record at 3738, Clark-Fitzpatrick (No. 80993), (noting that in an attempt to recover lost time, crews were “three times” the planned size); id. at 3740, 3904 (noting the inefficiency due to the ASRs, even with acceleration, it was not possible to return the project to the planned construction season cycle. Thus, the contractor performed significant amounts of deck replacement work activities in the least efficient winter period). See id. at 3663-64 (noting that the work had to be done on the “fringes of winter”).

49 Clark-Fitzpatrick, No. 80993, slip op. at 137.
It seems unrealistic to believe that all pours [of concrete] would have proceeded in very nearly the most efficient manner, as well as somewhat inaccurate to assume that all costs above that associated with high efficiency can be attributed to the problems with the State’s plans and inspection procedures. As defense counsel pointed out, factors such as weather, [the contractor’s] own inefficiency, subcontractors’ inefficiency, and the need to perform corrective work would also have increased costs, and without doubt some of these occurred.\textsuperscript{50}

To account for these potential alternate explanations for the disparity in rates of production, the Court made a “further reduction” of 10% on all damage claims calculated by use of the “measured mile” methodology.\textsuperscript{51}

\section*{V. APPELLATE TREATMENT OF THE "MEASURED MILE" THEORY}

On appeal from the decision by the Court of Claims, the State of New York took the position that it was not responsible for even one day of delay on the project.\textsuperscript{52} Further, the State argued that the contractor’s damage calculations were flawed by the use of estimates.\textsuperscript{53}

The Appellate Division, Second Department, rejected both of these arguments.\textsuperscript{54} The Appellate Division held that the Court of Claims’ findings that the State was liable for a portion of the delay\textsuperscript{55} were “reasonable and well supported in the record.”\textsuperscript{56} Furthermore, the Court concluded that the award was properly

\textsuperscript{50} Id. at 138-39.
\textsuperscript{51} Id. at 139.
\textsuperscript{52} Brief for Appellant at 25, Clark-Fitzpatrick (No.97-07920).
\textsuperscript{53} Id.
\textsuperscript{55} See Clark-Fitzpatrick Inc., No. 80993 slip op. at 114. The Court of Claims found the State liable for only 47% of the delay on the project. Id.
\textsuperscript{56} Clark-Fitzpatrick, No. 97-07920 (Feb. 1, 1999).
"limited to damages actually sustained."  Even though the "quantum of damages was, in this dispute, 'unavoidably uncertain, beset by complexity and difficult to ascertain,'" the Court affirmed the use of the contractor’s "measured mile" methodology for damages calculation.

VI. CONCLUSION: THE VALUE OF THE "MEASURED MILE" METHODOLOGY

The "measured mile" damages calculation methodology, as applied in the Clark-Fitzpatrick case, represents a potentially useful tool for meeting a contractor’s burden to provide a reasonable estimate of damages associated with an owner’s delays and interference with the completion of a construction contract. Indeed, in Clark-Fitzpatrick, absent the use of such methodology, the contractor might have had substantial difficulty in proving damages as a result of the State’s investigation, design, and coordination problems.

On claims for damages associated with the ASRs ordered during the course of the project, the State stressed that, even though new steel repairs were ordered, "in the end" the contractor did not use a "significantly greater than estimated amount of steel," and the "actual time-frame occupied by work" was not substantially greater than that contained in the original plans.

The contractor’s scheduling expert, however, testified in detail concerning the disruptions of the project schedule caused by the State. The contractor scheduled work on the project to begin in an efficient sequence, such that precedent work could be completed (or substantially progressed) before following work began. Work was scheduled to provide "lead times" to avoid inefficient operations such as stopping/restarting work, and

57 Id.
58 Id. (quoting Berley Indus., 45 N.Y.2d at 687, 385 N.E.2d at 283, 412 N.Y.S.2d at 591) (bracket omitted).
60 See Trauner, supra note 36, at 182-83.
61 Id. at 70-71. (summarizing State’s argument concerning the measured mile calculation).
62 Id.
“stacking of trades” in one location. Work was planned in a continuous “train” designed to maximize efficiency. The work was also scheduled to be performed in optimal construction seasons.

Disruption of the schedule began early and ripple effects continued throughout the project. As delays mounted, later work was disrupted. The efficiency of work operations declined drastically, as lead times were lost, continuous operations became impossible, and work had to be performed in poorer weather. Even though the work added by the State accelerated operations, the contractor could not make up for lost time.

The “measured mile” methodology used in Clark-Fitzpatrick helped to capture the real impact of the inefficiency and delays caused by the owner. Because the contractor was paid for steel repair and concrete replacement operations on a unit price basis, it was not compensated by the State when the cost of those operations increased due to the inadequacy of the State’s plans and contract administration. The “measured mile” methodology, which compared the costs of the most efficient operations the contractor had achieved on the project with its actual costs, dramatically demonstrated the loss that the contractor had suffered. The “measured mile” damages calculation methodology, moreover, permitted the Court to take into account the costly acceleration efforts the contractor had undertaken in an effort to return the project to its planned schedule. Absent such a methodology, the contractor might have been precluded from claiming damages merely because it appeared that the ASRs had not affected the progress of the project.

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63 Trial Record at 3592-93, Clark-Fitzpatrick (No. 80993).
64 Id. at 3650.
65 Id. at 3596-97.
66 Id. at 3595-96.
67 Id. at 3604, 3633.
68 See County Asphalt, 63 Misc.2d at 334, 311 N.Y.S.2d at 656 (stating that recovery is appropriate where “months were wasted” and claimant had to “accelerate its work schedule” as a result of changes in work).
69 See Ballard Constr., Inc. v. State, No. 64853, slip op. at 90 (N.Y. Ct. Cl. June 28, 1991) (stating that a contractor is entitled to recover damages where it could have completed work ahead of schedule but for delays attributable to State).
The “measured mile” methodology should be considered in other cases where inefficiency is a key element of damages. This methodology, when appropriate to the circumstances of the contractor's claim, will likely be accepted by other New York courts.