

COMMONWEALTH OF PENNSYLVANIA

STABLER CONSTRUCTION, INC. on : BEFORE THE BOARD OF CLAIMS
its own behalf and on behalf :
of BEAR CREEK CONSTRUCTION, Inc. :
 :
VS. :
 :
COMMONWEALTH OF PENNSYLVANIA, :
DEPARTMENT OF TRANSPORTATION : DOCKET NO. 1646

FINDINGS OF FACT

1. Plaintiff is Stabler Construction Co., Inc. (hereinafter referred to as "Stabler"), a Pennsylvania corporation having its primary place of business situate at 635 Lucknow Road, Harrisburg, Pennsylvania 17110-1687. (Stipulation of Fact No. 1).
2. Plaintiff is Bear Creek Construction Company (hereinafter referred to as "Bear Creek"), a Pennsylvania corporation having its primary place of business situate at P.O. Box 188, Landisville, Pennsylvania 19538. (Stipulation of Fact No. 2).
3. Stabler Construction Co., Inc. brought the instant claim on its present behalf and on the behalf of its subcontractor, Bear Creek Construction Company. (Stipulation of Fact No. 3).
4. Defendant, Commonwealth of Pennsylvania, Department of Transportation (hereinafter referred to as "PennDOT"), is an executive agency having its principal place of business at the Transportation and Safety Building, Forster Street and Commonwealth Avenue, Harrisburg, Pennsylvania. (Stipulation of Fact No. 4).
5. On or about February 15, 1990, the Department opened bidding for a contract regarding certain and specific improvements made to S.R. 0083 (004), Dauphin County, Pennsylvania. (Complaint/Answer; Stipulation of Fact No. 4).
6. The Contract in question called for Stabler and Bear Creek to remove and replace the existing concrete bridge deck, back wall and wing wall of a three-span structure carrying I-83 over the Paxton Creek in three separate and unique phases labeled I, II, III respectively. (Stipulation of Fact No. 7).

7. Phase I of the contract consisted of work to be done on the northbound side of I-83 over the Paxton Creek bridge. The diaphragms were to be removed between the adjacent roadway in order to remove excessive vibrations from the traffic traveling on the southbound lanes. The bridge deck was then removed for the subsequent structural steel and rehabilitation work to be performed. Once completed, the copper plates and retrofitting work was to be done. (N.T. 25,26).

8. Phase II consisted of work to be done on the southbound traffic lanes of the bridge deck. Traffic was to be rerouted on the northbound lanes of traffic. The diaphragms and the deck were to be removed. This process was to be repeated as well in regard to the northbound side of the roadway. (N.T. 25).

9. Phase III was to consist of work to be done on the inside south and northbound travel lanes. Traffic was to be rerouted on the completed Phase I and Phase II lanes. (N.T. 25).

10. On or about March 30, 1990, and pursuant to competitive bidding process, Stabler and the Department entered into Contract No: 085088 (hereinafter referred to as "Contract") for a highway construction and rehabilitation project on S.R. 0083 (004) situate within Dauphin County, Pennsylvania (hereinafter referred to as the "Project"). (Complaint/Answer).

11. On or about March 30, 1990, Stabler and Bear Creek entered into a subcontract for the subject contracts required bridge decking work. (Stipulation of Fact No. 9).

12. Incorporated within the subject contract were the Publication 408 (1987) Specifications (hereinafter referred to as "Specifications"), and numerous other conditions, provisions, amendments, supplemental plans and drawings. (Stipulation of Fact No. 8).

13. Section 704 of the Specifications, as amended, provided the procedures relative to the development of mix designs for the concrete to be furnished by a contractor of Department pre-qualified and/or pre-approved materiel supplier. (Complaint/Answer).

14. Stabler and Bear Creek were pre-qualified by PennDOT for the performance of various types of contracting work such as those required by the instant contract. (Complaint/Answer).

15. Table A of the Section 704 Specifications, set forth the minimum mix design and relevant compressive strengths as were required of the subject contract. Specifically, AAA concrete for 7-day breaks to be 3,600 psi and 4,500 psi at 28 day breaks. (N.T. 198, 284, 285).

16. The mix design at issue was developed by Pennsy Supply, Inc., a Department pre-approved concrete supplier. (Stipulation of Fact No. 11; N.T. 93)

17. Phase I, of the subject contract, was completed to the total satisfaction and acceptance of the Department. (Complaint/Answer; N.T. 85).

18. The concrete which was poured by Bear Creek during Phase II of the relevant project did not in fact achieve the mandated 4,500 psi compressive strength as was contained within Table A, Section 704 of the Specifications to the instant contract. (N.T. 503).

19. Stabler Construction requested and the Department subsequently authorized cores to be taken of the initial Phase II concrete deck by Stabler Construction and Bear Creek. (N.T. 48-49, 564).

20. Previous to the cores extraction, the compressive strength tests which were performed on same, by the Department, indicated that the AAA concrete poured in Phase II to be deficient as to required compressive strengths of the instant contract. (N.T. 51-52, 85-86).

21. The Department's concrete test cylinders are the sole basis for determining acceptance or rejection of same, pursuant to and in accordance with contract specifications. (N.T. 188, 521-522).

22. The Department had performed periodic inspection and subsequent approval of the actual formulation and production of cement concrete to be used in the bridge deck construction. (N.T. 281-282).

23. The Department's periodic inspections were inclusive of air, slump, temperature of the concrete and the molding of the concrete test cylinders. (N.T. 350-351; 545-546).

24. The Department's performance of said periodic inspections, did not relieve Stabler Construction and/or Bear Creek of its responsibility for controlling the quality of the concrete

product. (N.T. 281-282).

25. Section 105.11 of the Specifications confirms the continuing responsibilities of the contractor, even in the presence of Departmental inspectors, by stating as follows: **"....presence of the inspector during the performance of any work on the project will not relieve the contractor of the responsibility for work that is later determined by the engineer to be defective."** (N.T. 280-281).

26. As stated within Section 107.16 of the Specifications, responsibility of the protection and maintenance of the bridge deck remained on Stabler Construction and Bear Creek until same was accepted and approved by the Department. (N.T. 281-282).

27. As mandated by the instant Contract, Stabler Construction and Bear Creek were to be responsible for the curing, maintenance and any subsequent protection of the field acceptance cylinders. (N.T. 196, 504, 523, 563-564).

28. Moisture levels of the concrete testing cylinders were not properly maintained. (N.T. 559).

29. Stabler/Bear Creek's request to divert traffic onto Phase II, for their progression onto Phase III was rejected, as the concrete test cylinders for same did not meet the 4,200 "live load" requirement. (N.T. 52-53, 86-88).

30. Department Quality Assurance Inspectors noted minor deficiencies in the concrete situated within the bridge deck of Phase III. (N.T. 85).

31. The Department issued deficient strength penalty assessments for concrete situate within the bridge deck of Phase III. (N.T. 85).

32. Pennsy Supply had added water to several of it's concrete truckloads, prior to their distribution at the relevant project site. The addition of same did lower the required compressive strength of the subsequent concrete as was placed on the bridge deck. (N.T. 177-187; 445, 461-462, 468-473, 493-495).

33. The accession of water by Pennsy Supply, out of view of the Department, was in direct violation and non-conformation of the immediate Contract's Specifications. (N.T. 502)

34. PennDOT inspectors, in conformance with Contract Specifications, are to reject a concrete truckload automatically,

if there is any indication of additional water added. (N.T. 183).

35. The addition of water to a concrete mix does in fact lower it's strength test results. (N.T. 561-563).

36. Section 704.3(e) of the Specifications provides that water, weight and volume are not to vary more that plus or minus 2%. (N.T. 187).

37. The curing requirements of the concrete cylinders are contained and set forth within Section 704.2(d). This section is inclusive of Pennsylvania Testing Method (PTM) 611. (N.T. 171).

38. Section 11.2 of PTM 611 of the instant contract mandates that Departmental acceptance cylinders are to be field cured and not lab cured. (N.T. 171)

39. PTM 611 affords the requirement that all test specimens shall be stored during the first 24 hours (plus or minus 2 hours) under settings that sustain the temperature immediately contiguous to the specimens in the 60 to 80 degree temperature range. (N.T. 527).

40. Temperature variances were noted by Pennsy employees to be as high as 92 degrees, while the curing of the bridge deck was taking place. (N.T. 481; 506-508).

41. The relationship between cambering deficiencies and inadequate concrete strength has not been clearly established. (N.T. 258).

42. It has been noted that vibrations in concrete may in fact have a positive effect on strength with respect to the consolidation of same. (N.T. 558).

43. Certain representatives of Pennsy Supply had in fact made observations of certain and inadequate curing practices inclusive of the presence of dry burlap and dehydrated concrete cylinders which were situate on the subject bridge decking. (N.T. 203, 266-267, 500, 505).

44. The contractor, at the point of placement, was responsible for curing of the bridge deck and the concrete cylinders. (N.T. 171-172; 196).

45. The instant Contract did provide that concrete samples were to be tested at 28 days and as such are to then meet 4,500 psi. (N.T. 220-221).

46. The Department did observe the sampling, molding, curing and breaking of the cement concrete testing cylinders performed by the contractor which were then subsequently utilized to determine the 7-day and 28-day compressive strengths for the relevant bridge deck. (N.T. 171-172; 196; Contract Specifications 408-87, Sec. 107.16 and Sec. 704.1(d)).

47. Pennsy Supply did deliver and McCreath Laboratories did in fact receive, four concrete testing cylinders representative of Phase II, August 27, 1990 bridge deck pour. (N.T. 227-231).

48. The Phase II testing cylinders were permitted to cure a total of 35 days, after which one cylinder was tested on October 2, 1990 and the remaining three cylinders were tested on October 3, 1990. (N.T. 227-231).

49. All four of the Phase II cylinder testing results were beneath the 4,500 psi requirement and two were subordinate to the "live load" requirement of 4,200 psi. (N.T. 227-231).

50. Wills Engineering Service examined eight concrete cores, all of which were taken from the applicable bridge deck in question. Also present were two concrete test cylinders which were cast at the placement of the bridge deck. (N.T. 162)

51. Wills Engineering Service furnished figures that ranged from 4,730 psi to 4,220 psi, an average of 4,540 psi. (N.T. 199).

52. On July 25, 1991, Bear Creek Construction did forward to American Testing Laboratories three concrete core samples which were representative of the Phase II-1 bridge deck pour. (N.T. 66, 90, 99, 114-116).

53. The core samples which were received by the American Testing Laboratories had been cured for a total duration of 11 months. (N.T. 114-116).

CONCLUSIONS OF LAW

1. The Board of Claims has jurisdiction over the instant claim pursuant to 72 P.S. Section 4651-4.
2. Table A of Section 704 of the instant Specifications provides design and performance specifications inclusive of any required compressive strengths.
3. Table A of Section 704 of the instant Specifications required the field cured acceptance cylinders as well as the bridge decking to achieve compressive strengths of 4,500 psi after a 28-day duration.
4. Phases II-1, II-2 and III failed to conform with the mandated strength prerequisites as stated within Section 704.
5. Section 704.2(d) places exclusive responsibility for the protecting and curing of the acceptance cylinders upon the contractor only.
6. Bear Creek had failed to properly safeguard and cure the acceptance cylinders as was mandated by the terms of the instant contract.
7. As stated within Section 107.16 of the instant contract, the Contractor is to have sole responsibility for the maintenance and protection of the bridge deck concrete.
8. Contrary to that which was mandated by the terms of the instant contract, Bear Creek had failed to properly maintain and protect the Phases II-1, II-2 and III bridge decking.
9. Bear Creek Construction allowed the augmentation of water to the concrete trucks in open violation of the conditions as stated within the instant contract.
10. The record failed to establish a direct correlation between vibrations in the subject bridge deck and alleged failures in achieving the required compressive concrete strengths.
11. The record failed to establish a direct correlation between the under camber of bridge deck beams and alleged failures in achieving the required compressive concrete strengths.
12. The Department conducted testing of the relevant concrete cores and cylinders in astringent adherence with instant Contract and PTMs.

13. Under the terms of the instant contract the strength results obtained from the compression tests to be performed by the Department are only results of which the Department is required to recognize.

14. The compressive strength test results, as obtained by the Department's testing, did accurately represent the strengths as was achieved by the concrete in the field.

15. Independent testing results, as were provided by the Plaintiff, are not pertinent to the immediate claim at issue.

16. The Department did properly require that Bear Creek Construction remove and replace the initial Phase II pour as it has failed to meet the specific "live load" support requirements.

17. The Department did properly refuse to allow Bear Creek Construction to divert traffic onto the Phase II-1 pour as it has failed to meet the specific "live load" strength requirements.

18. The Department properly penalized the Contractor for its failure to provide concrete in Phases II-2 and III in conformity with the compressive strength provisions as were contained within the instant Contract.

19. The Department properly penalized the Contractor for its failure to provide concrete in Phases II-2 and III in compliance with the compressive strength provisions as stated within the instant Contract.

20. Stabler Construction and Bear Creek Construction are not entitled to recover damages resultant from the removal and subsequent replacement of Phase II-1 bridge deck.

21. Stabler Construction and Bear Creek Construction are not entitled to recover liquidated damages for alleged delays which were experienced by the removal and replacement of the Phase II-1 pour.

22. Stabler Construction and Bear Creek Construction are not entitled to recover the penalties assessed for insufficient strengths achieved by the concrete on the Phase II-2 and III deck pours.

23. The Board's Findings of Fact are supported by substantial, relevant evidence such as a reasonable mind might accept as adequate to support its Conclusions of Law.

OPINION

Stabler Construction Company (hereinafter referred to as "Stabler") and its subcontractor Bear Creek Construction (hereinafter referred to as "Bear Creek") entered into a construction contract with the Commonwealth of Pennsylvania, Department of Transportation (hereinafter referred to as "PennDOT"). The specific contract, Numbered 085088, called for the extraction and restoration of a certain and specific bridge decking, along with various other component parts along S.R. 0083, situate in Dauphin County, Pennsylvania. The conditions of the subject contract provided for the bridge decking to be removed and reconstructed in three separate and distinct phases, designated as Phase I, II, and III. The concrete, as afforded by Bear Creek to PennDOT for the reconstruction of certain phases, did not meet the strength terms as they were mandated and required. Accordingly, the concrete provided by Bear Creek was rejected. As a result, Stabler Construction now brings the instant claim on its own behalf and on behalf of its subcontractor, Bear Creek Construction.

The confirmed compressive strength of the furnished concrete failed to meet the prerequisite conditions as set forth with the subject contract. Compressive strength requirements as stated within Table A of Section 704 of the Publication 408 Specifications, mandate a strength of at least 4,500 psi after a

time span of 28 days curing. The concrete supplied by Bear Creek Construction did not meet same. In Blake Construction, Co., Inc. v. The United States, 25 Cl. Ct. 177, 182 (1992), the court stated in part that:

....design specifications state how the contract is to be performed permitting no deviation....performance specifications specify the results to be obtained. (emphasis added). Section 704.1(a) of the same Specifications pronounce that the concrete furnished met those requirements as set forth within Table A. The language plainly states that the concrete furnished met those requirements as set forth within Table A. The required result was never attained by the contractor as demanded.

The Claimant provided concrete for Phase II and II-1 which failed to comply with the 4,500 psi as mandated by Table A of Section 704. Phase II-1 failed to meet 4,200 psi live load requirements as stated within Section 1001.2(c). Fittingly and correspondingly, the Department ordered Claimant, Bear Creek, to excavate and replace same. The Phase II repour was also inadequate as to its required strength. Although it exceeded the 4,200 psi live load requirements, and was sufficiently strong enough to handle the commuting masses without risk of danger, the same still fell below that compressive strength as was stated and essential to the instant contract. For that reason, the Department properly charged penalties against the Claimant, Bear Creek, for Phase II-2

of the project. Concrete subsequently supplied by Bear Creek for Phase III was also lacking in compressive strength and as such, was likewise assessed additional penalties. Bear Creek avers that although the concrete failed to meet their contractually imposed responsibility, the Department should have welcomed their deficient product anyway. The rationale behind their belief is that the deficient concrete, once delivered, would have inevitably achieved desired and sufficing compressive strengths. Bear Creek argues that the concrete should have been accepted notwithstanding the curing strength failures. Their contention is both meritless and impertinent. Claimant did not furnish the necessary compressive strengths as were required under terms of the subject contract. The Board agrees with the Department in that it was not obligated to accept deficient and inadequate materials and wait indefinite amounts of time, in the hope of eventually obtaining the mandated performance guidelines as set forth in their agreement. There is a responsibility on behalf of a contractor to comply with the specifications of any given contract, and if the contractor does not do so, it must then accept the particular economic loss as was caused by their inadequacy. Slattery Associates v. Commonwealth of Pennsylvania, Department of Transportation, Board of Claims Docket No. 599 (1984).

Bear Creek Construction did fail to properly maintain and protect the bridge deck concrete, as was dictated by the terms of

the instant contract. Section 107.16 of the Contract Specifications places responsibility for the curing of the bridge deck directly upon the contractor. Section 1001.3(p)5a sets forth the requirement that when outside air temperatures fall below 35 degrees, bridge deck concrete must then be maintained between temperatures ranging from 50 to 80 degrees. The evidence states that on several occasions, temperatures of the bridge concrete varied considerably beyond the given acceptable range. (N.T. 527). Documented temperatures had risen as high as 92 degrees and had fallen as low as 50 degrees. (N.T. 481, 506-508). Low temperatures do have an apparent and detrimental effect on the speed in which the concrete attains it's strength. (Plaintiff's Finding of Fact No. 40a). Bear Creek had failed to meet and maintain temperatures as was required by the pointed Contract. Section 1001.3 of the Specifications require that the contractor ensure the proper hydration of the bridge decking during contract performance. At the hearing, Mr. Stahl testified that dry burlap was seen flailing and heaters used to maintain proper temperature of the decking were not in nonstop operation. (N.T. 498, 508-509). As a direct result of the temperature fluctuation, compressive strengths of the concrete were significantly lower.

Bear Creek had failed to properly maintain and protect the acceptance cylinders, as was required by the instant contract. Bear Creek Construction has repeatedly maintained that defects in

the concrete had occurred as a result of improper handling and curing of the acceptance cylinders by the Department. This Board disagrees however. Section 704.2(d) of the performance Specifications state that the responsibility for maintenance and protection of the acceptance cylinders rests upon the Contractor.

The presence of the Department of Transportation's Inspectors does not relieve Bear Creek from responsibility for the quality of work performed. Although the inspectors were present at the construction site on a frequent basis, Section 105.11 provides that the mere presence of these Departmental inspectors does not relieve Bear Creek of its responsibility for controlling the quality of the product achieved.(P-1). Mr. Spriggle testified that he did not tell Bear Creek where to place the acceptance cylinders once they were molded. His (Spriggle) main concern was that the cylinders remain safe for the first 24 hours. (N.T. 523). Mr. Stahl of Pennsy, also testified that he observed cylinders on the project that had been allowed to dry more than they should have. (N.T. 505, 509-510). As a further consequence to Plaintiff's claim, Mr. Reidenour testified that partially dried acceptance cylinders may have set up differing stresses that vary from top to bottom, potentially resulting in lower strengths than are normal. (N.T. 560). Bear Creek Construction did fail to properly maintain and protect the acceptance cylinders and must be held accountable for any of the resulting conditions.

Bear Creek Construction violated the instant Contract by allowing the addition of water to the relevant concrete on the project. On several occasions water was added to the concrete within the trucks, prior to their delivery to the jobsite. (N.T. 177-87, 445, 461-462, 502). The water added did vary the water content by plus or minus two percent. This percentage is beyond that which is allowed by the terms of the instant contract. Addition of water could potentially weaken the strength of the concrete to which the water was added to. Mr. Reidenour testified at the hearing that the addition of water, to the concrete at the site, could reduce the strength of the concrete by 100 to 170 psi for each gallon added. (N.T. 461, 473). As such, the concrete provided by the Claimant was in fact altered to the point that it did not conform to the mix design as was approved by the Department.

The record is absent of any evidence that the existence of alleged vibrations on the bridge deck may have, in any way, affected the compressive strengths of the concrete. On the contrary, Mr. Reidenour testified that recent studies indicate that vibration on the deck helps to consolidate the concrete adding strength and may in fact have a beneficial effect on same. (N.T. 558). Mr. Spriggle testified at hearing that he was unaware of anyone who had expressed a concern that the vibrations on the deck could detrimentally affect the compressive strength results of

the concrete cylinders. (N.T. 526). The acceptance cylinders were placed on the bridge decking at the sole discretion of Bear Creek. Under Section 704.2(d) of the Specifications, Bear Creek bore the responsibility to adequately protect the acceptance cylinders. If the cylinders experienced vibrations while on the deck, the responsibility for same should rest on Claimant. Their failure in protection should not be held against the Department.

The record is void of any evidence that alleged undercambering of the bridge deck beams were in any way contributory to the low compressive strengths given. At the hearing, Mr. Myers, testified that he had no reason to believe that the under camber of the deck beams caused the low compressive strengths given of the subject concrete. (N.T. 258).

Although progression to Phase III was halted by PennDOT's denial of Bear Creek's traffic diversion request, their denial was based upon the fact that the Phase II bridge deck was deficient of the required compressive strength. Such a deficient strength could cause a danger to the motoring public. Alternatively, Bear Creek had also acknowledged that its traffic deviation request was consequent to a delay experienced by Bear Creek in obtaining the materials necessary for the Phase II repour. The delay to Bear Creek was based wholly upon their own inadequate inapt performance.

ORDER

AND NOW, this _____ day of _____, 1996, upon due consideration of the pleadings, testimony, evidence, and other submissions of the parties in this matter, it is hereby **ORDERED** and **DECREED** that the Claim filed by the Plaintiff, Stabler Construction, Inc. and Bear Creek Construction, Inc., against the Defendant, Commonwealth of Pennsylvania, Department of Transportation, is **DENIED** in its entirety.

Each party to bear its own costs and attorney fees.

BOARD OF CLAIMS

Opinion Signed
June 7, 1996

David C. Clipper
Chief Administrative Judge

Louis G. O'Brien
Engineer Member

James W. Harris
Citizen Member