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This matter presents cross-appeals of the Pennsylvania Department of Transportation (PennDOT) and Wayne Knorr, Inc. (Knorr) from a decision of the Board of Claims (Board). The parties’ claims primarily arise out of various delays and disruptions encountered during a road improvement project on a state road in Armstrong County, Pennsylvania. The parties raise numerous contentions. Upon review, we affirm.

I. Introduction

This case arises out of a contract between Knorr, a Pennsylvania highway contractor, and PennDOT for renovation of a 2.033 mile stretch of State

Road 28 (SR-28) in Armstrong County between the boroughs of Distant and South Bethlehem.

In the spring of 1999, PennDOT solicited bids for the project. Knorr was the successful bidder for the contract. The primary elements of the project involved: addition of a third, truck-climbing lane to the existing two-lane road; renovation and widening of the roadway shoulder along SR-28's northbound lane; and, demolition and replacement of an existing bridge. The contract called for Knorr to complete the project within 368 days of PennDOT's Notice to Proceed for a base contract price of \$3,963,884.40.

After a brief initial delay (which is not at issue here), PennDOT issued the Notice to Proceed on August 12, 1999, resulting in a planned contract completion date of August 13, 2000. As a result of various delays and disruptions, however, Knorr did not complete the project as scheduled. Rather, the project was considered substantially complete as of December 7, 2000. Knorr continued to perform a small amount of contract and force-account¹ work intermittently until August 2001.

Knorr subsequently filed a complaint with the Board seeking \$825,273, plus interest for alleged acts and omissions by PennDOT that caused Knorr to incur delay and disruption damages. Hearings ensued before the Board.

¹ Force account work is work, additional to the work called for in the contract, ordered to be completed by PennDOT, and agreed to be paid on a time and material basis. Dep't of Transp. v. Anjo Constr. Co., 666 A.2d 753 (Pa. Cmwlth. 1995).

Following 10 days of hearings, about 2100 pages of testimony, and more than 200 exhibits, the Board issued a comprehensive opinion, consisting of 305 findings of fact, 85 conclusions of law and more than 50 pages of discussion. A summary of the Board's findings follows.

II. Board's Findings

A. Project Background

Knorr is a corporation with offices at 7925 Old Berwick Road, Bloomsburg, Pennsylvania. During the period relevant to this litigation, James Knorr, son of Wayne Knorr, served as president of Wayne Knorr, Inc.

On August 3, 1999, PennDOT and Knorr executed Contract No. 101131 (Contract), for the rehabilitation and expansion of a roughly two-mile portion of SR-28. The project involved the expansion, renovation and repaving of the roadway between Stations² 1776+49 and 1883+80.

Moving generally in a southerly-to-northerly direction, the proposed roadway renovation and lane expansion was to begin at Station 1776+49, near the Borough of Distant, and terminate in the Borough of South Bethlehem at Station 1883+80. At Station 1780, the plans called for new construction of a third lane on the west side of the roadway to be used as a truck-climbing lane. The proposed

² "Stations" are a method of marking locations along a roadway project. For the SR-28 project, each successive station equals 100 feet in distance. Thus, the distance between Station 1813 and Station 1837, marking the length of the truck-climbing lane Knorr constructed, is 2400 feet. Increments of less than 100 feet are indicated by adding the number of feet to the station number (e.g., Station 1826+13 to Station 1827+26, or 113 feet).

three-lane stretch of roadway continued for approximately 1.12 miles, where the highway transitioned from three lanes back to two lanes.

The area to be widened to create the truck-climbing lane was located primarily on the west side of the project, adjacent to the southbound travel lane, but it also included a portion of the east side of the project between Stations 1780 and 1813. On the side opposite the new truck-climbing lane and elsewhere along the project, the plans called for renovation of the roadway shoulder. Renovation of the roadway shoulder was to be done, for the most part, by removing (milling) the top of the shoulder material and replacing it with four inches of paving material. In some areas, however, the plans called for “full-depth widening” of the roadway shoulder (excavating down 19 inches and laying new sub-base and paving materials). On the side opposite the new truck-climbing lane between Stations 1820 and 1834, the plans called for renovation of the shoulder by the four-inch milling method. On the side opposite the truck-climbing lane between Stations 1834 and 1844, the plans called for a combination of the four-inch milling method and full-depth widening of the shoulder.

In addition, slightly north of the new truck-climbing lane, between Stations 1851 and 1852, SR-28 crosses a small creek called Bostonia Run. The Contract plans called for demolition and replacement of the existing bridge over Bostonia Run, with construction to be phased in such a way as to allow simultaneous installation of new bridging while maintaining one travel lane for traffic at all times. The new bridging was to be fabricated from matching “box culvert” sections.

The Contract plans provided for the roadway renovation work to be constructed in accordance with PennDOT's project specifications, plans and schedule. Among other things, the Contract utilized PennDOT's "1994 Publication 408 Specifications" (408 Specifications). Board of Claims Op., 7/25/08, Finding of Fact (F.F.) No. 6.

B. D-476 Contract Schedule

As to the schedule to be used for construction activities on the project, Section 108.03 of the 408 Specifications, relating to performance and progress on a construction project, states, in relevant part, "if no schedule is presented for approval [by the contractor] at the preconstruction meeting, the schedule contained in the contract will be the official schedule for all purposes" F.F. No. 16. Included in PennDOT's bid package for the project was a Form "D-476 Distribution of Contract Time," which is a "straight line diagram of construction sequence and activities." F.F. No. 15.

On July 30, 1999, representatives of PennDOT and Knorr attended a preconstruction meeting, at which a PennDOT representative noted Knorr would submit a critical-path-method (CPM) schedule. About a week later, however, John Fry, PennDOT's Engineering District 10-0 Assistant Engineer for Construction, issued the Notice to Proceed and indicated Knorr "outlined [its] method of procedure and agreed that it [would] be carried on in accordance with our Schedule of Operations on Form D-476" F.F. No. 18.

Although Knorr may have indicated it would submit a CPM schedule, both Fry and Sarah Cunningham, PennDOT's Assistant Construction Engineer, explained it was not uncommon on PennDOT projects for a contractor to use the D-476 form as the official schedule of construction activities. Fry also testified Knorr had the right to use the D-476 schedule as the official schedule. During her testimony, Cunningham confirmed that during the preconstruction meeting Knorr indicated it would conduct its sequence of construction basically in accordance with the D-476 schedule. Cunningham had no objection to that arrangement. In fact, no PennDOT official involved on the project objected to Knorr's use of the D-476 schedule as the official project schedule, and no PennDOT official ever requested a CPM schedule in writing. In addition, Knorr never submitted a CPM schedule to PennDOT for approval.

In short, Section 108.03 of the 408 Specifications and PennDOT officials managing the SR-28 project contemplated the D-476 schedule would become the official schedule for the project if the contractor did not provide an alternative schedule approved by PennDOT. Because Knorr did not provide an alternative schedule, the D-476 schedule became the official project schedule.

C. Knorr's Modification to the D-476 Schedule

Knorr's principal scope of work on the project was the addition of the truck-climbing lane, which required Knorr to excavate large amounts of dirt from the slope on the west, uphill side of the project.

The D-476 schedule provided excavation work on the project was to begin November 1, 1999 and be completed by April 23, 2000, while drainage work was to begin December 5, 1999 and finish May 14, 2000. The D-476 schedule also showed sub-base and paving work was to begin on April 10, 2000 and conclude on July 29, 2000.

Although PennDOT's D-476 schedule showed Knorr working throughout the winter of 1999-2000, the only major construction activity shown during this time was the above-referenced drainage work. PennDOT's D-476 schedule also showed Knorr was to install the box culvert replacement across Bostonia Run between August and November 1999.

However, Section 401.3 of the 408 Specifications contained a general prohibition on roadway paving between October 31 and April 1. The D-476 schedule showed Knorr's work on the box culvert replacement, which required at least some paving adjacent to the box culvert, would extend beyond this general paving prohibition.

The Board found Knorr had reasonable and significant concerns that the box culvert replacement could not be completed before PennDOT's prohibition on winter paving. Among these concerns was the fact that working through the winter would greatly decrease efficiency and raise safety and practicality issues. Knorr did not believe it could safely run equipment on the hillside during winter weather and did not deem it safe to redirect traffic or place flagmen on the roadway during winter. Because of these concerns, which the Board found were reasonable and well-founded, Knorr instituted a "winter shutdown" from approximately

December 15, 1999 to March 15, 2000, which roughly corresponded to the seasonal prohibition against winter paving in the 408 Specifications.

In order to compensate for not working over the winter months and to address the practical inability to replace the box culvert before winter, yet maintain the overall progress required by the D-476 schedule, Knorr significantly accelerated its bulk excavation and drainage work in the summer and fall of 1999. Knorr commenced excavation work on August 23, 1999 and commenced drainage work on August 31, 1999. By accelerating its bulk excavation and drainage work, and largely completing those tasks before temporarily ceasing work on the project around December 15, 1999, Knorr had ample time to replace the box culvert and perform its sub-base and paving work in a timely manner per the D-476 schedule when it remobilized on the project around March 15, 2000.

By March 15, 2000, Knorr completed the preparations necessary to commence most of its sub-base and paving work, which the D-476 schedule anticipated beginning around April 10. Despite its readiness to replace the box culvert and begin sub-base and paving activities so as to maintain the D-476 schedule, Knorr alleged it was delayed in its work from this point until substantial completion of the project due to numerous acts and omissions by PennDOT. These acts and omissions included: design conflicts in the nature of numerous missing or incorrect grades/elevations in PennDOT's plans (cross sections and profiles); suspension of work in the area of the truck-climbing lane because of slope instability as well as PennDOT's extended delay in addressing this problem; PennDOT's delay in providing redesign specifications for a portion of the roadway

shoulder; PennDOT's delay in supplying missing roadway grades in the vicinity of the box culvert bridge; and, PennDOT's failure to timely schedule a semi-final inspection on the project.

Because of certain extra work performed on the project, PennDOT granted Knorr a 45-work-day Contract extension (61 calendar days) in August 2000, resulting in a revised Contract completion date of October 13, 2000.

D. Missing or Incorrect Grades/Elevations in PennDOT's Plans

In late-December 1999, Knorr's then-project foreman wrote to Sarah Cunningham to inform her of certain problems on the project. Among other things, the letter stated "the profile grade point does not match the cross section plotting" in several portions of the project. F.F. No. 86. The letter also stated "there are no super elevations given on the plans" for two other portions of the project. Id. The letter noted Knorr "enclosed a copy of the cross sections of the existing pavement on the entire project [taken] on December 7, 1999." Id. The purpose of the letter was to request PennDOT resolve certain design issues during the winter shutdown so when Knorr returned to work in March 2000 it could begin widening the roadway and paving the areas where the missing or inconsistent elevation information was needed.

In March 2000, Knorr received "revised cross-slopes" from PennDOT. About a month later, Knorr received revised roadway "grades and elevations." Upon receiving the revised grades/elevations, Knorr could not

immediately begin sub-base and paving work; rather, it needed to recompute the roadway profiles and cross-sections based on this revised information.

When Knorr received the revised elevations, personnel from Knorr and PennDOT completed the necessary recomputation of roadway grades/elevations and revised cross sections and paving commenced on April 13, 2000. The Board determined the reasons for the delay in supplying the revised elevations from the date of Knorr's request were never explained, and the evidence presented by PennDOT did not provide an explanation.

The Board stated the missing and incorrect elevations on PennDOT's initial plans were a material cause of delay and disruption to Knorr's sub-base and paving work. The Board stated PennDOT delayed and disrupted Knorr's progress in its sub-base and paving operations because PennDOT did not timely supply the necessary elevations. The Board determined this delay and disruption occurred from March 15 until April 4, 2000, the date on which Knorr received a sufficient portion of the revised grades/elevations to commence this work. By failing to supply the necessary roadway grades/elevations in a timely manner, PennDOT failed to provide plans adequate to construct the roadway in a timely manner, failed to take steps necessary to ensure progress on the project, and actively interfered with Knorr's sub-base and paving operations.

E. Suspension of Work Due to Slope Instability

A large part of the Contract work involved creation of a third lane for truck-climbing, which was to run uphill and southward beginning at Station 1837

and ending at Station 1813 (approximately 2400 feet). In order to create this truck-climbing lane, Knorr had to excavate a substantial portion of the hillside between the two stations adjacent to the southbound travel lane. This truck-climbing lane was also to have along its entire western length an eight-foot wide “drop zone” along the bottom of the slope to catch any rock or other material that might slide down the excavated slope.

In September 1999, Knorr notified PennDOT that a part of the slope created when Knorr excavated the hillside appeared unstable. Sometime after commencement of the winter shutdown, two areas of the slope immediately west of the truck-climbing lane failed. Although these areas were limited in length, a “fault line” that reflected an initial cracking of earth along the slope ran through a substantial portion of the 2400-foot length of the newly cut slope. While awaiting direction as to how PennDOT wished to address the failures and apparent slope instability, Knorr ceased work on the 2400-foot stretch along the southbound truck-climbing lane over concern that further slope failures and future corrective work would ruin any sub-base and paving work laid down to create the new truck-climbing lane before the slope problem was addressed.

In March 2000, PennDOT personnel were on-site to examine the slope failure. A PennDOT representative recommended Knorr dig the loose material from the slide areas and place geotextile material and rock in the excavated area. For the remaining length of the slope, the representative recommended Knorr wait until an area of the slope failed and then fix it in the same manner.

Knorr disagreed with this proposed solution. Instead, Knorr wanted PennDOT to either lay back parts of the slope to a lesser angle of incline or to re-excavate and place rock along the length of the slope to prevent further sliding of soil and rock down the slope. This was due in part to the fault-line crack that appeared through most of the slope cut. Shortly thereafter, PennDOT officials and Knorr personnel attended a project progress meeting. At the meeting, Sarah Cunningham instructed Knorr to repair only the failed areas of the slope substantially as per the method recommended by PennDOT's representative.

In mid-April 2000, PennDOT representatives were again on-site to review the slope failure problem. The representatives informed Knorr the slope would be cut back to the cross-section limits, the loose material would be removed, an 18-inch combination drain and piping would be installed, and, after the affected areas of the slope drained, a final solution would be proposed.

In early-May 2000, PennDOT personnel directed Knorr to perform slope repairs from Station 1826 through 1834 on a force-account basis. Between May 3 and 8, 2000, Knorr performed slope repair #1, between Stations 1826+13 and 1827+26.

In order to perform slope repair #2, PennDOT first had to obtain permission to enter land managed by the Pennsylvania Game Commission, which it received. PennDOT then made additional revisions to its slope repair protocol for slope repair #2. In late-June 2000, Knorr performed slope repair #2, from Station 1827+32 to Station 1827+77 as directed by PennDOT. In late-August

2000, PennDOT inspected and approved slope repair #2. About two weeks later, PennDOT inspected and approved slope repair #1.

The Board determined Knorr's concern that the magnitude of failure along the 2400-foot length of newly cut slope would be much more extensive than the portion that actually failed was reasonable. The Board determined the distinct possibility existed that Knorr would have had to bring heavy equipment over newly paved portions of the roadway to repair areas of the slope that experienced failure even with the presence of the eight-foot wide drop zone had Knorr proceeded with its sub-base and paving work along the truck-climbing lane. The Board stated such repair efforts would have significantly damaged any newly laid sub-base or paving in the truck-climbing lane. The Board also determined Knorr's position on this issue, that it wanted the slope problems resolved before continuing sub-base and paving work for the truck-climbing lane, and its suspension of work until repairs were completed, was reasonable.

The Board stated PennDOT's initial failure to provide plans that did not result in slope instability and its lengthy consideration of the slope-instability issue were the material cause of the delay and disruption to Knorr's sub-base and paving operations along the 2400-foot stretch of the truck-climbing lane. As a result, Knorr's sub-base and paving work could not reasonably begin along this stretch until late-June 2000.

According to the D-476 schedule, by the time sub-base work actually began in the area of the truck-climbing lane from Station 1813 to Station 1837, the work was well behind schedule and only about a month remained to complete all

paving on the project. By failing to timely address the slope instability and slope repair problems, PennDOT failed to provide adequate plans and direction regarding design specifications necessary to construct the roadway in a timely manner, failed to take steps necessary to ensure progress of the project and actively interfered with Knorr's sub-base and paving operations. The Board determined that even if Knorr was compensated for the actual labor and material used to perform the slope repairs on a force-account basis, it was not compensated for the time lost waiting for PennDOT to finally address the slope repair and instability problem and to direct Knorr how PennDOT wished it to perform the extra work of actually doing the slope repairs.

F. PennDOT's Changes to the Roadway Shoulder from Stations 1820 to 1844

On April 13, 2000, after returning to the project following the winter shutdown, and after resolving the missing roadway grades/elevations issue, Knorr attempted to begin paving operations on the portions of roadway relatively unaffected by the slope instability. Between Stations 1820 to 1834, the Contract required Knorr to resurface two to four feet of the roadway shoulder by milling it down and replacing it with approximately four inches of blacktop. However, PennDOT subsequently received a report of roadway shoulder and/or temporary pavement cracking along a 77-foot segment at Stations 1783+96 to 1784+73. This area was milled and overlaid with the four inches of blacktop in the same manner as Knorr was to mill and overlay the shoulder at Stations 1820 to 1834. Because of the failing pavement between Stations 1783+96 and 1784+73, PennDOT decided to change the method for widening the roadway shoulder between Stations 1820 to 1834.

In May 2000, Knorr was advised PennDOT would change its method for widening the roadway shoulder between Stations 1820 to 1834. However, Knorr was not advised of the details of the new specifications for widening the shoulder between Stations 1820 and 1834 until they were approved by PennDOT on May 9, 2000. The change required Knorr to perform “full-depth” widening of the shoulder.

Even on May 9, 2000, Knorr did not receive written plans from PennDOT for the changes to the roadway shoulder widening from Stations 1820 to 1834. Instead, Knorr was directed to build it as it had the other full depth widening shoulder areas. As a result, Knorr was delayed and disrupted in its work between Stations 1820 to 1834 from May 1 until May 9, 2000.

Knorr claimed the new specifications by which it was required to widen the roadway shoulder from Station 1820 to Station 1834 required it to cut back into the existing roadway further than the four inch milling specification required. According to Knorr, this meant there was now only 18 to 19 feet of roadway width between Stations 1820 to 1834, and, as a result, Knorr did not have two 10-foot travel lanes to allow unrestricted traffic to travel through Stations 1820 to 1834 during shoulder reconstruction. Thus, Knorr had flagmen directing traffic along this stretch 24 hours-a-day during the revised shoulder renovation work. However, the original four-inch milling method for renovating the roadway shoulder from Stations 1820 to 1834 would also have intruded into the adjacent travel lane during milling and would also have required flagmen to direct traffic through the area during the shoulder reconstruction. In addition, Knorr completed the entire revised widening procedure in about 44 hours. As a result, the Board

determined PennDOT's change to the roadway shoulder reconstruction from Stations 1820 to 1834, in and of itself, did not materially increase Knorr's costs for flagmen or maintenance and protection of traffic (MPT).

Between Stations 1834 to 1844, the original Contract plans required Knorr to perform some full-depth widening of the roadway shoulder by approximately two to three feet. For Stations 1834 to 1844, however, PennDOT also changed the original plan by expanding the already planned full-depth shoulder widening by an additional five to six feet. PennDOT's decision to expand the width of this roadway shoulder required PennDOT to furnish new grades/elevations before Knorr could proceed with this work. However, Knorr did not receive a final plan for the widening of the roadway shoulder until July 19, 2000. Thus, Knorr was delayed and disrupted in this roadway shoulder work from May 1 to July 19, 2000.

The Board determined that by changing the original plans for roadway shoulder renovation in these areas, and by failing to provide timely direction or plans adequate to construct the changes to the roadway shoulder, PennDOT failed to provide adequate plans to construct the roadway in a timely manner and actively interfered with Knorr's shoulder renovation work. However, the Board determined PennDOT's change to the original plans for roadway shoulder renovation between Stations 1820 and 1844 did not materially alter Knorr's ability to maintain two travel lanes for traffic and did not cause Knorr to incur a material increase in MPT costs.

G. PennDOT's Delay in Supplying Missing Roadway Grades/Elevations in the Vicinity of the Box Culvert

The Contract plans also called for demolition and replacement of an existing bridge across Bostonia Run between Stations 1851 and 1852. The new bridge was to be fabricated from matching pre-cast concrete box culvert sections and was to be installed in two phases so as to allow one travel lane for traffic at all times.

The D-476 schedule showed work on Phase I of the box culvert was to occur between August 24 and September 24, 1999, while work on Phase II was to occur between October 1 and November 7, 1999. During late-summer 1999, however, Knorr decided to delay replacement of the box culvert until spring 2000 and instituted a suspension of work on the project during the winter shutdown.

On March 15, 2000, Knorr re-mobilized and commenced work on the box culvert bridge. Work on Phase II could not commence until the Phase I half of the bridge was demolished and the Phase I box culvert sections were installed. After shifting traffic over to the Phase II traffic lane and removing the Phase I lane portion of the bridge, Knorr constructed the concrete footers for the Phase I box segments in late-March 2000. Knorr set the Phase I lane box in place approximately two weeks later.

Sometime shortly before Knorr set the Phase I box culvert section in place, however, Knorr employees apparently found incorrect elevations for a portion of the roadway running up to and around this box culvert. The problems with the roadway grades/elevations persisted through April 2000.

On May 17, 2000, Knorr finished backfilling the site of the Phase I box culvert section. Because of uncertainty regarding grades/elevation around the box culvert, however, Knorr performed no further work on or around the box culvert until it received revised grades and elevations for the area from Stations 1845 to 1854.

The parties presented conflicting evidence as to when Knorr received the revised grades and elevations. Ultimately, the Board determined PennDOT did not provide Knorr with the final corrected grades/elevations needed to construct the roadway adjacent to the box culvert until July 10, 2000. Within a day or two of receiving the corrected roadway grades/elevations, Knorr commenced the work necessary to begin paving the Phase I lane of the box culvert, which progressed through August 2, 2000, at which time Knorr paved the Phase I lane portion of the box culvert bridge. On August 7, Knorr switched traffic over to the Phase I travel lane and commenced work on Phase II of the box culvert. Knorr completed Phase II of the box culvert in the late summer of 2000.

The Board determined PennDOT caused the delays and disruptions to the paving operations on the roadway around the box culvert because of its failure to supply adequate roadway grades/elevations to construct the roadway in a timely manner. The Board stated this failure, which delayed and disrupted Knorr's sub-base and paving work persisted from April 11 until July 10, 2000. The Board determined that by failing to supply the necessary roadway grades/elevations in a timely manner, PennDOT failed to provide plans adequate to construct the roadway in a timely manner, failed to take steps necessary to progress the project

and actively interfered with Knorr's sub-base and paving operations around the box culvert.

H. "Semi-Final Inspection"

On November 8, 2000, Knorr requested PennDOT conduct a semi-final inspection of its work on the project. By letter dated November 17, 2000, PennDOT notified Knorr a semi-final inspection meeting would occur on December 7, 2000. At the semi-final inspection meeting, a list of items was produced that Knorr had to complete to finish the project. This list included work to be completed under the original Contract terms as well as extra work to be paid by force-account payments. Nevertheless, work on the project was considered substantially complete as of the December 7, 2000 inspection.

Knorr asserted PennDOT delayed completion of the project by delaying the inspection it requested on November 8 until December 7, 2000. However, the Board concluded the evidence was insufficient to show PennDOT unduly delayed the semi-final inspection or that Knorr incurred damages as a result.

I. Knorr's Self-Inflicted Problems

In addition to the delays and disruptions caused by PennDOT, the Board determined Knorr itself created a portion of the delay and disruption it experienced on the project. The Board found these "self-inflicted" problems included Knorr's own mistakes in construction of the roadway and adjacent structures, as well as ongoing problems with equipment breakdown or malfunction, flawed work procedures, multiple changes in supervisor and foremen and work

being re-done or corrected. Notable among the problems were those experienced with Knorr's paving machine.

J. Knorr's Claimed Damages

Knorr and its expert identified seven problems that disrupted Knorr's work and caused 116 days of delay to substantial completion of the project. The Board generally credited Knorr's expert's testimony and his report with respect to his allocation of the 116 days of total project delay to these seven problems. The Board also determined Knorr's self-inflicted problems materially contributed to the delay and disruptions it experienced.

Because the claimed 29 days of delay (of the total 116 days of claimed delay) caused by the scheduling of the semi-final inspection occurred near the end of the project, the Board determined the other delays and disruptions largely ran their course by November 8, 2000. As such, the Board subtracted the entire 29 days Knorr waited for semi-final inspection from the 116 days of claimed delay, leaving 87 days of project delay caused by PennDOT and Knorr's self-inflicted problems.

The Board determined PennDOT's active interference with Knorr's work caused five distinct problems. Specifically, the Board found PennDOT actively interfered with Knorr's work by failing to: timely provide necessary roadway grades and elevations; timely address slope repair issues; timely confirm the change in construction of roadway shoulders to full-depth widening between Stations 1820 and 1834; timely supply roadway grades and elevations for the expanded full-depth widening between Stations 1834 and 1844; and, failing to

timely supply missing or corrected roadway grades for the areas surrounding the box culvert bridge.

The Board further determined the five problems PennDOT caused, coupled with Knorr's self-inflicted problems, combined for a total of 87 days of delay to completion of the project. Based on the evidence, the Board determined five-sixths of the 87 days of project delay (72 days) were caused by the five problems caused by PennDOT's active interference and one-sixth (15 days) were caused by Knorr's self-inflicted issues. The Board further determined that, comparing 72 days of actual delay it attributed to PennDOT with the total 116-day delay claimed by Knorr, PennDOT caused 62% of Knorr's actual delay damages.

K. Knorr's Delay Damages

For the categories of "extended supervision," "extended equipment," and "extended MPT," Knorr claimed \$301,876 in delay damages based on 116 days of claimed delay. However, because the Board found PennDOT was only responsible for only 72 of the 116 days of claimed delay, only 62% of the delay damages incurred by Knorr were attributable to PennDOT.

Additionally, the Board determined, while Knorr's expert's delay damage calculation for the categories of extended supervision, extended equipment and extended MPT was generally credible, certain adjustments were needed to more accurately reflect the actual damages Knorr incurred because of the project delay.

For “extended supervision,” Knorr claimed \$32,647 in delay damages, comprised of \$22,975 in labor costs, plus a 40% markup and an additional markup of 1.5% for bond costs. Pursuant to the force account markup provisions contained in Section 110.03(d)(7) of the 408 Specifications, Knorr’s expert added a 40% markup to the costs of extended supervision. The Board found, because the use of force account markups was frequently employed by both PennDOT and contractors to calculate payments due for extra work presented as damage claims, the use of the markups in Section 110.03(d)(7) was appropriate. However, because the 40% markup in Section 110.03(d)(7) already included the cost of a bond markup, the Board reduced the damages claimed for extended supervision by the 1.5% bond markup. Thus, the Board determined the extended supervision damages incurred by Knorr for the entire 116-day delay period was \$32,164.

For the category of “extended equipment,” Knorr claimed \$146,407 in delay damages, which consisted of \$137,375 in equipment costs plus a 5% markup and an additional 1.5% markup for bond costs. The Board adopted the 5% markup to equipment costs per Section 110.03(d)(7) of the 408 Specifications and subtracted the 1.5% bond cost for the reasons explained above, resulting in \$144,244 for claimed extended equipment costs. The Board credited Knorr’s expert’s testimony and found although the specific pieces of equipment utilized in the extended delay period were not individually listed in his report, the actual cost was accurately reflected by the cost code for the specific task identified in his report’s extended equipment cost listing. However, the Board eliminated \$29,581 from the extended equipment costs for the item listed as “Equipment Maintenance and Repairs” because it found this item was duplicative of the ownership and maintenance costs already contained in the remaining items listed in the extended

equipment costs. Thus, the Board determined the extended equipment damages incurred by Knorr for the entire 116-day delay period was \$113,184.

For the category of “extended MPT,” Knorr claimed \$122,822 in delay damages. This figure was calculated from \$92,976 in labor and material costs, plus a “blended” 30.15% markup on the actual mix of labor and material costs and a 1.5% bond markup. The Board found instead of using the blended markup rate of 30.15% for the “mix” of labor and material costs, the proper markups (as prescribed in Section 110.03(d)(7) of the 408 Specifications) were 40% for labor and 25% for material costs. In addition, the Board eliminated the 1.5% bond cost for the previously indicated reasons. Thus, the Board determined the extended MPT damages incurred by Knorr for the entire 116-day delay period was \$126,457.

In sum, the Board determined Knorr incurred delay damages for extended supervision, extended equipment, and extended MPT for the entire 116-day delay period of \$271,805. Of these total extended costs, the Board stated the 62% attributable to PennDOT’s active interference with Knorr’s work resulted in a total delay damage award of \$168,519.

L. Knorr’s Claimed Disruption-Related Damages

Knorr also claimed a total of \$422,170 in disruption-related damages, consisting of \$284,276 in paving and sub-base work inefficiency, \$113,692 in MPT inefficiency, and \$24,202 in additional excavation costs.

Knorr asserted, and the Board found, the same five problems caused by PennDOT actions/inactions that delayed Knorr's work on the project, together, also disrupted and interfered with Knorr's work and caused Knorr to incur substantial additional costs for disruption and work inefficiencies in the same five-sixths to one-sixth ratio.

Specifically, the Board stated, PennDOT's active interference and Knorr's own self-inflicted problems, together, required Knorr to: excavate and pave the roadway and roadway shoulder in a piecemeal fashion, rather than in a linear and continuous manner as contemplated; and, to shift back and forth between paving and excavation work, all of which disrupted Knorr's planned, continuous work flow and caused inefficient construction. The Board stated PennDOT's active interference with Knorr's work caused five-sixths (or 83%) of the inefficiencies (or disruption-related) damages Knorr experienced.

For the category of paving and sub-base inefficiency, Knorr claimed \$284,276 in disruption-related damages. Knorr's expert on construction delays, disruptions and damages, used the "measured mile" methodology in calculating Knorr's damages for this category. He used the period from May through August 2000 as the "impacted" period of performance because, during this period, PennDOT's five acts and omissions, substantially disrupted Knorr's work. Knorr's expert used the period from September 1 through October 31, 2000, as the baseline (unimpacted) period, because he found the problems substantially resolved by that time. Knorr's expert compared Knorr's sub-base and paving work in the two periods based on the cost per square yard of paving material placed and on the cost per ton of paving material placed. The Board found these calculations reasonably

accurate and credible as a measure of the relative inefficiency Knorr experienced in its sub-base and paving operations.

After calculating the total cost of Knorr's inefficiency in its sub-base and paving operation as \$232,306, Knorr's expert applied a blended markup rate of 20.56% (arrived at by a weighted average of the labor used at 40% markup and the equipment used at 5% markup in these operations) and a 1.5% bond markup to arrive at a total inefficiency damage claim for sub-base and paving operations of \$284,276. The Board found the blended markup rate of 20.56% reasonable. As a result, the Board found Knorr incurred \$280,075 in additional damages for paving and sub-base inefficiency calculated by removing only the 1.5% bond cost from the total claimed by Knorr, and 83% (or \$232,462) was caused by PennDOT's active interference with Knorr's sub-base and paving operations.

For the category of MPT inefficiency, Knorr claimed \$113,692 in disruption-related damages, consisting of additional unanticipated MPT costs of \$86,063, a blended markup of 30.15% equal to \$25,948, and a 1.5% bond amount. Knorr asserted PennDOT's decision to change the planned specifications for shoulder reconstruction "mid-project" for Stations 1820 to 1844 materially reduced the opportunity for two travel lanes during construction and was the material factor in increasing the additional unanticipated MPT costs. Crediting the testimony of PennDOT's expert, however, the Board determined Knorr did not incur a material increase in its MPT costs because of PennDOT's decision to change its originally planned specifications for roadway shoulder renovation.

Knorr also claimed \$24,202 in damages based on its excavation of 672.29 cubic yards of dirt and other material associated mainly, with the “full-depth widening” of the roadway shoulder. The Board agreed Knorr incurred \$24,202 in damages for additional work-excavation.

Ultimately, the Board determined the total amount of disruption related damages and additional work-excavation damages Knorr incurred was \$256,664.

M. Summary of Damages

In sum, the Board determined Knorr incurred: \$168,519 in delay damages, \$232,462 in damages for paving and sub-base inefficiency, and \$24,202 in damages for additional work-excavation. Thus, the Board determined Knorr incurred total damages (without interest) of \$425,183.

N. PennDOT's Counterclaim for Construction Engineering Liquidated Damages

As a result of the initial 10-day delay in the notice to proceed and an additional 61-day extension granted by PennDOT, the extended required completion date for the project was October 13, 2000. The semi-final inspection meeting occurred on December 7, 2000, at which time Knorr’s work on the project was substantially complete. The last day of physical work on the project was performed on August 8, 2001. As a result, PennDOT asserted it was entitled to construction engineering liquidated damages at a rate of \$650 per day for 299 days calculated from the extended project completion date of October 13, 2000 to August 8, 2001, for a total of \$194,350.

The Board ultimately awarded construction engineering liquidated damages in PennDOT's favor of \$650 per day for only 18 days, resulting in total construction engineering liquidated damages of \$11,700. Offsetting PennDOT's award of \$11,700 against Knorr's award of \$425,183 resulted in a net award to Knorr of \$413,483. Applying 6% per annum to this amount from July 25, 2003 (\$124,045), to the date of the Board's order, produced a total award to Knorr of \$537,528.

Both parties now appeal to this Court.³

As to standard of review, this Court shall affirm the adjudication unless it finds the adjudication is in violation of the constitutional rights of the appellant, or is not in accordance with law, or the statutory provisions controlling practice and procedure of Commonwealth agencies have been violated in the

³ Knorr moves to strike Sections I, III.B, IV and V of PennDOT's "Second Brief and Reply Brief," alleging it fails to conform to Pa. R.A.P. 2113(a). Rule 2113(a) allows an appellant to file a brief in reply to matters raised in an appellee's brief that were not previously raised in appellant's brief. Based on our review, we conclude PennDOT's reply brief complies with Pa. R.A.P. 2113(a) because it replies to issues raised in Knorr's brief. See Caln Nether Co., L.P. v. Bd. of Supervisors of Thornbury Twp., 840 A.2d 484 (Pa. Cmwlth. 2004); see also Pa. R.A.P. 2136(b) (briefs in cases involving cross-appeals). Thus, we deny Knorr's motion to strike portions of PennDOT's reply brief.

In addition, PennDOT moves to strike portions of Knorr's initial brief and its reply brief. In particular, PennDOT asserts the "Counter-Statement of the Case" in Knorr's initial brief should be stricken because it contains legal argument. Pa. R.A.P. 2217 requires a balanced synopsis of the proceedings of a case and expressly prohibits the inclusion of argument. Upon review, we believe Knorr's Counter-Statement of the Case contains a sufficiently balanced recitation of the facts.

PennDOT further argues a portion of Knorr's reply brief should be stricken because it contains "unauthorized re-argument, counter-arguments and even attempts to raise entirely new issues." Upon review, we believe Knorr's reply brief complies with Pa. R.A.P. 2113(a) because it replies to issues raised in PennDOT's Brief. See also Pa. R.A.P. 2136(b). Therefore, we deny PennDOT's motion to strike portions of Knorr's initial brief and reply brief.

proceedings before the agency, or any finding of fact made by the agency and necessary to support its adjudication is not supported by substantial evidence. 2 Pa. C.S. §704.

It is not within this Court's province to retry the case or to make independent factual findings and conclusions of law. A.G. Cullen Constr., Inc. v. State Sys. of Higher Educ., 898 A.2d 1145 (Pa. Cmwlth. 2006). To the contrary, the Board is entrusted with the duty of fact-finding, and we may neither assist nor interfere with this function. Id. The Board's role as fact-finder includes determining the credibility of witnesses and resolving conflicts in the evidence. Id. The Board's findings need not be supported by uncontradicted evidence, so long as they are supported by substantial evidence. Id. If the Board's findings are supported by substantial evidence, they are binding on this Court. Id.

III. PennDOT's Appeal

In its appeal, PennDOT raises five issues. Specifically, PennDOT asserts the Board erred in: failing to determine Knorr breached the Contract by repeatedly failing to provide an updated project schedule; awarding Knorr delay damages despite the fact it determined Knorr was concurrently responsible for project delays; allocating the number of days of delay attributable to each party; determining Knorr's claim was timely; and, failing to grant PennDOT's request for the full amount of construction engineering liquidated damages it claimed.

A. Project Schedule

PennDOT first argues the Board erred in failing to determine Knorr breached the Contract when it performed worked inconsistently with the project

schedule in the Contract without submitting an updated, detailed schedule for approval. PennDOT contends it is undisputed Knorr repeatedly represented to PennDOT a schedule would be forthcoming after it deviated from the D-476 schedule. PennDOT asserts Section 108.03 of the 408 Specifications specifically states “[n]o claim of any kind” can be pursued before the Board using another schedule. PennDOT argues Knorr’s breach is material because its failure to work from a schedule prevented PennDOT from allocating its resources on the project with any efficiency.

PennDOT’s present argument on this issue differs somewhat from the argument it presented to the Board. Before the Board, PennDOT argued Knorr breached the Contract by failing to provide a CPM schedule for the project. It asserted that near the beginning of the project, Knorr agreed to supply a CPM schedule that PennDOT could use to monitor Knorr’s work and to document any project delays. PennDOT further argued Knorr stated it would submit a CPM schedule and this representation was recorded in a memorandum drafted by Sarah Cunningham; Mr. Knorr met with a PennDOT representative regarding the CPM schedule; Mr. Knorr’s diary showed PennDOT requested such a schedule; and, PennDOT’s written evaluation of Knorr’s work, completed after the project, stated the lack of such a schedule resulted in a significant loss of productivity. See R.R. at 85a-95a (PennDOT’s brief to the Board).

Responding to this issue, the Board stated PennDOT included in the Contract documents a form “D-476 Distribution of Contract Time,” which became the project schedule by default if Knorr did not submit an alternate schedule. Bd. Op. at 55. The Board referred to Section 108.03 of the 408 Specifications, relating

to performance and progress on a construction project, which states, in relevant part:

If the [contractor supplied] schedule is accepted without change in writing by the Chief Engineer, Highway Administration, it will be considered the official schedule for all purposes, including, but not limited to, the calculation of liquidated damages and the computation of time used in proving all claims filed with the Board If the schedule is not accepted in writing or if no schedule is presented for approval at the preconstruction meeting, the schedule contained in the contract will be the official schedule for all purposes, as stated above.

S.R.R. at 178b (emphasis added).

Here, the Board found, although it initially appeared Knorr would submit a CPM schedule, it did not submit such a schedule. As a result, the D-476 schedule became the project schedule by default. More specifically, the Board found representatives of PennDOT and Knorr attended a preconstruction meeting, at which someone from PennDOT noted a CPM schedule “will be submitted” by Knorr. R.R. at 225a. However, by letter dated August 9, 1999, John Fry issued the Notice to Proceed on the project and noted at the preconstruction meeting, Knorr “outlined [its] method of procedure and agreed that it will be carried on in accordance with [PennDOT’s] Schedule of Operations on Form D-476 furnished [to Knorr].” S.R.R. at 266b. Although Knorr may have indicated at the preconstruction meeting that it would submit a CPM schedule, both John Fry and Sarah Cunningham testified it was not uncommon on PennDOT construction projects for the contractor to use the D-476 form as the official schedule of construction activities. S.R.R. at 363b; Notes of Testimony (N.T.), 3/20/07, at 492-95. Fry also testified Knorr had the right to use the D-476 schedule as the

official project schedule. S.R.R. at 363b. Cunningham confirmed Knorr, during the preconstruction conference, stated that it would conduct its sequence of construction basically according to the Form D-476 schedule and she had no problem with that arrangement. N.T., 3/20/07 at 446-47.

Moreover, none of the PennDOT officials involved with the project objected to Knorr using the D-476 schedule as the official project schedule at the time, and no PennDOT official ever requested a CPM schedule in writing. N.T., 3/20/07 at 446-48, N.T., 3/27/07 at 1652-53. In addition, Knorr never submitted a CPM schedule to PennDOT for approval. N.T. 3/20/07 at 448, N.T. 3/27/07 at 1652. As a result, the Board found Section 108.03 of the 408 Specifications and PennDOT officials managing the project contemplated the D-476 schedule would become the official project schedule if the contractor did not provide an alternative schedule approved by PennDOT. F.F. No. 24. Because Knorr did not provide an alternative schedule, the Board found the D-476 schedule became the official schedule for the SR-28 project. F.F. No. 24. Consequently, the Board found that Knorr's failure to produce a CPM schedule was not a material factor in the problems experienced on this project. F.F. No. 25. As is apparent from the above discussion, our review of the record discloses adequate support for the Board's findings.

Ultimately, the Board determined, "Knorr did not commit a material breach of the Contract by failing to submit a CPM schedule for this project because Knorr was not required to submit a CPM schedule and it chose to use the D-476 schedule as the official schedule for the [SR-28] project as provided for in the 408

Specifications.” Bd. Op., Concl. of Law No. 9. The Board’s findings support this determination. As such, no error is apparent in the Board’s analysis of this issue.⁴

Before the Board, Mr. Knorr explained he did not receive “repeated requests” for a project schedule. More particularly, Mr. Knorr testified that on PennDOT projects, if a contractor is required to provide a project schedule and fails to do so, PennDOT notifies the contractor by letter and “[the contractor’s] estimated payments would even be held up.” S.R.R. at 353b. Here, however, Mr. Knorr explained he did not receive any written communication from PennDOT requesting a project schedule. *Id.* Mr. Knorr’s testimony is corroborated by the testimony of Cunningham who explained she did not request a schedule from Mr. Knorr because “he wasn’t required by contract to provide it.” S.R.R. at 370b. As such, PennDOT’s assertions on this point fail.

PennDOT also maintains the Board erred in permitting Knorr to use an entirely different schedule than the D-476 schedule to pursue its delay and disruption claims. Again, we disagree. Because Knorr opted not to submit an alternate schedule, Knorr’s expert used the D-476 schedule to quantify the delays Knorr experienced on the project. *See* S.R.R. at 380b. More particularly, a review of Knorr’s expert’s report shows Knorr’s expert utilized the D-476 schedule as the

⁴ Nevertheless, PennDOT asserts that throughout the duration of the project it made repeated demands for an updated project schedule, which Knorr refused to provide. By way of example, PennDOT points to a note in Knorr’s diary that he was “told to prepare [a project] schedule.” R.R. at 229a. Despite pointing to this diary entry, PennDOT fails to acknowledge this request was made approximately 11 months after Knorr commenced work on the project. If, as PennDOT argues, Knorr was obligated to develop a schedule other than the D-476 schedule, it is unclear why PennDOT waited 11 months to ask for such a schedule. In any event, the record reveals Knorr provided an updated schedule in response to PennDOT’s belated request. S.R.R. at 275b.

“as planned” schedule for evaluating delays on the project. S.R.R. at 111b-112b. To that end, Knorr’s expert utilized the dates and time frames for each component of the project contained in the D-476 schedule as the “as planned” project schedule. Id. With the D-476 “as-planned” schedule serving as a “baseline,” S.R.R. at 110b, Knorr’s expert created an “as built” schedule to evaluate the duration of critical delays to the as-planned schedule. S.R.R. at 113b-114b. As such, we reject PennDOT’s assertions that Knorr’s delay and disruption claims were based on a schedule entirely different than the D-476 schedule.

B. Apportionment of Delay

PennDOT next argues the Board erred in failing to determine the concurrent delay on the project barred Knorr from prevailing on its claims. It asserts that where a contractor’s self-inflicted problems cannot be separated from those of the public owner, the contractor is not entitled to recovery. See, e.g., A.G. Cullen. PennDOT contends the Board properly found Knorr’s self-inflicted performance issues were material here, but erred in assigning them a value of 1/6 of the 87 days of claimed delay. Again, PennDOT’s argument fails.

As to apportionment of delay, in A.G. Cullen this Court explained:

The government possesses a duty not to act in a way that will hinder or delay a contractor’s performance. Malone v. United States, 849 F.2d 1441 (Fed. Cir. 1988); SMS Data Prods. Group, Inc. v. United States, 17 Cl. Ct. 1, 6 (1989) (“The [g]overnment has an implied obligation to refrain from willfully or negligently interfering with a contractor’s performance.”). The government violates this implied obligation where its action or inaction delays performance of a project thus increasing costs. Mega Constr. Co., Inc. v. United States, 29 Fed. Cl. 396 (1993). When this occurs the contractor may have a claim for

damages. Id. In order for the government to be found liable for hindrance, however, a contractor must establish the government caused the contractor a compensable injury. See Servidone Constr. Corp. v. United States, 931 F.2d 860 (Fed. Cir. 1991); Boyajian v. United States, 191 Ct. Cl. 233 (1970).

In order to recover for an alleged compensable delay, a contractor must prove: (1) the extent of the delay with a reasonable degree of accuracy; (2) the delay was caused solely by the government's actions; and (3) the delay caused specific, quantifiable injury to the contractor. Servidone Constr. Corp. The burden of establishing these factors falls squarely upon the contractor. Avedon Corp. v. United States, 15 Cl. Ct. 648 (1988).

A contractor must show the government was the "sole proximate cause" of the delay and no concurrent cause would have equally delayed the contract, regardless of the government's action or inaction. Avedon Corp.; Merritt-Chapman & Scott Corp. v. United States, 208 Ct. Cl. 639, 650 (1976). "Only if the delay was caused solely by the government will the contractor be entitled to ... recovery of excess costs associated with the delay." Weaver-Bailey Contractors, Inc. v. United States, 19 Cl. Ct. 474, 476 (1990) (emphasis in original) (citations omitted). A "court [will] award delay damages only for the unreasonable portion of a government-caused delay." Mega Constr. Co., Inc., 29 Fed. Cl. at 425 (quotation and citation omitted).

Nevertheless, Pennsylvania law does not require proof of damages to a mathematical certainty. Delahanty v. First Pa. Bank, N.A., 464 A.2d 1243 (Pa. Super. 1983). Rather, evidence of damages may consist of probabilities and inferences as long as the amount is shown with reasonable certainty. E.C. Ernst, Inc. v. Koppers Co., Inc., 626 F.2d 324 (3rd Cir. 1980). To prove damages, however, a plaintiff must present sufficient evidence for the fact-finder to make an intelligent estimation, without conjecture, of the amount to be awarded. Delahanty. It is incumbent on a contractor not only to quantify the damages but also to connect the alleged losses to the

particular incident of delay. Thus, where each party bears responsibility for a portion of the total project delay, the plaintiff must prove how the lump sum of extra cost can be broken down and assigned to the responsible party. Lichter v. Mellon-Stuart Co., 305 F.2d 216 (3rd Cir. 1962); Wunderlich Contracting Co., v. United States, 351 F.2d 956 (Ct. Cl. 1965).

Id. at 1160-61 (emphasis added).

Here, the Board made the following pertinent findings and determinations with regard to its apportionment of delay between Knorr and PennDOT, with emphasis added:

221. Knorr ... created for itself a significant portion of the delay and disruption it experienced on the [SR-28] project by reason of, inter alia, its own mistakes in construction of the roadway and adjacent structures as well as ongoing problems with equipment breakdown and/or malfunction, flawed work procedures, multiple changes in supervisor and foremen and work being re-done or corrected. Notable among these problems were those experienced with its paving machine malfunctions causing it difficulty with properly laying [open-graded sub-base (OGS)] and its base asphalt materials. (Defendant's Exhibit 115 (pp. 77-78), and attachment 63; N.T. 2141-2143; Board Finding).

222. Knorr and its expert ... identify the following seven problems which occurred on the [SR-28] project and persisted for the time periods indicated as the cause of disruption to Knorr's work and the 116 days of total delay to substantial completion of the [SR-28] project:

(1) Missing/incorrect grades (other than noted specifically below)	-	3/15/00 to 4/4/00	20 days
(2) OGS Supplier	-	3/20/00 to 5/8/00	49 days
(3) Slope Repairs	-	3/22/00 to 6/26/00	96 days

(4) Box Culvert Grades	-	4/20/00 to 7/10/00	81 days
(5) Redesign (1820 to 1834)	-	5/1/00 to 5/9/00	8 days
(6) Awaiting Grades (1834 to 1842)	-	5/1/00 to 7/19/00	79 days
(7) Semi-Final Inspection	-	11/8/00 to 12/7/00	29 days

223. With the exceptions noted below in Findings of Facts 224-231, the Board finds [Knorr's expert's] testimony and report to be generally credible with respect to his attribution of the 116 days of total project delay to the seven problem issues (and durations of each) noted above and summarized in Findings of Fact 222. (Plaintiff Exhibit 277; N.T. 919-71, 980-1147, 2092-2153; F.O.F. 222, 224-231; Board Finding).

224. Knorr's self-inflicted problems noted above in Finding[] of Fact 221 materially contributed to the delay and disruptions it experienced on this project. (F.O.F. 221; Board Finding).

225. The Board also finds that: (1) PennDOT was not unreasonable in scheduling the semi-final inspection when it did; and (2) any delay caused by the OGS issue, for which we did not find PennDOT responsible, was subsumed by the remaining five problems identified by Knorr/[Knorr's expert] and summarized above in Finding[] of Fact 222 (as items 1,3,4,5 and 6) and Knorr's self-inflicted problems identified by PennDOT [and its expert] as noted above in Finding[] of Fact 221. (Plaintiff's Exhibit 277; F.O.F. 86-98, 99-129, 151-176, 177-201, 221-222; Board Finding).

226. Because the claimed 29 days of delay caused by the scheduling of the semi-final inspection occurred near the end of the [SR-28] project, the Board finds that the other delays and disruptions had largely run their course by November 8, 2000 (the date Knorr requested semi-final inspection). Therefore, the Board will subtract the entire 29 days Knorr waited for semi-final inspection from the 116 days of claimed delay, leaving 87 days of project delay that we find [PennDOT] caused Knorr by the five remaining problems summarized in Finding[] of Fact 222

(items 1,3,4,5 and 6) and Knorr's self-inflicted problems identified by PennDOT as noted above in Finding[] of Fact 221 described above. (F.O.F. 86-98, 99-129, 151-176, 177-207, 208-220, 221, 222-225; Board Finding).

227. The five remaining problems summarized in Finding[] of Fact 222 (items 1,3,4,5 and 6) and described above were caused by PennDOT's active interference with Knorr's work. (F.O.F. 86-98, 99-129, 151-176, 177-207, 222; Board Finding).

228. Specifically, the Board finds that PennDOT actively interfered with Knorr's roadway construction work by the following actions/inactions of PennDOT: (1) PennDOT's multiple failures to timely provide necessary roadway grades and elevations; (2) PennDOT's failure to timely address slope repair issues; (3) PennDOT's failure to timely confirm the change in construction of roadway shoulders to full-depth widening between Stations 1820 and 1834; (4) PennDOT's failure to timely supply roadway grades and elevations for the expanded full-depth widening between Stations 1834 and 1844; and (5) PennDOT's failure to timely supply the missing or corrected roadway grades for [the areas] surrounding the box culvert bridge. (Plaintiff's Exhibit 277; F.O.F. 86-98, 99-129, 151-176, 177-207, 222; Board Finding).

229. The Board further finds that the five problems caused by PennDOT noted above ... and the self-inflicted problems caused by Knorr ... together caused Knorr 87 days of delay to completion of the project. (Plaintiff's Exhibit 227; Defendant's Exhibit D-115; F.O.F. 86-98, 99-129, 151-176, 177-207, 208-220, 221, 222-228; Board Finding).

230. Based on the evidence as a whole, the Board finds that five-sixths of the 87 days of project delay (i.e. 72 days) were caused by the five problem areas created by PennDOT's active interference and one-sixth of the 87 days of delay (i.e. 15 days) were caused by Knorr. (Plaintiff's Exhibit 277; Defendant's Exhibit D-115; F.O.F. 86-98, 99-129, 151-176, 177-207, 208-220, 221, 222-229; Board Finding). ...

* * * *

Because the Board has determined that Knorr was both delayed and disrupted in its work on the [SR-28] project by the five problems complained of by Knorr and found by the Board to constitute material breaches of contract and active interference by PennDOT with Knorr's work on the [SR-28] project ... it is appropriate that the Board seek to apportion responsibility for the actual delay and disruption damages experienced by Knorr on this project in accordance with the contribution each of these problems had to causing such delay and disruption damages. ... Accordingly, based on the totality of the evidence and the Board's factual findings, PennDOT is solely responsible for 5/6 (83%) and Knorr itself is responsible for 1/6 (17%) of the delay and disruption damages the Board finds attributable to the parties and actually incurred by Knorr on the project.

F.F. No. 221-230, Concl. of Law. No. 62 (citations omitted) (emphasis in original).

Further, in its analysis, the Board explained:

[W]e find the[] 87 days of the critical delay to Knorr to be caused by A) PennDOT's: 1) multiple failures to timely provide necessary roadway grades/elevations (exclusive of the box culvert problem); 2) delay in addressing slope repair issues; 3) delay in confirming the change in construction of roadway shoulders to full-depth widening between 1820-1844; 4) expanding the width of shoulder construction (as well as full-depth widening) for 1834-1844 while failing to timely supply needed grades/elevations for same; and 5) delay in supplying correct grades/elevations for the roadway around the box culvert and B) Knorr's own self-inflicted problems described above. Further, although we acknowledge no surgically precise way to apportion the remaining 87 days of delay among these six enumerated causes, we do find that they were each of significant import. Accordingly, we hold that PennDOT's five categories of active interference with Knorr's work accounted for approximately five sixths or 83% of the delay and disruption Knorr actually experienced on the job, and Knorr's own self-inflicted problems account for the

remaining one-sixth or 17%. We therefore find a total of 72 days of critical delay to Knorr on the [SR-28] project is fully attributable to PennDOT's active interference with Knorr's work, and the remaining 15 days are attributable to Knorr itself.

Bd. Op. at 94. Based on our review of the record and the law in this area, we discern no error in the Board's findings and determinations. The Board's determinations are amply supported by the report and testimony of Knorr's expert, who was able to provide the Board with a detailed breakdown of the extent of delays and disruptions solely attributable to PennDOT. S.R.R. at 110b-172b (expert report); N.T. 3/22/07 at 957-59, 960-61, 965-68; N.T. 3/23/07 at 980-88, 1005-1007, 1017-30, 1033, 1075-80, 1082. PennDOT's arguments to the contrary are largely an invitation for this Court to reweigh the evidence, which we cannot do. A.G. Cullen.⁵

C. Calculation of Period of Delay

PennDOT next argues the Board erred in calculating the number of days of delay it attributed to Knorr, which were caused by Knorr's self-inflicted problems. Specifically, PennDOT asserts the uncontested facts show Knorr had no functioning paving equipment throughout May 2000; as such, the Board erred in failing to deduct this 31-day period from the 72 days of delay it attributed to PennDOT. In addition, PennDOT maintains the Board erred in finding PennDOT did not provide the box culvert grades to Knorr until July 2000. PennDOT argues the Board based this finding on the testimony of Mr. Knorr, who had no first-hand

⁵ The resulting apportionment of delay damages between independent, concurrent causes here is consistent with the approach in the distinct but parallel field of tort damages. See Restatement (Second) of Torts §433A (1965); I Pa SSJI (Civ) §604, subcommittee note (March, 2008).

knowledge of this fact. PennDOT contends that contrary to Mr. Knorr's testimony, PennDOT's witnesses testified it provided the grades on April 12, 2000. We reject these arguments.

1. Knorr's Paving Equipment

First, as to the alleged 31-day period of delay caused by Knorr's paving equipment, PennDOT was unable to provide the Board with any clear evidence connecting a problem with Knorr's paving equipment with a specific period of delay. Thus, although the Board recognized Knorr sustained certain self-inflicted problems with equipment breakdown and/or malfunction, see F.F. No. 221, the evidence presented by PennDOT did not enable the Board to make a finding that Knorr's equipment problems caused a specific period of delay. More particularly, the following exchange occurred between Knorr's counsel and PennDOT's expert on cross-examination:

Q. Do you have a cause and effect conclusion to offer this Board at this point in time as to any of these alleged self-inflicted wounds by Mr. Knorr?

A. Not a scientific cause and effect conclusion, no, perhaps more of an anecdotal cause and effect conclusion.

Q. You can't tell this Board whether the issues that you saw resulted in six days of project delay, six months of project delay, or any other number, can you?

A. Anywhere from 0 to 116.

S.R.R. at 403b (emphasis added). Because PennDOT's expert was unable to provide the Board with a clear explanation of any specific period of delay caused

by Knorr's self-inflicted problems, we discern no error in the Board's failure to deduct the 31-day period of delay now challenged by PennDOT.

2. Delay in Providing Box Culvert Grades

Next, as to the issue of PennDOT's delay in providing Knorr the box culvert grades, the Board made the following pertinent findings:

184. On or about May 17, 2000, Knorr finished backfilling the site of the Phase I box culvert section. However, because of uncertainty regarding grades/elevation around the box culvert no further work (e.g. final sub-base and paving work) was performed on or around the box culvert until Knorr received revised grades and elevations for the area from Stations 1845 to 1854. (Plaintiff's Exhibit 183, 184, 187, 188, 189; Defendant's Exhibit D-115 (p. 37)).

185. On June 9, 2000, Mr. Knorr noted in his diary that Knorr had not yet received corrected roadway grades/elevations for the area around the box culvert. (Plaintiff's Exhibit 183).

186. On June 14, 2000, Eric Moore, at the time a PennDOT civil engineer trainee on the project, noted that Joe Yevchek of the Engineering District 10-0 design unit would be stopping at the project site to drop off roadway grades for the roadway running over the box culvert. Mr. Yevchek did stop by that afternoon to discuss the grade/elevation changes, but did not leave a final copy of roadway grades for the box culvert area. (Plaintiff's Exhibit 184; N.T. 1019).

187. On June 21, 2000, Mr. Knorr noted in his diary that Knorr had still not received roadway grades for the area at issue around the box culvert. (Plaintiff's Exhibit 183).

188. On June 27, 2000, Mr. Knorr noted in his diary that Knorr was instructed to work in an area other than the box culvert because Knorr had not yet received the final

design for the roadway grades in that area. (Plaintiff's Exhibit 183).

189. By letter dated July 6, 2000, Knorr informed PennDOT that it had not yet received needed grades/elevations for the Stations 1845 to 1854, and repeated its request for a time extension previously requested in a letter of May 8, 2000. (Plaintiff's Exhibit 188; N.T. 30).

190. Knorr asserts that, on or about July 10, 2000, it finally received the corrected roadway grades/elevations for Stations 1848+50 to 1853+50. (Plaintiff's Exhibit 188, 191; N.T. 538-541, 1020-21).

191. PennDOT ... assert[s] that all missing and/or corrective grades/elevations for the roadway adjacent to and over the box culvert were provided to Knorr in April of 2000. (Defendant's Exhibit D-64, D-102; N.T. 1237-1239, 1246-1250).

192. Based on the witnesses' testimony and totality of the evidence presented, the Board finds that the final corrected grades/elevations needed to construct the roadway adjacent to the box culvert were not provided to Knorr until on or about July 10, 2000. (Plaintiff's Exhibit 17, 144, 183, 184, 187, 188, 189; Defendant's Exhibit D-102, D-114; N.T. 1386-1405, 1406-1407, 1408-1414, 1669-1672; F.O.F. 177-191; Board Finding).

F.F. Nos. 184-192 (emphasis added). Further, the Board stated, “[a]lthough PennDOT ... asserted that PennDOT did provide the corrected grades and elevations by April 12, 2000, we find Knorr’s testimony and the weight of evidence presented to instead establish that all the necessary corrections were not provided until July 10, 2000.” Bd. Op. at 86, n.26. Clearly, the above findings are supported by substantial evidence. Indeed, based on the testimony and evidence presented, PennDOT’s own expert agreed Knorr “lacked the ability to construct the

road between [Stations] 1848 and 1854 to its final elevation in the early July 2000 time frame.” N.T., 3/28/07, at 1876-77.

In addition, the Board directly addressed PennDOT’s claim that Mr. Knorr lacked sufficient first-hand knowledge to testify as to issues such as when Knorr received the corrected grades because he was frequently absent from the project site. Specifically, the Board determined:

53. PennDOT also asserts that Knorr failed to call any witnesses who were on the project site on a daily basis and that Mr. Knorr, Plaintiff’s primary witness, was frequently absent from the job site. PennDOT therefore reasons that Mr. Knorr was not competent to testify; that the PennDOT witnesses who were present on the job site throughout the project are more credible; and that Knorr’s failure to call enough witnesses renders its version of events unsupportable. (Defendant's Proposed F.O.F. 134-173; Defendant's Brief at 24-25).

54. In fact, Knorr called four fact witnesses: James Knorr, John Fry, Sarah Cunningham and Dave Schaffer, the latter three from PennDOT. (Board Finding).

55. Mr. Knorr’s testimony was supplemented by the testimony of other fact witnesses and by various documents introduced during the trial. (Board Finding).

56. Although not on the project site everyday, James Knorr, as president of Wayne Knorr, Inc., was on the project site frequently, particularly in 2000, the year when substantially all the problems here at issue occurred. Additionally, Mr. Knorr showed himself at hearing to have significant first-hand knowledge of the project and was found by the Board to be a competent witness when testifying about the issues he addressed during his testimony. The Board addressed directly any specific objections made by PennDOT to Mr. Knorr's testimony during the hearing. (N.T. 51, 719-724; Board Finding).

* * * *

16. PennDOT's objection that Mr. Knorr was generally incompetent to testify on those issues which he addressed is wholly without merit as the Board found no evidence whatsoever that Mr. Knorr was mentally disabled or that his ability to perceive, remember or testify was impaired in any way. PennDOT's concerns regarding the degree of Mr. Knorr's knowledge of the events about which he testified and the number of days he was present on the project go to the weight the Board should give to his testimony, not to Mr. Knorr's competence as a witness.

17. PennDOT's objections to Mr. Knorr's competency are ineffective to raise issues of hearsay or other evidentiary matters. Objections to evidence, be it testimonial or documentary, must be both timely and specific. Pa. R.E. 103(a)(1); See e.g., Jones v. Spidle, 286 A.2d 366, 367-68 (Pa. 1971); Folger ex rel. Folger v. Dugan, 876 A.2d 1049, 1055 (Pa. Super. 2005); Commonwealth v. Pearson, 685 A.2d 551, 555 (Pa. Super. 1996); Stulz v. Boswell, 453 A.2d 1006, 1010 (Pa. Super. 1982); Burton-Lister v. Siegel, Sivitz & Lebed Associates, 798 A.2d 231, 239-40 (Pa. Super. 2002).

F.F. Nos. 53-56, Concls. of Law Nos. 16-17. Moreover, the Board explained:

PennDOT had ample opportunity to object to specific testimony including that of Mr. Knorr and other witnesses of [Knorr] on the grounds of hearsay or other evidentiary rules. Despite a multitude of objections from [PennDOT's] counsel, almost none were based on hearsay, and those objections made on the basis of competence were typically directed at explicating documents and the witness [was] allowed to testify as to his/her own understanding of these documents only.

Bd. Op. at 60, n.14.

No error is apparent in the Board's analysis. A witness is presumed competent, and the burden of proving otherwise is on the party asserting incompetency. Pa.R.E. 601, cmt. The application of standards for disqualification is a factual question to be resolved by the tribunal as a preliminary question. Id. Here, PennDOT failed to carry its burden of proving incompetency.

As a separate but related issue, a witness may not testify to a matter unless evidence is introduced sufficient to support a finding that the witness has personal knowledge of the matter. Pa.R.E. 602. Evidence to prove personal knowledge may consist of the witness' own testimony. Id. Here, Mr. Knorr testified about his presence at the work site. The Board accepted that evidence. This Court may not interfere with this credibility determination. A.G. Cullen.

D. Statute of Limitations

PennDOT next maintains the Board lacked jurisdiction to hear this case because Knorr's claims were barred by the six-month statute of limitations set forth in Section 1712.1(b) of the Procurement Code, 62 Pa. C.S. §1712.1(b). PennDOT asserts the Board erred in failing to determine Knorr's claim was time-barred because, according to PennDOT, Knorr knew of its claim on December 29, 2000, but did not submit its claim to PennDOT until July 25, 2003. Again, we disagree.

Pursuant to Section 1712.1(b) of the Procurement Code:

A claim shall be filed with the contracting officer within six months of the date it accrues. If a contractor fails to file a claim or files an untimely claim, the contractor is deemed to have waived its right to assert a claim in any

forum. Untimely filed claims shall be disregarded by the contracting officer.

62 Pa. C.S. §1712.1(b).

As to when a claim “accrues,” in Darien Capital Management, Inc. v. Public School Employes’ Retirement System, 549 Pa. 1, 700 A.2d 395 (1997), our Supreme Court, adopting this Court’s prior case law on this issue, explained:

The Commonwealth Court has developed a two-prong standard to determine when a claim accrues. A claim accrues when 1) a claimant is first able to litigate his or her claim, e.g., when the amount due under the claim is known and the claimant is capable of preparing a concise and specific written statement detailing the injury, and 2) the claimant is affirmatively notified that he or she will not be paid by the Commonwealth. The Commonwealth Court has required that this denial of a claim be unequivocal. Thus, both of these prongs must be satisfied before a claim may be considered to have accrued.

Id. at 6, 700 A.2d at 397 (citations omitted) (emphasis in original). See also John XXIII Home v. Dep’t of Pub. Welfare, 934 A.2d 198 (Pa. Cmwlth. 2007).

A party is first able to litigate a claim when the amount due under the claim is known and the claimant is able to prepare a concise and specific statement of his claim. Kutnyak v. Dep’t of Corr., 748 A.2d 1275 (Pa. Cmwlth. 2000); Zeppi v. Pa. State Police, 705 A.2d 1368 (Pa. Cmwlth. 1998). This Court holds a claim does not accrue until the claimant knows the full extent of his claim. Nilsen v. Dep’t of Pub. Welfare, 514 A.2d 1025 (Pa. Cmwlth. 1986); C.J. Langenfelder & Son, Inc. v. Dep’t of Transp., 404 A.2d 745 (Pa. Cmwlth. 1979); Penn-Jersey Contractors, Inc. v. Gen. State Auth., 315 A.2d 920 (Pa. Cmwlth. 1974).

Here, the Board rejected PennDOT's argument that Knorr was first able to litigate its claim as of December 29, 2000. The Board found:

75. PennDOT asserts that Knorr's claim is barred by the statute of limitations set forth in Section 1712.1 of the ... Procurement Code because, according to PennDOT, Knorr knew of its claim on December 29, 2000, but did not submit its claim to PennDOT until July 25, 2003. (Defendant's Brief at 76-80).

76. By letter dated December 29, 2000, Knorr informed PennDOT that Knorr was just beginning to evaluate its additional costs for the [SR-28] project but anticipated these costs would be in excess of \$650,000. (Plaintiff's Exhibit 229).

77. A meeting was held on January 29, 2001, in the office of John Fry ... in order to discuss Knorr's "concerns" expressed in its December 29, 200[0] letter and to "begin working toward a common vision of results." (Plaintiff's Exhibits 230, 233; N.T. 229, 231-32).

78. At the January 29, 2001 meeting, John Fry stated that, "We are just meeting today to gather facts. I will get back to you." (Plaintiff's Exhibit 233).

79. By letter dated May 17, 2001, PennDOT informed Knorr of its opinions regarding the several issues apparently discussed during the January 29, 2001 meeting. On nearly all the issues listed by PennDOT, the letter clearly stated that PennDOT would require additional clarification or information. (Defendant's Exhibit D-41).

80. The letter of December 29, 2000; the meeting on January 29, 2001; and the letter of May 17, 2001; each represent part of an ongoing, interim discussion between Knorr and PennDOT regarding the problems and extra costs incurred by Knorr on the [SR-28] project at that time. These actions, taken while work was still continuing on the project, do not establish that Knorr

could then identify an amount due on (or the extent of) its claims or that PennDOT had yet made a final determination of what, if any, adjustment it might make to the final Contract amount in response to these initial discussions. (Plaintiff's Exhibits 229, 230, 233; Defendant's Exhibit D-41; F.O.F. 75-79; Board Finding).
81. PennDOT issued its Notification of Final Quantities and Contract Settlement Amount for the [SR-28] project on February 3, 2003. (Plaintiff's Exhibit 239; N.T. 126-28).

82. Until PennDOT issued its Notification of Final Quantities and Contract Settlement Amount, Knorr did not know what, if any, adjustments PennDOT would make to payments due Knorr (i.e., Knorr did not have a definitive refusal of its requests for adjustments) and Knorr could not form a concise or accurate statement of claims against PennDOT. (Plaintiff's Exhibit 239; N.T. 128; F.O.F. 75-81; Board Finding).

* * * *

84. Knorr submitted a claim on the [SR-28] project to PennDOT in the form of a Request for Equitable Adjustment to the District Engineer on July 25, 2003, within six months of the February 3, 2003 Notification of Final Quantities and Contract Settlement Amount. (Plaintiff's Complaint ¶ 24; Plaintiff's Exhibit 239; N.T. 126-28; Board Finding).

F.F. Nos. 75-82, 84 (emphasis added).

PennDOT's attempt to use Knorr's December 29, 2000 letter as evidence of Knorr's first ability to litigate its claim is unpersuasive. That letter states (with emphasis added):

Now that the Armstrong County SR-28 job is essentially complete, we are in a position to begin to detail the cost impact of the events referenced in our letter and we are currently in the process of making that evaluation. However, this is to advise that we anticipate

that the cost impact will be in excess of \$650,000.00 and we are sending this letter to keep you informed.

S.R.R. at 257b; see also F.F. No. 76, Concl. of Law. No. 27. As the above excerpt indicates, Knorr was “beginning to detail” its cost impacts and was “in the process” of making evaluations concerning potential cost impacts. Id. It is clear from this excerpt that Knorr did not know the full extent of its claim. As the Board indicated, “[f]airly read, the December 29, 2000 letter simply notifie[d] PennDOT that Knorr was experiencing problems on the project and offer[ed] a general (and not entirely accurate) estimate of the cost impact of those problems for which it was beginning to accumulate information, thereby inviting further discussion on the part of PennDOT.” Bd. Op. at 64.

Moreover, PennDOT’s argument that its May 17, 2001 letter satisfies the second prong of the Darien Capital test also fails. PennDOT’s contention that its letter constituted an “affirmative” and “unequivocal” denial of Knorr’s claim lacks merit. As the Board stated:

The problems listed in the May 17, 2001 PennDOT letter were never submitted to PennDOT by Knorr in the form of a claim. The May 17, 2001 letter, instead, was PennDOT’s summary of the discussion held with Knorr at the January 29 meeting. Thus, as noted in the opening paragraph of the May 17, 2001 letter, the letter is simply a “response to the Outline of Events that ... Knorr presented at the meeting.” (Defendant's Exhibit D-41). Of the 20 items of work discussed at the meeting and identified in the letter, PennDOT expressed its own view on each issue and in almost all cases asked for additional information. Fairly read, the May 17, 2001 letter is a summary of the initial discussion of problems experienced on the project and is far from a clear and final notification that Knorr will not be paid for claims it has not yet made. Indeed, had PennDOT itself viewed the May 17 letter as a final determination of actual claims

made by Knorr, the Board would have expected PennDOT to follow its regular practice of explicitly stating in the letter that it was a final determination and to advise Knorr of the time within which it could file an appeal of the decision. PennDOT did not do so.

Bd. Op at 65 (emphasis deleted). Further, contrary to PennDOT's contention that its letter constituted a rejection of Knorr's claim, the letter makes no reference to the December 29, 2000 claim it purportedly rejected. See R.R. at 249a-53a.

Finally, the May 17, 2001 letter does not indicate it is a final, binding determination from PennDOT's Engineer. In that regard, the letter differs significantly from PennDOT's February 3, 2003 "Notification of Final Quantities and Contract Settlement Amount" a document the Board recognized, "is widely understood in the industry to be PennDOT's reconciliation and final statement of the total amounts due and paid on the contract." Bd. Op. at 65. Through its Notification letter, PennDOT notified Knorr of the final contract value as required by Section 110.08(c) of the 408 Specifications, see S.R.R. at 259b, which states:

(c) Final Settlement Certificate Computations. The Engineer will compute the entire amount of each contract work item performed and its contract value. The Engineer will notify the Contractor of the amount for each item, including additions to and deductions from the contract quantity for each item of work, all other legal and equitable additions and deductions to be made, amounts previously paid, and the net amount of the final certificate computations. The Engineer will request written acceptance of, or exception to, these final settlement certificate computations within 10 days of the notification. ...

S.R.R. at 197b-98b (emphasis added). Consistent with the above-quoted Section, PennDOT's Engineer's Notification letter informed Knorr it had to submit

exceptions to PennDOT's statement of final contract value "within 10 days of [the date of that letter]." S.R.R. at 259b-61b. Knorr filed its exceptions to PennDOT's closeout letter 10 days later. S.R.R. at 255b-56b. In short, PennDOT's Notification letter cannot be construed as an "affirmative" and "unequivocal" rejection of Knorr's claim.

For these reasons, we discern no error in the Board's rejection of PennDOT's argument that Knorr's claim was time-barred.⁶

E. Construction Engineering Liquidated Damages

As a final issue, PennDOT argues the Board erred in its determination with regard to PennDOT's counterclaim for liquidated damages. PennDOT maintains the Board erred in failing to assess liquidated damages from November 8, 2000, the date Knorr requested PennDOT perform a semi-final inspection of its work, through December 7, 2000, the date PennDOT actually performed this inspection. Additionally, PennDOT asserts the Board erred in assessing liquidated damages only on the days Knorr actually performed Contract work after the substantial completion date of December 7, 2000, rather than for the entire period that any physical work remained uncompleted (until August 8, 2001).

"Liquidated damages is a term of art originally derived from contract law; it denotes the sum a party to a contract agrees to pay if he breaks some promise, and which, having been arrived at by a good faith effort to estimate in

⁶ Because we agree with the Board's analysis that Knorr's claim was timely filed, we need not address the Board's alternative analysis that PennDOT waived its statute of limitations' argument by failing to sufficiently develop this defense in its pleadings before the Board.

advance the actual damage that will probably ensue from the breach, is legally recoverable ... if the breach occurs.” Pantuso Motors, Inc. v. Corestates Bank, N.A., 568 Pa. 601, 608, 798 A.2d 1277, 1282 (2002) (citations and quotations omitted). Further, in Calabro v. Department of Aging, 689 A.2d 347 (Pa. Cmwlth. 1997), this Court explained:

Liquidated damages as set forth within a contract compensate a party for difficult-to-prove losses, and serve a particularly useful function when damages are uncertain in nature or amount or are unmeasurable, as is the case in many government contracts. Clauses setting forth liquidated damages are enforced where they are reasonable, and fair attempts to fix just compensation for anticipated loss caused by breach of contracts. ...

Id. at 350-51 (citations and quotations omitted).

In Pennsylvania, liquidated damage clauses are universally accepted as a necessary part of the law governing construction contracts. Sutter Corp. v. Tri-Boro Mun. Auth., 487 A.2d 933 (Pa. Super. 1985). As such, parties to a contract may include a liquidated damages provision that ensures recovery in cases where computation of actual damages would be speculative. Pantuso Motors, Inc.; Brinich v. Jencka, 757 A.2d 388 (Pa. Super. 2000). These clauses are enforceable provided, at the time the parties enter into the contract, the sum agreed to is a reasonable approximation of the expected loss rather than an unlawful penalty. Brinich; see also Restatement (Second) of Contracts, §356(1) (1981) (“Damages for breach by either party may be liquidated in the agreement but only at an amount that is reasonable in the light of the anticipated or actual loss caused by the breach and the difficulties of proof of loss[;][a] term fixing unreasonably large liquidated damages is unenforceable on grounds of public policy as a penalty.”)

As to the applicable burden of proof in a liquidated damages claim, the government has “the ultimate burden of persuasion as well the initial burden of going forward to show that the contract was not completed by the agreed contract completion date and that liquidated damages were due and owing.” PCL Constr. Servs., Inc. v. United States, 53 Fed. Cl. 479, 484 (2002), aff’d, 96 Fed. Appx. 672 (Fed. Cir. 2004). The government meets its initial burden by showing “the contract performance requirements were not substantially completed by the contract completion date and that the period for which the assessment was made was proper.” Id.

Once the government satisfies its initial burden, the burden shifts to the contractor to show “any delays were excusable and that it should be relieved of all or part of the assessment.” Id. A party asserting liquidated damages were improperly assessed bears the burden of showing the extent of the excusable delay to which it is entitled. Id.

“Where one party to a contract is the cause of another’s failure to perform, it cannot assert that failure against the other. It is particularly well settled that a party may not retain liquidated damages for the amount of delay caused by its own actions.” Dep’t of Transp. v. W.P. Dickerson & Son, Inc., 400 A.2d 930, 933 (Pa. Cmwlth. 1979) (citations omitted). Also, in Department of Transportation v. Cumberland Construction Co., 494 A.2d 520 (Pa. Cmwlth. 1984), this Court stated PennDOT was not entitled to retain liquidated delay damages where a contractor’s delay was occasioned by unusual site conditions and additional work ordered by PennDOT personnel.

Here, the Contract's construction engineering liquidated damages provision states, in relevant part:

For each day that any physical work remains uncompleted after the Required Completion Date, the sum per day specified in the following schedule, unless otherwise stated in the proposal, will be deducted from money due or to become due. This deduction will not be as a penalty, but as Construction Engineering Liquidated Damages. An adjustment in the charges may be made by the Engineer, to the extent of eliminating not more than 75% of the specified amount of Construction Engineering Liquidated Damages chargeable per day, after the total facility is complete enough to be used and opened to traffic. ...

S.R.R. at 182b.

Before the Board, PennDOT asserted a counterclaim against Knorr for liquidated damages. PennDOT argued the last day of physical work on the project was August 8, 2001, or 299 days past the (revised) project completion date of October 13, 2000. At the \$650 per day rate asserted by PennDOT, it claimed entitlement to a reimbursement from Knorr of \$194,350. Ultimately, the Board granted PennDOT's liquidated damages claim, but in a significantly reduced amount, explaining:

[T]he \$194,350 requested as construction engineering liquidated damages is an unreasonably large liquidated damages figure under the circumstances of this case, and is improperly calculated in any event. The amount represents a charge of \$650 per day for the 299 days that passed from October 13, 2000 to August 8, 2001 the day Knorr completed all activity on the project. First of all, PennDOT calculates the amount of liquidated damages beginning on October 13, 2000, while the Board has held

PennDOT responsible for 72 days of delay past the original completion date of August 13, 2000 (or until October 24, 2000). Further, while we have not found PennDOT liable for the 29 days of delay claimed by Knorr for the “delay” in scheduling a semi-final inspection from the time requested by Knorr, neither do we find Knorr responsible for this period. As a result, we find that PennDOT can only properly assess Knorr for 15 days of delay between October 13, 2000 to December 7, 2000 (the date of substantial completion).

Secondly, in assessing the propriety of the [construction engineering liquidated damages] claimed for uncompleted work after substantial completion on December 7, 2000, it is altogether appropriate to consider what actual costs the [construction engineering liquidated damages] are designed to approximate in order to determine the reasonableness of the assessments. It is the Board’s understanding that [construction engineering liquidated damages] are generally intended to estimate and offset the cost to PennDOT of providing inspectors on site and other personnel to oversee the remaining work to be done on a project. In this regard, it is pertinent to note that, for the period from mid-December 2000 to mid-May 2001, a period during which Knorr did no work, the evidence shows that PennDOT agreed to allow Knorr to engage in this second [w]inter shutdown. Thus Knorr cannot fairly be charged for this period of “delay” in calculating a [construction engineering liquidated damages] amount. In fact, of the total time following substantial completion to final day of physical work (December 7, 2000 until August 8, 2001), Knorr performed only 32 days of work. Additionally, 13 days of that work were force-account items that cannot fairly be considered incomplete Contract work. The remaining work performed by Knorr after the December 7, 2000 substantial completion date consisted of some punch list work, placing of topsoil and seeding, some small adjustments to one or two sections of the roadway, and a box culvert repair. The [construction engineering liquidated damages] amount claimed by PennDOT bears no reasonable relationship to the cost to PennDOT of maintaining inspectors on site for 19 actual additional working days (even assuming that such inspectors were

necessary on site each of the 19 days given the minimal nature of the clean-up work performed). Moreover, as to these remaining 19 days of actual Contract work, the Board has no evidence before it to contradict or counter its general five-sixths to one-sixth apportionment of responsibility for delay on this project. Accordingly, we find that, of the 19 days of Contract work actually performed by Knorr on the [SR-28] project after substantial completion, 16 are attributable to PennDOT and only 3 attributable to Knorr. In total then, we find it proper to assess Knorr only for the 15 days of delay attributable to Knorr before substantial completion on December 7, 2000 and the 3 days thereafter, for a total [liquidated damages] assessment of \$11,700.

Bd. Op. at 102-03 (footnotes omitted, emphasis added). No error is apparent in the Board's reasoning.

1. November 8 to December 7

PennDOT maintains the Board erred in failing to assess liquidated damages from November 8, 2000, the date Knorr requested PennDOT perform a semi-final inspection of its work, through December 7, 2000, the date PennDOT actually performed this inspection. Contrary to its assertions, PennDOT presented no evidence that would enable the Board to make a finding that the delay in scheduling the semi-final inspection was caused by Knorr; thus, it is not surprising the Board made no such finding. Rather, the Board found (with emphasis added):

209. On November 8, 2000, Knorr requested from PennDOT a semi-final inspection of its work on the project. (Plaintiff's Exhibit 116; N.T. 1036).

210. By letter dated November 17, 2000, PennDOT notified Knorr that a semi-final inspection meeting would take place on December 7, 2000 at the project field office. (Plaintiff's Exhibit 116).

211. The semi-final inspection meeting was held on

December 7, 2000, at the [SR-28] project field office. (Plaintiff's Exhibit 116).

* * * *

213. Work on the [SR-28] project was considered to be substantially complete as of the December 7, 200[0] inspection. (N.T. 1036, 1758, 1895).

* * * *

215. Section 110.08 of the 408 Specifications does not set forth a time limit within which a final inspection must occur, stating only that the date of inspection must be "mutual." (408 Specifications § 110.08).

216. The evidence presented at trial does not set forth the considerations that went into the decision to schedule the semi-final inspection for December 7, 2000. (Board Finding).

* * * *

282. [W]hile we have not found PennDOT liable for the additional 29 days of delay claimed by Knorr for the "delay" in scheduling a semi-final inspection from the time requested by Knorr, it was, nonetheless, PennDOT's decision to delay the semi-final inspection from November 8, 2000 to December 7, 2000, not Knorr's. (F.O.F. 208-220; Board Finding).

F.F. Nos. 209-211, 213, 215-216, 282. These findings, which are adequately supported, establish the decision to delay scheduling the semi-final inspection was that of PennDOT rather than Knorr. As such, we discern no error in the Board's decision to decline to award PennDOT liquidated damages for this period. W.P. Dickerson.

2. After December 7

PennDOT further contends the Board erroneously stopped its assessment of liquidated damages as of December 7, 2000. PennDOT asserts the Board erred in applying a “substantial completion” standard when the relevant Contract term states that liquidated damages are to be assessed, “[f]or each day that any physical work remains uncompleted after the Required Completion Date” S.R.R. at 182b. Further, PennDOT asserts the Board erred in assessing liquidated damages only on the days Knorr actually performed work after the substantial completion date of December 7, 2000, rather than for the entire period any physical work remained uncompleted (until August 8, 2001).

With regard to PennDOT’s construction engineering liquidated damages claim for the period from December 7, 2000 through August 8, 2001, the Board found (with emphasis added):

284. With the agreement of PennDOT, Knorr instituted a second winter shutdown and did not perform any work on the [SR-28] project from December 15, 2000, through May 13, 2001. (Plaintiff’s Exhibit 241; Defendant’s Exhibit D-106 p. 83-84; N.T. 106-126; Board Finding).

* * * *

286. The work performed by Knorr after December 7, 2000 consisted of some punch list work, placing of topsoil and seeding, some small adjustments to one or two sections of the roadway, and a box culvert repair. (Plaintiff’s Exhibit 241; Defendant’s Exhibit D-106 p. 83-84; N.T. 106-126).

287. Based on Knorr’s applications for payment, the total amount of contract work performed between December 7, 2000, and August 8, 2001, amounted to about 1% of the total Contract work. (N.T. 109-110).

* * * *

290. Between December 7, 2000 and August 8, 2001, Knorr actually performed work on the [SR-28] project on only 32 separate days. (Plaintiff's Exhibit 241; Defendant's Exhibit D-106 p. 83-84).

291. Of those 32 days of work performed from December 7, 2000 to August 8, 2001, work performed on 13 of the days was paid for by force-account payments (i.e., the work was recognized by PennDOT as extra or additional work outside the scope of the Contract). These days of work cannot properly be considered late, unfinished Contract work for the purpose of assessing construction engineering liquidated damages. (Plaintiff's Exhibit 241; Defendant's Exhibit D-106 (pp. 83-84); N.T. 106-126; Board Finding).

* * * *

296. PennDOT issued its Notification of Final Quantities and Contract Settlement Amount, a document representing the final settlement and payment of the Contract for the [SR-28] project, on February 3, 2003. The document shows that PennDOT was assessing zero dollars for the amount of construction engineering liquidated damages. (Plaintiff's Exhibit 239; N.T. 126-128).

297. It was not until August 2005, well after Knorr had filed its claim here at the Board that Knorr was first notified by PennDOT that PennDOT would be seeking \$194,350 in construction engineering liquidation damages. (N.T. 127-128, 1794-95).

* * * *

300. The fundamental purpose of construction engineering liquidated damages is to approximate and offset the cost incurred by PennDOT to have site inspectors and personnel on an active job site while work is being performed after the anticipated completion date of the project. (408 Specifications, Section 108.07; Board

Finding).

301. For the 15 days of delay caused by Knorr before substantial completion and the remaining 3 days of Contract work performed by Knorr from December 7, 2000 through August 8, 2001 actually caused by Knorr (as opposed to PennDOT), the assessment of a \$194,350 liquidated damages amount is an unreasonably large penalty as the amount grossly exceeds PennDOT's cost of on site personnel for these days. (Plaintiff's Exhibit 241; Defendant's Exhibit D-106 (pp. 83-84); F.O.F. 221-231, 272-300; Board Finding).

302. The excessively large dollar amount in relation to the relatively minor amount of work and actual work days involved and the manner in which PennDOT has here asserted it (including PennDOT's initial decision not to assess construction engineering liquidation damages when it issued its Notification of Final Quantities and subsequent reversal following Knorr's claim filing at the Board) leads the Board to conclude that PennDOT's proposed application of construction engineering liquidated damages in this case in the amount of \$194,350 would serve a mainly punitive rather than a compensatory purpose. (F.O.F. 221-231, 272-301; Board Finding).

303. It would not be punitive, but rather compensatory in nature, to assess construction engineering liquid damages of \$650 per day against Knorr for a total of 18 days (comprised of the 15 days of delay Knorr caused prior to substantial completion on December 7, 2000 and for the 3 days of unfinished Contract work Knorr actually performed thereafter that were not caused by PennDOT). This results in total construction engineering liquidated damages of \$11,700. (F.O.F. 221-231, 272-302; Board Finding).

F.F. Nos. 284, 286-87, 290-93, 296-97, 300-03. Based on these findings, the Board determined (with emphasis added):

75. Utilizing the construction engineering liquidated damages provision in the 408 Specification to impose the

per day liquidated damage amount for days spent doing force account (extra work outside the Contract); days when PennDOT agreed that no work would be performed; and for days spent doing contract work because of delay caused by PennDOT constitute inappropriate, non-compensatory (i.e. punitive) assessment of liquidated damages for such days. (408 Specifications Section 108.07; See also, A.G. Cullen, 898 A.2d at 1161-1163).

76. Because we have found that Knorr was responsible for only 15 days of delay prior to substantial completion of the project on December 7, 2000, and by agreement between itself and PennDOT entered into a second [w]inter [s]hutdown thereby working only 32 days from substantial completion until the final physical act of work on August 8, 2001; and because 13 of those additional 32 days worked subsequent to substantial completion were spent performing force account (i.e. work outside the Contract); and because, of the remaining 19 days of contract work after substantial completion, 16 were caused by PennDOT, we find that only 18 days of work beyond the contract completion date ... are properly assessed construction engineering liquidated damages pursuant to Section 108.07 of the 408 Specifications. Id.

77. The \$194,350 requested by PennDOT as construction engineering liquidated damages is an unreasonably large and punitive liquidated damages figure under the circumstances of this case and therefore is unenforceable. Id.

78. Knorr is liable to PennDOT for \$11,700 in construction engineering liquidated damages. Id.

Concl. of Law. Nos. 75-78.

Here, Knorr carried its burden of proving that the full liquidated damages award allowed by the contract would be unreasonable and in the nature of a penalty under these circumstances. This is essentially a factual determination

driven by the Board's exhaustive findings regarding causes of delay. Because the Board's findings are supported by substantial evidence and those findings, in turn, support the Board's conclusions, we will not disturb them.

IV. Knorr's Appeal

In its appeal, Knorr raises three issues. Specifically, Knorr argues the Board erred in: rejecting its MPT disruption claim; calculating its award of delay damages; and, rejecting its claim for extended home office overhead.

A. MPT Disruption Claim

Knorr first contends the Board improperly rejected its \$113,692 MPT disruption claim. It maintains the Board's finding that PennDOT was responsible for 83% of the delay and disruption on the project cannot be harmonized with the Board's contrary finding that Knorr was not entitled to any recovery on its MPT disruption claim. Knorr argues that if paving and sub-base crews were disrupted and unproductive (as they constantly jumped around the project looking for isolated segments of unimpacted areas in which to work), then so too were the flagging crews Knorr used to divert traffic around its paving crews. Knorr asserts every hour of additional paving meant another hour of MPT.

With regard to Knorr's MPT disruption claim, the parties' experts presented conflicting evidence as to whether Knorr's claimed MPT costs were attributable to PennDOT. Ultimately, the Board credited the testimony and report of PennDOT's expert over that of Knorr's expert. More specifically, the Board found (with emphasis added):

262. For the category of [MPT] Inefficiency, Knorr claims \$113,692 in disruption-related damages. That figure equals additional unanticipated maintenance and protection of traffic costs of \$86,063, a blended markup of 30.15% equal to \$25,948, and a 1.5% bond amount. (Plaintiff's Exhibit 277 (p. 77); See also footnote 6).

263. Of the five problems created by PennDOT's active interference, Knorr argues that PennDOT's decision to change the planned specifications for shoulder reconstruction in mid-project for Stations 1820 to 1844 materially reduced the opportunity for two travel lanes during construction and was the material factor in increasing the additional unanticipated [MPT] costs. (Plaintiff's Exhibit 277; N.T. 531-33, 550-53, 654-56; F.O.F. 151-170, 249-262; Board Finding).

264. However, the Board finds [PennDOT's expert's] testimony and report to be more credible and persuasive on the issue of the extra costs for Knorr's [MPT] operation allegedly caused by PennDOT's change to the shoulder renovations between Station 1820-1844. [PennDOT's expert] explained his refutation of this component of disruption-related damages with persuasive reference to the project records. Specifically, [PennDOT's expert] established that the changes did not materially reduce the opportunity for two lane traffic as both the original as well as the revised procedures would have intruded into the adjacent travel lane. Moreover the renovation between Stations 1820-1834 was accomplished in only 44 hours. (Defendant's Exhibit D-115 at p. 39-43; Board Finding).

F.F. Nos. 262-264. Thus, the Board rejected Knorr's claim for MPT disruption costs for the period in which Knorr performed the shoulder renovation work between Stations 1820 to 1834. The Board's findings are adequately supported by the testimony and report of PennDOT's expert. We may not disturb the Board's credibility determination. A.G. Cullen.

Nevertheless, Knorr claims the Board failed to recognize Knorr's MPT disruption claim was not based solely on the shoulder renovation work between Stations 1820 and 1834, but rather was based on the fact Knorr was required to pave the roadway and shoulders in a piecemeal manner throughout the project. Because of the inefficient manner in which Knorr was forced to conduct its paving work throughout the duration of the project, Knorr asserts, it incurred increased MPT costs and the Board erred in failing to award these costs. Again, we disagree.

In calculating Knorr's disruption-related MPT claim, Knorr's expert used a different method, the "total cost method." The total cost method for calculating damages involves the subtraction of the estimated costs set forth in the contract from actual costs. James Corp. v. N. Allegheny Sch. Dist., 938 A.2d 474 (Pa. Cmwlth. 2007); A.G. Cullen. This method is "inseparably connected with the rule that the amount of damages need not be ascertained with mathematical certainty to sustain an award in the [contractor's] favor." John F. Harkins Co., Inc. v. Sch. Dist. of Phila., 460 A.2d 260, 263 (Pa. Super. 1983) (quoting Rubin, "The Total Cost Method of Computing an Equitable Adjustment--An Analysis," 26 Fed.B.J. 303, 304 (1966)). It is premised on the fact that, where a contractor is entitled to an adjustment, a governmental body should not be exonerated merely because the contractor is unable to prove his increased costs with precision. Harkins.

Consequently, although the total cost method must be used with caution, see Harkins, the method may be applied where the nature of the particular loss renders it impossible or highly impracticable to determine damages with a

reasonable degree of accuracy and where the loss is substantiated by reliable evidence. Glasgow, Inc. v. Dep't of Transp., 529 A.2d 576 (Pa. Cmwlth. 1987) (Board's use of total cost method proper where contractor presented extensive testimony concerning effect of delay and resulting costs); Larry Armbruster & Sons, Inc. v. State Pub. Sch. Bldg. Auth., 505 A.2d 395 (Pa. Cmwlth. 1986) (upholding Board's use of total cost method based on testimony of contractor's representatives concerning delay and actual labor costs incurred). In order for a contractor to establish liability under the total cost theory, it is essential the contractor establish liability, causation, and resultant injury. Glasgow.

Here, the difficulty with Knorr's claim stems from the lack of evidence establishing a clear causal connection between the "piecemeal fashion" in which it performed its paving work and an increase in its MPT costs above that contemplated by the Contract. To that end, despite offering a conclusory opinion that Knorr incurred \$113,692 in disruption-related MPT costs, Knorr's expert did not clearly or specifically explain how the piecemeal work resulted in the increased MPT costs. In the absence of clear evidence connecting Knorr's "jumping around" on the project to the claimed disruption-related MPT costs, we discern no error in the Board's failure to award Knorr \$113,692 in disruption-related MPT costs.

B. Computation of Delay Damages

Knorr also contends the Board made a computational error in assessing delay damages. Knorr asserts the Board found Knorr proved 72 days of compensable delay running from August 13, 2000. Knorr maintains that although the Board found "PennDOT caused 72 days of delay from August 13, 2000 [to October 24, 2000]," F.F. No. 280, the Board did not award Knorr its actual (Board

acknowledged) delay damages incurred during this 72-day period. This argument fails.

Based on the Notice to Proceed issued August 12, 1999, the initial completion date for the project was August 13, 2000. F.F. No. 14. PennDOT subsequently granted Knorr a 61-day extension, resulting in a revised completion date of October 13, 2000. F.F. No. 43. The project was considered substantially complete as of December 7, 2000, 116 days after the original completion date. F.F. No. 213.

Before the Board, Knorr claimed that as a result of numerous delays beyond its control, it was forced to spend an additional 116 days on the project. The Board determined 72 of the 116 days of claimed delay were attributable to PennDOT. As a result, the Board determined Knorr proved PennDOT was responsible for 62% ($72 \div 116 = .62$) of Knorr's claimed delay damages.

Knorr argues rather than utilizing the above calculation, the Board should have simply awarded delay damages for the 72-day period beginning August 13, 2000 (the initial completion date for the project) and ending on October 24, 2000 (the 72nd day following the initial project completion date). Knorr points to its expert report, which provides a breakdown of the actual extended costs it incurred on the project between August 13, 2000 and October 24, 2000, and asserts the Board erred in failing to award costs for this period.

Contary to Knorr's assertions, a review of its expert's report (and the Board's corresponding finding) reveals that of the periods of delay Knorr alleged

were attributable to PennDOT, none of the delays occurred between August 13, 2000 and October 24, 2000. See S.R.R. at 148b; F.F. No. 222. Rather, the delays identified by Knorr's expert occurred throughout the project and took place (with the exception of the scheduling of the semi-final inspection for which the Board declined to assess delay damages) between March and July 2000. F.F. No. 222. As such, Knorr's claim for delay damages incurred between August 13, 2000 and October 24, 2000 was not supported by the testimony of its expert. Under these circumstances, we discern no error in the Board's decision not to award delay damages using the method now advanced by Knorr.

C. Extended Home Office Overhead

As its final issue, Knorr maintains the Board erred in determining Knorr's expert's use of the markup rates referenced in Section 110.03(d)(7) of the 408 Specifications as a reasonable markup on delay damage components barred any claim for extended home office overhead damages. Knorr argues this determination is inconsistent with the Board's finding that "[t]he provisions relating to additional work, extra work and extra work paid on a force account basis contained in Section 110.03 of the 408 Specifications do not address Knorr's claims for delay and disruption on this project" F.F. No. 66. Again, we disagree.

1. Section 110.03(d)(7)

In calculating each of its three categories of delay damages, Knorr's expert utilized the account markup provisions contained in Section 110.03(d)(7) of the 408 Specifications, which provides, with emphasis added:

Except as specified in Section 110.03(d)4 [service by others], to cover all administration, general superintendence, other overhead, bonds insurance, anticipated profit, and use of small tools and equipment for which no rental is allowed, add 40% to the labor cost, add 25% to the material cost, add 5% to the equipment cost, and when applicable, add 8% to the total force account invoice for subcontract work.

F.F. No. 71. By way of example:

235. For the category of Extended Supervision, Knorr claims \$32,647 in delay damages. That figure equals \$22,975 of labor costs plus a 40% markup and an additional markup of 1.5% for bond costs. (Plaintiff's Exhibit 277 (p. 61)).

236. Pursuant to the force account markup provisions contained in Section 110.03(d)(7) of the 408 Specifications, [Knorr's expert] added a 40% markup to the costs of Extended Supervision. The Board finds that because use of force account markups is frequently employed by both PennDOT and contractors to calculate payments due for extra work presented as damage claims, we find that use of these markups in Section 110.03(d)(7) is reasonable and appropriate to calculate Knorr's Extended Supervision delay damages in this case. (408 Specifications § 110.03(d)(7); Plaintiff's Exhibit 277 (p. 61); N.T. 1049-51; Board Finding).

237. However, because the 40% markup contained in Section 110.03(d)(7) already includes the cost of a bond markup, the damages claimed for Extended Supervision will be reduced by the 1.5% bond markup. Therefore, the Extended Supervision damages incurred by Knorr for the entire 116 day delay period equals \$32,164. (408 Specifications §110.03(d)(7); Plaintiff's Exhibit 277 (p. 61); Board Finding).

F.F. Nos. 235-37 (footnote omitted). Similarly, in preparing his delay damage calculation, Knorr's expert utilized the Section 110.03(d)(7) markup provision for each of the categories of delay damages Knorr claimed. See F.F. Nos. 238-46.

As to Knorr's claim for extended office overhead, the Board made the following findings (with emphasis added):

70. PennDOT also asserts that Contract language and case law precludes the Board from awarding Knorr's separately delineated claim of \$101,228 for extended home office overhead ... (Defendant's Brief at 74-75).

* * * *

72. Markups prescribed in contracts for additional or extra work performed by force account (or its equivalent) are frequently used by litigants and experts as appropriate and reasonable markups to costs incurred to calculate delay and disruption damages in construction contract actions. (Plaintiff's Exhibit 277; Board Finding).

73. The Board finds that the markups prescribed in Section 110.03(d)(7) are appropriate and reasonable markups to utilize in calculating the delay and disruption damages incurred by Knorr in this matter. (408 Specifications § 110.03(d)(7); Plaintiff's Exhibit 277; Board Finding).

74. Because the 408 Specification markups already include an allowance for extended home office overhead, a separate award of extended home office overhead ... as requested by Knorr, would be duplicative. (408 Specifications § 110.03(d)(7); Board Finding).

* * * *

247. With regard to Knorr's claim for Extended Home Office Overhead of \$100,818, the Board finds that Knorr's adoption of the markup percentages in Section 110.03(d)(7) of the 408 Specifications specifically includes the cost of general administrative overhead.

Accordingly, the Board finds Knorr's separate claim for extended home office overhead to be duplicative of its claims with markup. (408 Specifications § 110.03(d)(7); Plaintiff's Exhibit 277 (p. 65); F.O.F. 222-246; Board Finding).

F.F. Nos. 70, 72-74, 247 (footnote omitted). We discern no error in the Board's determinations on this issue. In short, the Board determined that because Knorr's expert utilized the markups contemplated in Section 110.3(d)(7) of the 408 Specifications in calculating Knorr's delay damages, which include an allowance for extended home office overhead, F.F. No. 74, Knorr could not also recover extended home office overhead costs as a separately delineated delay damage claim. No error is apparent in the Board's decision to reject Knorr's extended overhead claim, which would amount to a double recovery for Knorr.

2. Section 110.03(a)

Moreover, we reject Knorr's assertion that the Board's denial of Knorr's claim for extended home office overhead is inconsistent with the Board's finding that "[t]he provisions relating to additional work, extra work and extra work paid on a force account basis contained in Section 110.03 of the 408 Specifications do not address Knorr's claims for delay and disruption on this project" F.F. No. 66. In advancing this argument, Knorr takes this excerpt from Finding of Fact No. 66 out of context. More particularly, the Board made the following findings regarding a different section, Section 110.03(a) of the 408 Specifications, with emphasis added:

63. PennDOT also asserts that Knorr has already been fully compensated for the claims it asserts in this action because Knorr has been paid by force account for the items listed in PennDOT's time extension letter of August 21, 2000, which granted Knorr a 61-day time extension

for completion of the project. PennDOT asserts this compensation is provided for by Section 110.03 of the 408 Specifications and precludes Knorr from seeking additional compensation for the delays and disruptions it alleges in this action. (Defendant's Brief at 73-74).

64. The provisions of Section 110.03(a) of the 408 Specifications relating to additional and extra work performed by a contractor state, in relevant part:

Payment for additional work, extra work, and extra work on a force account basis is accepted as payment in full for all profit and for all equipment, labor, material, field overhead, home office and general administrative expenses, and every other expense incurred as a result of the additional or extra work. No claims for additional compensation of any kind arising out of or relating to such work can be asserted against the Department with the Board of Claims.

(408 Specifications § 110.03(a)).

* * * *

66. The provisions relating to additional work, extra work and extra work paid on a force account basis contained in Section 110.03 of the 408 Specifications do not address Knorr's claims for delay and disruption on this project, because those provisions compensate a contractor for the additional man-hours, equipment, material and other related costs incurred for performing the additional or extra work that has been authorized. (408 Specifications § 110.03; Board Finding).

* * * *

68. Section 110.03 of the 408 Specifications is not applicable as a defense against Knorr's claims because the work done (and allegedly paid for by force-account and contract-unit payments made by PennDOT) are not, as a matter of fact, the problems complained of here by Knorr as the cause of its delay and disruption. (Plaintiff's Exhibits 128 and 277; F.O.F. 42, 63-67; Board Finding).

...

F.F. Nos. 63-64, 66, 68. In this series of findings, the Board rejected PennDOT's claim that Section 110.03(a) of the 408 Specifications completely barred Knorr's disruption and delay claims. Contrary to Knorr's assertions, the Board did not determine Section 110.03 of the 408 Specifications barred Knorr's extended home office overhead claim; rather, the Board determined, because this claim was duplicative of overhead costs already included in the markups utilized in Knorr's expert's calculations of delay and disruption related damages, Knorr was not entitled to a separate award for extended overhead costs. As such, Knorr's argument fails.

V. Conclusion

For all of the foregoing reasons, we affirm the comprehensive and thoughtful opinion of the Board in this matter.

ROBERT SIMPSON, Judge

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

Wayne Knorr, Inc.,	:	
	:	
Petitioner	:	
	:	
v.	:	No. 1593 C.D. 2008
	:	
Department of Transportation,	:	
	:	
Respondent	:	
	:	
Department of Transportation,	:	
	:	
Petitioner	:	
	:	
v.	:	No. 1598 C.D. 2008
	:	
Wayne Knorr, Inc.,	:	
	:	
Respondent	:	

ORDER

AND NOW, this 14th day of May, 2009, the order of the Board of Claims is **AFFIRMED**. Wayne Knorr, Inc.'s Application to Strike Portions of the Second Brief and Reply Brief of the Department of Transportation and the Department of Transportation's Cross-Application to Strike Portions of Wayne Knorr Inc.'s Initial Brief and Reply Brief are **DENIED**.

ROBERT SIMPSON, Judge