BEFORE THE ALASKA OFFICE OF ADMINISTRATIVE HEARINGS ON REFERRAL BY THE COMMISSIONER OF TRANSPORTATION & PUBLIC FACILITIES

MILLER CONSTRUCTION CO., LTD.	)	
	)	
v.	)	
	)	
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, SOUTHCOAST REGION	)	OAH No. 19-0088-CON

NOTICE REGARDING PROPOSED DECISION ON CLAIMS AND COUNTERCLAIM AND ORDERS ON FURTHER PROCEEDINGS

We are sending you the administrative law judge's proposed decision on claims and counterclaims and orders on further proceedings in this matter. Please note that this is not a final decision. Instructions for further proceedings are provided in the decision and order.

DATED: July 27, 2020.

I certify that on this date an exact copy of this Notice and the accompanying proposed decision were provided to the following:

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DECISION ON CLAIMS AND COUNTERCLAIM AND ORDERS ON FURTHER PROCEEDINGS

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I. Introduction

The Southcoast Region of the Department of Transportation and Public Facilities awarded a contract to Miller Construction Company, Ltd., to construct a one-lane gravel road from Ketchikan to Shelter Cove. As work on the project progressed, Miller Construction and the Region had numerous disputes about the project. Eventually, the Region declared Miller Construction in default and terminated the contract. A different contractor was engaged to finish the road.

Miller Construction filed several contract claims against the Region, which have been consolidated in this appeal. The Region's contracting officer, Lance Mearig, denied the claims. Miller Construction appealed.

Four of Miller Construction's claims related to the work it had already performed at the time it was terminated. The fifth, and most important, claim asserted that the Region's termination for default was wrongful. In Miller Construction's view, it would have substantially

finished the project on time if not for the Region's wrongful conduct in requiring extra work, failing to make sufficient progress payments, failing to allow extra time in which to finish the project, and otherwise thwarting its progress through bad-faith lack of cooperation. Based on these arguments, Miller Construction asserted that the termination should be judged a termination for convenience. Although the Region had a right to terminate the contract for convenience, that action gives rise to liability for damages that would not adhere when a contract is terminated for default.

The Region saw things very differently. In the Region's view, Miller Construction had violated its contract in several respects, including that it was building a road that did not meet contract specifications, refused to follow orders, had fallen behind schedule due to its inefficient processes, and was acting in bad faith by requesting payment for work that it had not done.

Although this case is complicated, the big picture is as follows. First, the contract in this case was deficient. It was set up as a fixed-price contract—meaning that the contractor would be paid a fixed price for the job, without regard to the actual quantity of work required to complete the job. The contract stated that quantities would not be measured. Yet, the contract also provided that the contractor could rely on the quantities estimated in the bid—meaning that quantity of work was important after all. In short, the contract was on a collision course with itself.

Second, this collision did occur. The Region had, in fact, underestimated the quantities of earthwork required on the job. Miller Construction exceeded the estimate of quantities sometime in the late summer of 2017. When Miller Construction presented the Region with evidence that it had reached plan quantity, however, the Region refused to provide additional compensation to Miller Construction. Instead, it conducted its own measurement of quantities, and erroneously concluded that plan quantities had not been reached. It proceeded with the project without paying or providing additional time for the extra quantities.

Third, in addition to the dispute regarding quantity, the Region and Miller Construction were at loggerheads regarding project quality. The Region observed that the road was not being built to the standard required by the contract. The fill used to build the road included debris and oversized rock. The slopes of the fill, and the backslopes of the cuts, were often too steep. Stakes were not being installed. The location of the road, and whether the road would have compliant curves and grades, was uncertain. At least some subcontractors and suppliers were not being

paid. Blasts of the rock formations were not well designed, and one blast was so bad that it knocked down trees and sent rock into the nearby inlet. Four specialized pipes for fish streams were not installed within the strict window for working in fish streams, and had to be deleted from the project. Directives given by the Region to cure the deficiencies were not being promptly implemented. Equipment was breaking down. The project was not completed by the contract completion date.

Thus, although not all of the Region's concerns were necessarily material failings, the Region had good reason to find Miller Construction in default.

In these circumstances, however, Miller Construction's default is excused. The Region's failure to accurately measure quantities, and failure to recognize that Miller Construction was due additional compensation and time are material breaches of the Region's duties under the contract. If Miller Construction had been provided the money and time due, most likely it could have addressed the quality issues and substantially completed a compliant road on time.

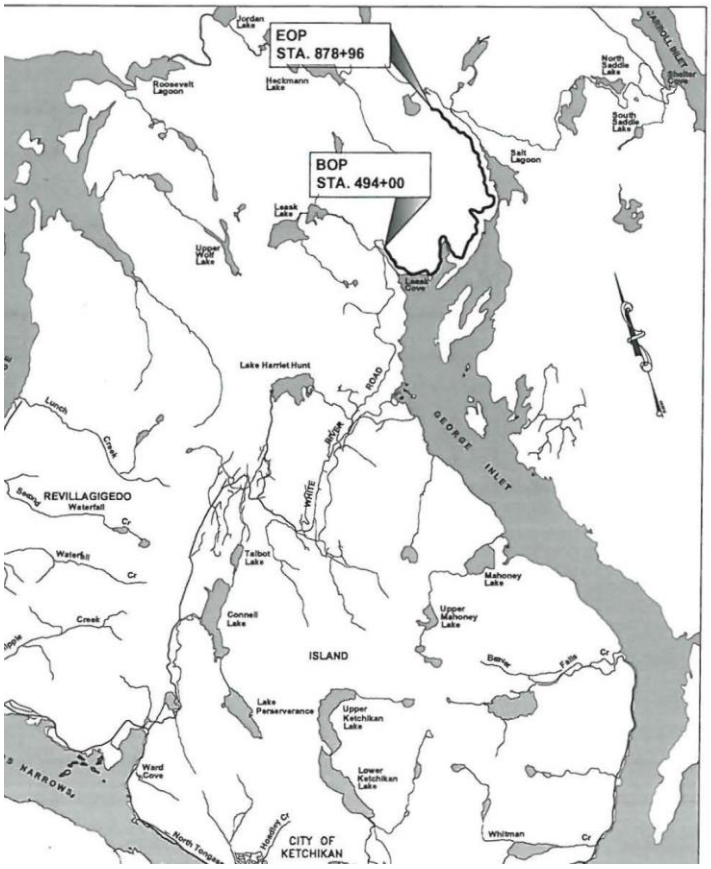
Therefore, the Region's termination of Miller Construction was wrongful. The termination is converted to a termination for convenience. The Region must pay the damages due under a termination for convenience. Because wrongful termination damages were not addressed in this phase of the hearing, however, damages for all issues will be determined during the next phase of this litigation.

II. Background facts: summary of the project and key events

A. The Shelter Cove Road project

Shelter Cove is a remote bay on Revillagigedo Island, the large island in the Southeast Alaska archipelago that is home to Ketchikan. The Cove is near the center of the island, located on a fjord called Carroll Inlet that snakes about halfway up the island. Although some logging roads have been developed that lead to Shelter Cove, before this project, it was not possible to drive from Ketchikan to the Cove. Access to and from the logging roads that led to Shelter Cove had to be by Carroll Inlet. To expand access to this part of Revillagigedo, interested parties proposed building a road link to Shelter Cove. The following map shows the project's location on Revillagigedo Island.[1]

[1] Nichols testimony; Kemp testimony. The following picture is from SCR 3 at 1.



1. The project takes shape

The Shelter Cove Road project first took shape as a "road-to-resources" project proposed by Senator Bert Stedman, a long-time state senator representing much of Southeast Alaska.[2] Unlike most highway projects, which rely to a considerable extent on federal funding, the road-to-resources program was a state-funded program. As originally conceived, the Shelter Cove Road would have been constructed to minimal standards, more for having access to resources than for public access. Roads of this type might be built by the Forestry Division of the Department of Natural Resources.

Pat Kemp, who worked for many years as an engineer for the Department of Transportation and Public Facilities, later becoming deputy commissioner and then commissioner, served as an expert witness for Miller Construction. He described the road to resources program as "building skinny roads as cheap as possible" with the idea that the roads could later be upgraded, straightened, and widened, perhaps using federal money.[3]

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2 Nichols testimony; Kemp testimony.

3 Kemp testimony.

Mr. Kemp was involved in the initial decisionmaking on the Shelter Cove Road project, which took place during his tenure as deputy commissioner and commissioner. A route for the road was selected from among four to five alternatives that were under consideration.[4] The surveying for the route was done with an aerial imaging technique called "light detection and ranging," often referred to as "LiDAR."[5] The proposed road would begin at the end of the existing White River Road, at about 21 road miles outside of Ketchikan. Eventually, the road would lead to Shelter Cove, but the first phase of the project would terminate a few miles from Shelter Cove, meeting up with an existing logging road at Salt Creek that led to the Cove.[6]

As frequently happens, however, the project changed when the administration changed in 2014. The new administration did not favor the "road to resources" designation.[7] Instead, the project changed to a road that would be open to the public, but still designed for low volume use. It would be a one-lane, 20 m.p.h. road with turnouts that would allow for on-coming traffic. It would be safe for recreational users as well professional drivers in logging or mining vehicles. The project would be funded with state money, not federal funding. Because the project was a public use road, it was assigned to the Southcoast Region of the Department of Transportation and Public Facilities, not to the Division of Forestry.[8]

Many witnesses testified that this project was unusual for the Department.[9] Most of its road projects are upgrades of existing roads, not building wilderness roads across virgin territory. The led to some unusual contractual features, which will be described in detail below.

2. The road design

Darryl Lester, a designer at the Region, was instructed to develop plans for phase one of the road so that the project could be put out to bid. For about the first mile, the project simply involved improving an existing one-lane logging road that connected to White River Road. After that, however, the job became considerably tougher. The project required carving a road across six-plus miles of virgin territory on steep hills that sloped down toward George Inlet, another salt-water fjord that paralleled Carroll Inlet in interior Revillagigedo.

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4 *Id.*
5 *Id.*
6 SCR 1.
7 Kemp testimony.
8 Carroll testimony.
9 Moore testimony; Lester testimony; Winters testimony.

In designing the road, Mr. Lester first visited the site.[10] He observed stakes in the ground that demarked the centerline of the route selected from the LiDAR survey. He walked a portion of the route, but the walking was very difficult after the initial mile of logging road ended and the route plunged into a logged area with no road and brambly second-growth.[11]

Back at the office, Mr. Lester used computer-aided design software to produce detailed plans for the road. The plans included four "typical sections" that described how the road was to be constructed depending on the terrain—a rock cut, a soil cut, a soft ground detail, and an "intervisible" turnout.[12] The plans also included cross-sections that depicted what the finished road was to look like from a side view (as if one could take a slice out of the road at that point and view the road from the side).[13]

The road was laid out with one lane station being depicted every one-hundred feet. The station that marked the beginning of the project (referred to as "BOP") was designated station 494. The next station, 495, was 100 feet down the road. If a spot between stations had to be referenced, it could be easily identified down to the foot by adding "+__" to the station number. Thus, for example, the cross-sections depicting the road every 50 feet, would be described as "station number +00" for the stations, and "station number +50" for the point halfway between two stations.

In general, if one were walking down the centerline of the planned road from BOP towards the "end of project" (EOP), the terrain would slope from left to right—down the hill towards George Inlet. For sloped areas, the cross-sections would depict a cut into the hillside on the left. To illustrate, the plan specifications for a "typical soil cut" are shown here:[14]

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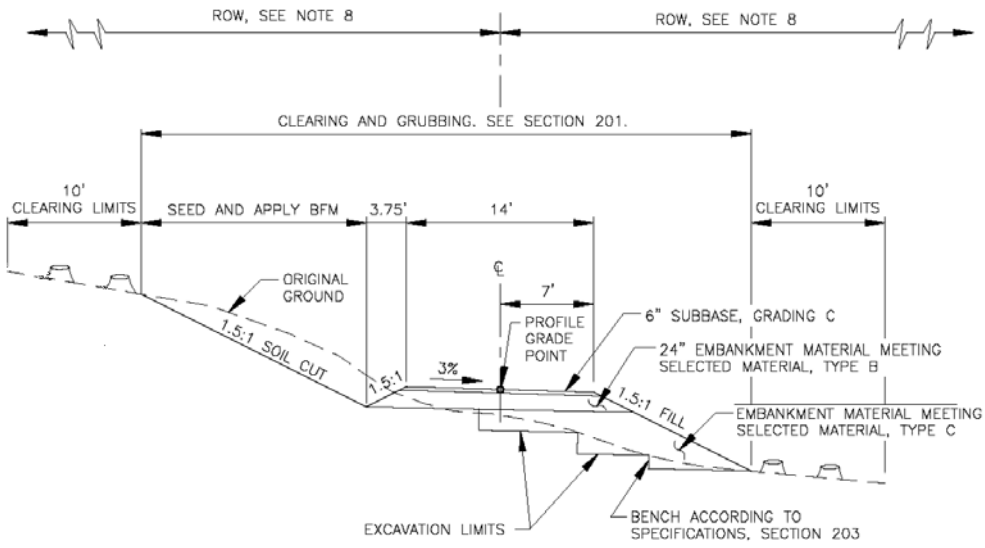
10 Lester testimony.
11 *Id.*
12 SCR 3 at 6-7.
13 SCR 6.
14 SCR 3 at 6. In this drawing, "ROW" means "right-of-way."



TYPICAL SOIL CUT

This picture illustrates how the road fill, called the "embankment," sloped down to the right from the shoulder of the road at a 1.5:1 slope. Where the entire width of the road was cut into the hillside, it was called a "full bench." In these cut areas, the road consisted of two feet of embankment placed on the bench. In a "fill" area (where the road was not built on a cut into the hillside), the embankment was structural, meaning it helped hold up the road. In fill areas, the plans required a partial bench when the hillside slope was greater than 4:1, with at least four feet of embankment supporting the road surface.[15] The embankment tapered down to what was called the "toe" of the roadway (at a slope of 1.5 to 1).[16]

The embankment had to be compactible material.[17] In Southeast Alaska, that generally meant mostly rock with some soil, but never any muck, roots, stumps, live trees, or vegetation. As will be seen, in various places along the project, Miller Construction did not always adhere to these requirements, at times leaving the sloped embankment too steep or containing roots, downed trees, stumps, or even live trees.

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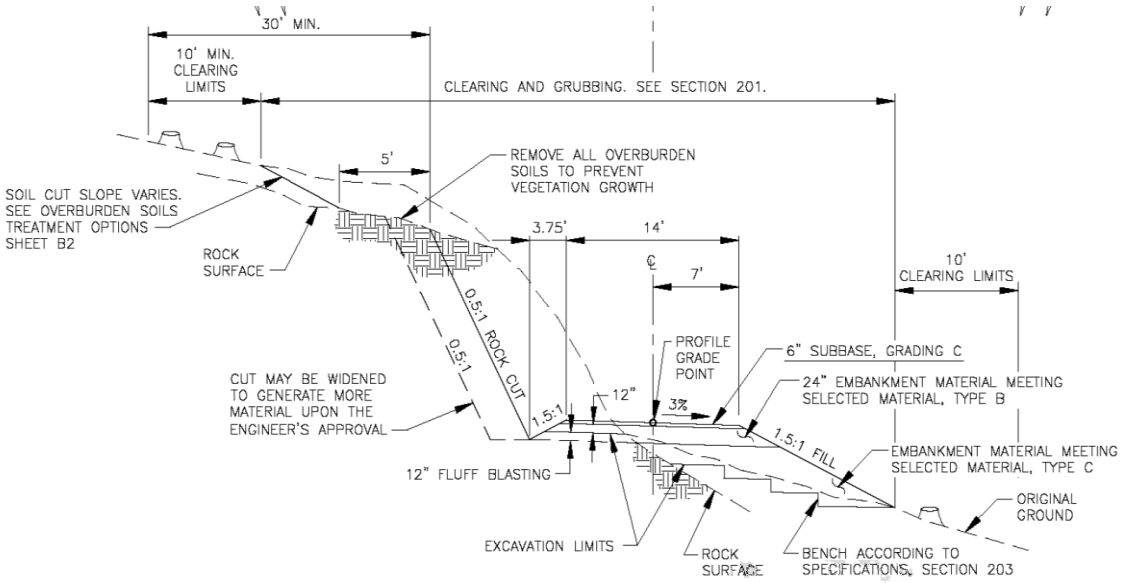
[15] SCR 330 at 87 (§203-3.03). SCR 330 is the Department's Standard Specifications for Highway Construction, 2015 Edition. All cites to this exhibit will include page number and section number.

[16] SCR 3 at 6. Note that embankment depth would be more than the minimum when more embankment is needed to raise the height of the road.

[17] Foster testimony; SCR 330 at 402 (§703-2.07). Type B material, required in the top two feet of embankment, has more stringent standards than type C.

The plans show that trees had to be cut not just in the roadway, but beyond the roadway to what was called the "clearing limit." They also show that the top, organic layer of original ground, and all plant growth had to be removed from the roadway and on the hillside, in a process called "grubbing." This is illustrated in the typical soil cut above by the dashed line showing "original ground," which has been removed. As seen on the typical soil cut, the clearing limits extended 10 feet past the top of the slope on the uphill side (which, for a soil cut, had to be laid back at 1.5:1 slope) and the toe of the embankment on the downhill side.

For a rock cut, meaning an area that was rock rather than dirt, the design was different:[18]



TYPICAL ROCK CUT

Here, the hillside slope could be much steeper than in soil: at 0.5:1 rather than 1.5:1 (because rock is more stable than soil). It still, however, had to be sloped back—it could not be vertical, because that would have created a danger of loose rock falling on the road below. To prevent trees from growing back at the top of the cut, and soil from sloughing off down the slope, all overburden on the top of the rock cut had to be cleared back five feet. Trees had to be cleared all the way back to 30 feet from the top of the rock cut.[19] As will be seen, these requirements also loom large in this case—Miller Construction did not always slope the rock hillsides back, leaving

[18] SCR 3 at 6.
[19] *Id.*

some vertical and at least one with overhanging rock.[20] In addition, Miller Construction did not do the extra grubbing required on the top of rock cuts.[21]

Muskeg areas—soft soils saturated with water—also had to be treated differently. Here, grubbing was not required. In addition, a debris mat consisting of up to two feet of inverted stumps, slash, small logs, and other debris material had to be laid down, topped by a geotextile fabric, and then covered with four feet of embankment.[22]

The plans also described other details. For example, they identified the location and size of the culverts (for general drainage) and the seven fish pipes (culverts that were designed so that fish could swim through them without obstruction for streams that have a fish population). The installation of the fish pipes was a crucial driver of the project. Because these installations involved significant intrusion into fish habitat, they had to be completed in early summer before the fish spawning window.[23] This meant installation by July 31, 2017.

3. The unusual features of this project: a flexible alignment and payment by the lane station

As many witnesses explained, the selected route was not intended to be hard and fast.[24] There were several reasons for keeping the alignment of the road flexible. First, this was a wilderness road, where the right-of-way (right to build the road on the property) was not fixed. This meant that the road could be moved at no cost. Second, the design was based on a LiDAR survey, which is not precise.[25] This meant that the contractor might discover unexpected obstacles or better routes not identified by the survey. Third, the designer had very little "geotechnical" data—data about the subsurface soils and rock on which the road would be built.[26] Again, better routes could be found in the field that took advantage of better quality subsurface.

Accordingly, the plans allowed that "the alignment and grade may be adjusted to better fit topography."[27] The contractor had discretion to move the alignment up to 20 feet away from the

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20 Foster testimony.
21 *Id.*; Williams testimony.
22 SCR 3 at 6.
23 Trousil testimony.
24 Kemp testimony; Moore testimony; Johnson testimony; Foster testimony.
25 Kemp testimony; Lester testimony; Foster testimony; Moore testimony. A LiDAR survey measures ground height from an aircraft by reflecting light off the surface of the earth and measuring the time it takes the light to return to the source. Foliage and anomalies in the ground can sometimes result in an inaccurate ground height measure. *Id.*
26 Kemp testimony; Lester testimony.
27 SCR 3 at 6.

design center line.[28] Moves greater than 20 feet were also possible if approved by the project engineer.[29] Even with this discretion, however, the contractor still had to build the road to meet the required "geometrics." These geometrics were designed for safety—curves could only be so sharp, and with hills, not only the grade, but the sight distance, was strictly regulated.[30]

Because this was an unusual project, in planning and designing the project, the Region made another decision that was unusual, but appeared to be well-suited for a wilderness road—it determined that the unit of payment would be by the lane station, not the quantity of earthwork. ("Earthwork" refers generally to clearing and grubbing, excavation, and embankment) To explain, for most road projects, the contractor is paid per unit of earthwork. In order to be paid, the contractor will measure the earthwork. Typically, for example, each truck-haul of excavated material, or material to be embanked, would be weighed. The contractor would be paid by the ton.

For a remote project such as this one, however, where no scale or other convenient method of measurement was available, the Region elected to pay for components of road construction with a lump sum for the component rather than by a unit price for a unit of earthwork. The largest of these components was "composite road construction," which included the work to put a roadbed on the ground. The unit for payment on composite road construction was the lane station—meaning the contractor would be paid for each completed lane station. Other pay items described in the contract included culverts and fish pipes, which were to be paid by the lineal foot of pipe, installation of the six-inch surface layer of crushed rock, which was to be paid by the cubic yard (a known quantity that did not require measurement), and various environmental measures, including stabilization, erosion control, and storm water pollution prevention, payment for which depended on the type of environmental services required.[31]

When designing the project, Mr. Lester was able to use the design software to estimate the quantities of the major work items that made up the pay item called "composite road construction": clearing (27 acres), clearing and grubbing (34 acres), excavation (270,000 cubic yards), and embankment (243,700 cubic yards).[32] In a Notice to Bidders, the Region stated that

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28 *Id.*
29 *Id.*
30 Foster testimony.
31 SCR 8.
32 SCR 3 at 8.

bidders should rely on the estimates stated in Plan Sheet C1 when submitting their bid.[33] Bidders were also advised that no measurement of quantities would be necessary because these items would be paid by the lane station, not by the quantity.[34]

Before turning to the bid, we must pause and consider the effect of these provisions in the bid documents. Because bidders were told they could rely on the bid quantities, it followed that if the quantity estimates were in error (which they almost certainly would be, given that they were only estimates), a bidder's bid would be inaccurate. If the contractor could build a compliant road with less earthwork than estimated, everything would be fine. The contractor would make money, and the Region would get a road that met its specifications.

If Mr. Lester's earthwork estimate was low, however, and the contractor had to do more clearing and grubbing, excavation, and embankment than estimated, then the contractor would be entitled to more compensation. Yet, because the contract provided for payment by the lane station, payment for additional quantities of earthwork could not be made without amending the contract. The contract did not have a provision for payment by quantity of earthwork. The contract did not specify a method of measurement or set an agreed-upon price for units of earthwork. Further, because the contractor had also been told that the contractor was not required to measure any quantities, no tracking of quantities would occur. As will be seen, this dilemma is the critical flaw that eventually broke the back of this project.

B. Miller Construction is the low bidder

The Region issued the invitation to bid on the Shelter Cove Road project on March 15, 2016.[35] The invitation set a completion date of October 31, 2017.[36] Bids were opened on April 14, 2016. Miller Construction Company's bid of $11,473,390 was the low bid.[37]

Miller Construction is a family-owned construction business located in Juneau. It has been in business since the late 1970s, and has successfully completed many road projects in Juneau and throughout Southeast Alaska. Two principals of the business are brothers Terrence (Terry) Miller and Timothy (Toby) Miller. Both testified at the hearing, and both were still actively involved in the management of the company during the Shelter Cove project. Terry

33 SCR 17 at 4-5.
34 SCR 2 at 14 (§207-4.01).
35 SCR 1.
36 *Id.*
37 SCR 18 at 2.

Miller no longer worked in the field, but he performed many managerial functions, including putting together and submitting Miller's bid.[38] Toby Miller actively managed the operations of Miller Construction in the field.[39]

When the Shelter Cove project first got underway in 2016, Toby Miller was in Juneau, finishing up a Miller Construction project for the City of Juneau.[40] Edwin Johnson served as the superintendent of the project for Miller Construction. Mr. Johnson is an engineer who has participated in many different aspects of road projects in Southeast Alaska, including management of a road construction company that built several logging roads.[41] Toby Miller still participated in running Shelter Cove, however, and he would call down to Ketchikan to give advice and instruction to workers after being sent video of progress on the project.[42] By April 2017, Toby Miller was physically present on the project. Although Miller Construction had other managers and supervisors, it was clear that he was the boss.[43]

Turning back to Miller Construction's bid, the bid schedule form provided by the Region had required that bidders give a price for 35 different items.[44] As noted above, by far the most significant of these is the bid for "composite road construction." On this item, Miller Construction bid $12,000 per lane station. With 550 lane stations, composite road construction came to $6.6 million—over half of the entire bid.[45]

For purposes of progress payments—interim payments for work accomplished—Miller Construction later provided a "schedule of values.[46] The schedule of values broke the composite road construction item into seven steps, from initial survey control, at $240 per lane stations, to road constructed to support truck traffic, at $4,800 per station, to finally, embankment slopes finished, at $360 per station.[47] This allowed payments to be made based on progress on each of these steps.

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38 Terry Miller testimony.
39 Toby Miller testimony.
40 *Id.*
41 Johnson testimony.
42 *Id.*
43 Cunningham testimony; Winters testimony.
44 SCR 8.
45 *Id.*
46 SCR 11.
47 *Id.* Later, the schedule was revised to allow for more payment per lane stations at the BOP end than at the EOP end, in recognition that the BOP end was more difficult, and that Miller Construction would need the cash flow to finance the project. SCR 13; Foster testimony.

Progress payments are a very important aspect of a construction project because the contractor needs funding to continue to make progress. As will be seen, the parties had many bitter disputes over progress payments. These disputes portended a major cause of the failure of this project—the lack of enough money from progress payments to substantially and timely complete the project.

Miller Construction was awarded the contract on May 17th.[48] It was given a notice to proceed on May 19th.[49] The initial step before actual construction was the preconstruction conference—a mandatory meeting for the parties to discuss significant issues.

C. Planning for construction

On June 24, 2016, nine representatives from the Region, and three from Miller Construction attended the preconstruction conference.[50] Toby Miller and Mr. Johnson attended the conference for Miller Construction. For the Region, the conference was led by Bernard Landeis, the project manager. Also present was Todd Fleming, the project engineer, who would be in the field during construction. The conference covered many routine requirements of a construction project.[51]

Even before the conference, both parties had identified that the accuracy of earthwork quantities estimates would be a significant factor. In early June, for example, Miller Construction sent "Request for Information No. 1" to the Region, asking whether the Region was willing to pay for a topographical survey.[52] (A "Request for Information," typically abbreviated "RFI," is a standardized form that the parties would use for communications so that they would have a record of the request and the response.) Miller Construction suggested that it would help the Region to have an accurate survey of original ground height before construction. A more accurate measure would allow the Region to generate firmer earthwork quantities, rather than rely on the estimate

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48 SCR 10.

49 MCC 7354 at Exhibit 10. The Miller Construction exhibits are difficult to cite. In addition to having thousands of numbered exhibits, each of Miller Construction's claims is an exhibit that has several attachments and exhibits. Many of the exhibits do not have page numbers. When I cite to an exhibit or attachment within an exhibit, I will try to identify the document, although I may not be able to identify the page.

50 SCR 18 at, e.g., 4-8.

51 *Id.* For example, the conference covered the requirements regarding posting of worker notices, reporting to the Department of Labor, and the primacy of environmental commitments and permits.

52 SCR 15.

of quantities made from the less-accurate LiDAR survey.[53] Mr. Fleming replied to the RFI that "[t]he Department is interested in cooperatively analyzing quantities and wetlands on this project. However before agreeing to anything, it is necessary to understand what MCC anticipated as the original scope of this work."[54]

At the same time, Region staff were vigorously discussing the dilemma created by the contract—the promise that estimated quantities were reliable, coupled with the lack of an accurate method for measuring the quantities of actual earthwork. Mr. Landeis expressed concern to his supervisors, Victor Winters (the head of the Region's construction section) and Daniel Noziska (the construction group chief).[55] He noted "the Department is exposed since the Contract does not contemplate how those quantities are to be estimated."[56] He pointed out that because the contract did not "provide a specification for estimating quantities" then if Miller Construction were to claim for quantities "it will be problematic for the Department to deny Miller's estimation of claimed quantities based on Miller's method of estimating those quantities."[57]

Mr. Winters, however, advised that no action by the Region would be needed because both parties would have a strong incentive to keep the actual quantities below the design estimate quantities.[58] This email conversation will turn out to be very important in this case.

Mr. Landeis explored the issue of measurement at the preconstruction conference. When Mr. Landeis asked whether Miller Construction would be able to meet the completion date, Mr. Johnson replied, "[i]f your quantities are good, we should be able to do it."[59] Mr. Landeis returned to that topic a little later, saying "[t]he next thing I was wanting to talk about was measuring excavation quantities, if Miller had a plan, or what was their idea about measuring those quantities?"[60]

The discussion that followed is important for the analysis of how alignment changes would be made and who was responsible for tracking quantities. First, Toby Miller made clear to

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53 *Id.* Topographical surveying is a method for measuring quantities because a comparison of a preconstruction survey with a postconstruction survey can provide a measure of the earthwork performed. Moore testimony; Carroll testimony; SCR 330 at 68 (§109-1.02).

54 SCR 15.

55 SCR 17.

56 *Id.* at 2.

57 *Id.*

58 *Id.*

59 SCR 18 at 13.

60 *Id.* at 14.

the Region that Miller Construction's intent was to opportunistically "make sure that the alignment works, shifting back and forth" with the goal being "to get you a great product but to do – see if we can do less excavation and embankment and still stay within your parameters."[61] He further explained that Miller Construction intended to do redesigns in areas where it found good quality rock: "if you've got a place that can make a good quarry, you should probably redesign a bit to get around utilizing that quarry."[62] As will be seen this issue—finding rock and changing the alignment to take advantage of good quality rock for building the road—later became a point of contention among the parties.

Mr. Landeis acknowledged this plan, but pressed Miller Construction for information on how it was going to know when it had installed the amount of rock specified in the plan quantity estimate.[63] Toby Miller replied, "well, we'll figure that out."[64] He and Mr. Johnson described a plan that included conducting a topographical survey and then have their surveyors install slope stakes—the common staking method that lays out the height of the road, the intersections of the road with original ground, and the location of the centerline.[65] Following mobilization, Miller Construction planned to start clearing by July 15th or 16th.[66]

As will be seen however, Miller Construction did not do the topographical survey and it installed only a few slope stakes before calling an end to that practice.

D. The pioneering process

On June 21, 2016, Mr. Johnson sent a "Revised Clearing Plan" to the Region that described the first steps in construction of the road.[67] The center line for the road as designed had already been staked by the Region.[68] Miller Construction would use those stakes to establish the

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61 *Id.*

62 *Id.*

63 *Id.* at 15.

64 *Id.*

65 *Id.* The following exchange describes the plan:

> ED JOHNSON: But when it comes to measurements, we are going to do a topo survey –
> TOBY MILLER: Right. Right.
> ED JOHNSON: -- as we do our staking on the job.

Id. at 14.

66 *Id.* at 17.

67 SCR 16.

68 McClain testimony. Garrith McClain was Miller Construction's lead surveyor. He testified that the centerline was well established and that there had been three different surveys to stake the centerline. *Id.*

clearing limits.[69] Mr. Johnson did this by using a hand-held device called a clinometer (a device that allowed him to account for the angle of the sloping ground, and thus determine actual distance from a point) and the cross-sections of the road that the Region had created.[70] The cross-sections showed him how far the toes of the embankment extended to either side of the center line (which varied depending on the slope of the ground and the amount of fill called for in the plan) at 50-foot intervals.[71] From these "catch points," he measured off 10 feet from either side to determine the initial clearing limits, which he flagged.

Jim Byron, an experience tree cutter, completed most of Miller Construction's tree clearing. He worked first from the EOP, then at the BOP side, cutting to the flagged clearing limits.[72] When he ran out of flagging, he would notify Toby Miller or Mr. Johnson so that more flagging would be installed. He described a careful process, taking care to buck timber that appeared merchantable so that it could be stacked by the excavator, avoiding felling trees into fish streams, and exercising extra care in wetlands (which were flagged with a different color flagging). He noted that there were some extremely steep hillsides, such as around the Bat Cove area (around stations 585-605), that were very difficult to safely cut.[73]

The following picture depicts the terrain after the trees were felled:[74]

69 *Id.*
70 Johnson testimony.
71 *Id.*
72 Byron testimony.
73 *Id.*
74 SCR 127 at 3.

Steve Shull was Miller Construction's lead excavator operator on the BOP side of the project. He had years of experience as an operator, including many miles of doing exactly what he would do for Miller Construction on the Shelter Cove project—using an excavator to carve a pioneer path through the woods. Many witnesses from both sides praised Mr. Shull's skill and sharp eye, which made him one of the best in the business for the task assigned.[75]

Mr. Johnson spoke with Mr. Shull about the job before construction.[76] They walked a few miles of the project, following the centerline stakes that were already installed.[77] He and Mr. Johnson also took a boat to explore areas that were possible candidates for realignment.[78]

After the trees had been felled, Mr. Shull used an excavator to create the pioneer path through the woods.[79] First, he would use the excavator's bucket to pick the fallen trees up and put them off to the side or use them as a "corduroy" in the path that he cut. (Corduroy describes a process of laying logs side-by-side on the soil to reduce how far rock and equipment would

75 E.g., Johnson testimony; Moore testimony; Hamilton testimony; Foster testimony.
76 Shull testimony.
77 *Id.* a
78 *Id.*
79 Shull testimony; see also Shull Depo. at 29.

sink.[80]) Then he would grub, removing between six inches to four feet of vegetative matter and organic soil (averaging, in his view, one-and-one-half to two feet of material).[81] This material, as well as any other soil that could not be used in the embankment, was waste, which had to be removed from the roadway.

The parties dispute how Mr. Shull dealt with the waste. According to the Region, Mr. Shull's practice was to "sidecast" the waste—meaning it was strewn haphazardly on the side of the pioneer path.[82] Sidecasting was not permitted—the waste was supposed to be bunched for later pickup and deposit at a designated waste area. Mr. Shull admitted that he did sidecast some waste.[83] He explained that if he could not sidecast waste, he would have to have a truck following him at all times—which was not possible because the pioneer path would not support truck traffic. In general, however, his approach was to try to minimize sidecasting.[84] When sidecasting did occur, he recalled going back and cleaning up sidecasted material.[85]

After the trees were removed and the grubbing completed, as depicted in the pictures below, Mr. Shull would cut a path. The path he cut was not the full width of the road—his goal was to have a path wide enough for his excavator and for trucks to follow with rock so that equipment to widen and shape the road could have access. If the surface could not support his excavator, Mr. Shull would lay down logs (the "corduroy" referred to above) or a debris mat.[86]

The following two pictures show the pioneering operation. First, in a less-steep area:[87]

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80 Shull testimony.
81 Shull testimony.
82 Foster testimony; Palmer testimony.
83 Shull testimony.
84 *Id.*
85 *Id. But see also* Palmer testimony (assistant project engineer describing his observation of sidecasted material that was never removed to a waste site).
86 *Id.*
87 SCR 127 at 4.

Second, in a steep area that Mr. Shull identified as a having landslide potential:[88]

In late August, Miller Construction firmed up with Mr. Fleming, the project engineer, that its approach on the BOP end of the project would be to have Mr. Shull "determine the road alignment with the subgrade shovel."[89] This was a change from Miller Construction's initial plan, which had been to have slope stakes installed by the surveyors based on the design centerline.

88 *Id.*

89 MCC 5281; Johnson testimony; Shull testimony.

The problem with the initial plan was that slope stakes would set out a fixed alignment, leaving no room for flexibility. According to Mr. Johnson's daily construction report, Mr. Fleming recommended this change in approach.[90] Working without slope stakes was unusual, as was working without a fixed alignment.[91] Although this would mean that the precise location and design of the road would not be known, Mr. Johnson's report states that "Todd felt the road could be surveyed in and designed from what Steve makes on the ground."[92] As will be seen, Miller Construction's adoption of this approach, and decision to forego slope staking, later became a significant point of contention.

Even with this latitude, however, Mr. Shull explained that his general practice was to follow the Region's staked centerline while paying close attention to the cross-sections (which he had with him in the cab of his excavator) so that he would know whether he was in a fill or a cut.[93] Other than the significant alignment changes of greater than 20 ft., he characterized the alignment changes he made as "marginal."[94] Sometimes he would have to go off centerline to avoid a rock formation that later would be drilled, packed with powder, blasted, and cut down. Later, when the drill could reach the rock area, one of his tasks as an excavator operator was to cut an access for the drill to reach the appropriate spot to drill, often at the top of the rock formation.

After the pioneer path was cut, a layer of rock would be installed so that trucks and other vehicles could have access, as shown in the following photograph:[95]

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90 MCC 5281. Toby Miller testified that he had come to the same realization (to have Mr. Shull determine the best path rather than strictly adhering to the design) while watching video of Mr. Shull at work on the project. He recalled speaking to Mr. Shull on the telephone about this approach, but Mr. Shull said that Miller Construction's surveyor, Leif Abel, was insisting that the plans be followed. Mr. Miller flew to Ketchikan to iron out the approach. Toby Miller testimony. Mr. Johnson's report confirms that Toby Miller was in Ketchikan when the new approach was adopted although, as stated, the report says that the approach was Mr. Fleming's idea. MCC 5281.

91 *See, e.g.,* C. Jones depo. at 80.

92 MCC 5281.

93 Shull testimony. Mr. Shull emphasized that he used the cross-sections every day—he had a printed copy of every station with him. *Id.*

94 *Id.*

95 SCR 127 at 10.

In addition to Mr. Shull's pioneering work on the BOP end, Miller Construction simultaneously started work pioneering on the EOP end, so that the two pioneer paths would eventually meet somewhere mid-project. For the EOP end, Miller Construction did not use its own employees, instead hiring a subcontractor—P&T Construction.

P&T Construction is a small construction business run by Paul Hamilton.[96] Mr. Hamilton has 25 years of experience in construction. He is a jack of many trades, operating equipment, drilling and blasting, and working as a mechanic and welder. His job on the EOP end was to pioneer a road back about two miles to meet up with the Miller Construction crew headed the other way. He understood that his job was to give Miller Construction sufficient access so that it could install the three fish pipes that were located along the EOP side.[97] This included drilling and blasting rock formations that were in the alignment, but did not include crushing any rock for embankment.[98]

Mr. Hamilton began work on his end of the project in early September 2016. He transported equipment to the Shelter Cove dock in Carroll Inlet on a barge, and then drove it on

96 Hamilton testimony.
97 *Id.*
98 *Id.*

the logging roads to the start of the EOP.[99] The EOP end was not as challenging as the BOP end.[100] The BOP end had much steeper terrain. In addition, the BOP had considerably more rock formations

Except in the cases where the Region redesigned the original alignment, Mr. Hamilton's approach was to follow the design centerline. He did this by eye and by stakes—he and Mr. Johnson installed some offset stakes (stakes that identified the location of the centerline, but were offset from the centerline so that they would not be covered or removed during the initial clearing and grubbing activity).[101] He was confident that he generally tracked the centerline, and that to the extent he strayed, he would stray toward the uphill side, which would ensure that the road would be at least as well supported as called for in the design.[102]

E. Sequence of events

Now that we have a general description of the plan for the road and the general pioneering process, we turn next to the significant events that happened throughout construction that affected the relationship between the parties. The twists and turns of events in the building of this road are so complex and numerous, however, that a full description of the facts would be endless. Rather than present the facts in detail here, the key events will be laid out in summary bullet form as a timeline in chronological order. When additional factual description and detail is needed, more detail will be provided when analyzing the dispute and explaining the decision.

- July 6, 2016. Mobilization began.
- August 1, 2016. Ground is broken.[103]
- September 26th. Landslide at station 546. Although this slide raised concern, it did not delay the project or cause Miller Construction to change its normal practice.[104]
- October 21st. Landslide at station 573. This was a serious event, causing the Region to issue Directive No. 1 on the same day, suspending construction from stations 571-580, where the steep terrain sloping toward George Inlet created a

99 *Id.*
100 *Id.* Mr. Hamilton characterized the EOP side of the project as a "cakewalk" in comparison to the Miller Construction side. *Id.*
101 *Id.*
102 *Id.*
103 Toby Miller testimony.
104 SCR 20.

serious risk of additional slides.[105] The relationship between the parties soured as they disputed who should bear the financial responsibility for the delay. The Region asserted that Miller Construction was responsible because it overloaded the slope.[106] Miller Construction argued that the Region was legally responsible because the Region's design called for construction in an excessively steep and unstable area, which was, it its view, a differing site condition in that the contractor had a right to expect the design to be buildable using normal construction methods. The dispute regarding legal responsibility for the cost of the landslide is moot, however, because the Region took financial responsibility for the cost of the slide in issuing Change Order 3 (issued April 28, 2017).[107] Although both parties claim that the episode shows that the other was acting in bad faith, as will be seen, these contentions are not persuasive—each party took a reasonable position to defend its interests.

- November 4th. Region issued Directive No. 2, lifting the suspension imposed in Directive No. 1.[108]
- December 2nd. Miller Construction submitted a proposed realignment to the Region to avoid the landslide danger at stations 570-582. The realignment would take the road up and over the hill, thus avoiding construction on the steep and unstable sideslope.[109]
- December 2016. Miller Construction shut down for winter.[110]
- February 2, 2017. Region issued Change Order No. 2.[111] This change order adopted the route suggested by Miller Construction, but not the design of the road. The Region designed the road as through-cut (slicing through the hill, instead of taking down the entire hilltop), which would minimize the rock excavation needed to meet the design. This later led to a dispute because Miller Construction took down the hilltop to use it as a source of rock, while the Region continued to insist

105 SCR 22.
106 At closing argument, the Region argued that Miller Construction had admitted during testimony that its activity of blasting during a time that soils were saturated by heavy rain was likely a "but for" cause of the slide.
107 SCR 56.
108 MCC 7170 at 75.
109 Toby Miller testimony; *see also* SCR 27.
110 Toby Miller testimony.
111 SCR 35.

that Miller Construction build to the Change Order No. 2 alignment. (As will be seen, the Region's position was unreasonable, and a violation of its duty of good faith and fair dealing.) Miller Construction refused to sign the change order because it did include sufficient compensation or provide additional time to complete the project as an offset for the time that was lost during the suspension. Those issues were finally resolved in Change Order No. 3, which was issued April 28th.[112]

- February 2, 2017. Miller Construction restarted work on Shelter Cove following winter shutdown. This resumption of work was several weeks earlier than originally planned, but Miller Construction recognized that it needed the early start to meet the deadlines for installing the fish pipes during the fish pipe window.[113]
- March 2017. A significant snowstorm temporarily shut down work on the project for a short time.[114]
- April 13, 2017. Parties agreed that Miller Construction's proposal to move the road to avoid an archeological site at stations 608-646+86 is appropriate. The Region accepted Miller Construction's proposed realignment in IWA-F. The realignment shortened the road by 2.026 stations. No change order finalizing this realignment was issued.[115]
- April 14th. The Region notified Miller Construction of nonconforming embankment slopes, including incorporation of clearing debris in the embankment, at stations 579-98 and 619-27.[116] Miller Construction proposed to move the road further into the hillside where necessary (so that the embankment slope was not structural) and cut the trees.[117] On May 17th, the Region responded, generally endorsing the plan, but requiring that Miller Construction submit a proposed realignment for approval.[118]

112 SCR 56.
113 Toby Miller testimony.
114 *Id.*
115 Johnson testimony.
116 SCR 46.
117 MCC 7354 at Exhibit 47.
118 *Id.*

- April 20, 2017. The Department of Law's expert consultant, Michael Foster, a civil engineer who owned a construction company, arrived on the project and met with representatives of Miller Construction and the Region. Mr. Foster characterized the purpose of his involvement as being to help resolve the payment disputes simmering between the parties (which involved Miller Construction arguing that the Region had been underpaying the progress payments required by the contract).[119] Later, Mr. Foster signed a contract to work for the Region. As will be seen, Miller Construction alleges that the unusual process for contracting with Mr. Foster is evidence of bad faith.
- April 26th. Miller Construction submitted an updated baseline schedule that provided for the fish pipes being installed on time.[120]
- May 5th. The Region issued Directive No. 5, which ordered Miller Construction to "Remove recoverable flyrock deposited in the mudflats as a result of the blast around station 595, and place in uplands. Equipment is not permitted in the tidelands."[121] The flyrock was deposited in the mudflats as the result of a blast that sprayed the blasted rock horizontally away from the hill toward the water with such force that it knocked down the trees on the hillside between the road and George Inlet. Although the depositing of fly rock in the waters of the United States was a violation of the permits held by the Department, no penalty was imposed on the Department by the Environmental Protection Agency, in part because the Department took steps to mitigate the violation, including prompt reporting.[122] (The Region cites the fly-rock incident, however, as proof that Miller Construction was inefficient and not skilled at planning its blasts.)
- May 24, 2017. Miller Construction and the Region appeared to reach agreement on two long-festering disputes: payment claims and the need for slope staking. Toby Miller signed Progress Estimate #21, which stated that the payment

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119 Foster testimony. Mr. Foster had been contacted by the Department of Law on March 17th to assist with difficulties with Miller Construction, including review and evaluation of pay estimates. He had visited the site once before the April 20th meeting and observed nonconforming work on the project. *Id.*

120 SCR 57.

121 MCC 7170 at 69.

122 Barnett Deposition at 12.

accurately represented "all units earned and percentages used to calculate earned value."[123] In addition, the Region agreed that reference points—a relatively quick way to identify location—would suffice for payment purposes without imposing the more demanding and exact requirement of slope stakes.[124] The apparent agreement, however, was ephemeral—later, Miller Construction continued to assert that it was underpaid, and the Region continued to demand slope stakes.

- June 2017. The Region identified that a stream located at station 792+25, previously thought to have no fish, did, in fact, contain fish. Mr. Hamilton was informed that the intended culvert crossing of this stream will not be possible. He was instructed to re-route the road so that it continues parallel with the stream until a more-suitable fish-safe crossing location could be identified.[125]
- June 29, 2017. The Region deleted three fish pipes (IWA-J), replacing them with log-stringer bridges.[126] In addition, the IWA added an additional log-stringer bridge over the newly-discovered fish stream. The change was formalized in Change Order No. 4 on July 25th.[127] The parties dispute the reason for this deletion—Miller Construction argues that the Region deleted the fish pipes because the bedrock in the stream made the installation of fish pipes problematic. The Region contends it eliminated the pipes because it had become obvious that Miller Construction would not be able to install them within the fish pipe window.
- June 30th. In an unrelated road construction contract matter, known as the "Kake project," the Region issued a decision finding that Miller Construction was not a "responsible bidder."[128] This meant that the Kake project was awarded to a different construction company even though Miller Construction was the low bidder. The decision was based on the Region's findings that Miller Construction had not adequately and appropriately financed and performed the Shelter Cove project. The decision led to further administrative litigation regarding the Kake

123 SCR 66.
124 SCR 52-55; 70-71.
125 Hamilton testimony.
126 MCC 7203 at 9.
127 MCC 7350 at Exhibit B.
128 SCR 77; Winters testimony.

project, which was not resolved until the Region's decision was affirmed by Commissioner Luiken on January 4, 2018.[129]

- July 16-17. The two pioneering operations met so that it was now possible to drive from one end of the project to the other.[130] (Note that the drive would still require off-road equipment. Although significant embankment had been placed on the BOP side, making much of that section drivable with a pickup truck, the area where the two operations met up was still very rough, and the EOP side had little embankment.)
- July 27th. Miller Construction submitted a Request for Equitable Adjustment.[131] It asked for additional payment based on the quantity of excavation and embankment, which, it represented, had already met or exceeded plan estimates. The Region did not respond until October 3rd, at which time it denied the request.[132]
- July 31st. The Region issued Directive No. 12.[133] This directive ordered Miller Construction to install slope stakes. Miller Construction, however, did not undertake a concerted effort to install slope stakes until late November.
- August 2nd. The Region issued Directive No. 13. This directive ordered Miller Construction to build to the Change Order No. 2 alignment. Miller Construction did not comply because that would have required it to build back an area where it had been quarrying, resulting in a road of lower utility.
- August 24th. The Region issued Directive No. 17.[134] This directive identified unacceptable work, including the presence of deleterious material like roots and organics in the embankment, slopes that were too steep, live trees buried in the embankment fill, and failure to clear and grub on the top of rock slopes.[135] It noted that the road constructed at the Change Order No. 2 area (stations 559-583) as of

129 SCR 84.
130 Foster testimony.
131 SCR 97; Kemp testimony.
132 SCR 129; Foster testimony.
133 SCR 99.
134 MCC 7170.
135 *Id.* at 2-4; 5-8.

August 22nd was more than 20 feet off the design alignment provided by the Region, and ordered that Miller Construction reconstruct the road so that it is within 20 feet of the design alignment.[136] The directive also addressed culverts, surveying, and the corrective action plan at stations 590-98 and 621-27.[137] The deadline for completing the requirements of the directive was the contract completion date, November 21, 2017.

- September 25th. The Region issued a Notice of Default and a Notice to Cure.[138] The Notice of Default reiterated the issues with the road identified in Directive 17. The Notice to Cure also set the cure date as the contract completion date, November 21, 2017.
- October 3rd. The Region denied Miller Construction's Request for Equitable Adjustment, which had requested additional compensation because the quantities of excavation and embankment exceeded the estimates of quantities in the original design.[139] Based on an asbuilt survey done in August and September, the Region determined that Miller Construction had completed less embankment and excavation than estimated in the original design. The Region projected that Miller Construction would never meet the design estimates.[140]
- October 19th. Miller Construction filed a Notice of Intent to Claim regarding the additional quantities.[141] The Region responded, advising Miller Construction that it was responsible for all measurement of quantities to document its claim.[142]
- November 3rd. The Region extended the cure date to December 30, 2017.[143]
- November 8th. The Region issued Directive 31, which authorized payment for clearing that exceeded the estimate in the plans.[144] The directive did not address grubbing or earthwork.

136 *Id.* at 10.
137 *Id.* at 9-10.
138 SCR 128.
139 SCR 129.
140 *Id.*
141 SCR 134.
142 SCR 135.
143 SCR 146 at 1.
144 SCR 164.

- November 9th. Miller Construction's surety, Zurich Insurance Company, suspended all bonding for Miller Construction.[145]
- December 30th. The Region terminated Miller Construction.[146] The Region allowed two weeks for Miller Construction to remove its equipment from the worksite. Miller Construction, however, did not remove the equipment until spring.[147] Based on the termination, the Region sent a Notice of Transfer of Work to the Surety to Miller Construction's Surety.[148] Because the road had not been completed, the obligation to complete the project was transferred to the Surety. Another consequence of the takeover by the Region was that the Region now became the manager for the Storm Water Pollution Prevention Program—better known as the SWPPP. This meant that the Region had to inspect the stabilization measures throughout the project that Miller Construction had put in place to prevent runoff and erosion. According to Mr. Foster, the pollution prevention measures (known as "BMPs"—best management practices) were not in bad shape, although he did some minor work.[149]
- March 29, 2018. The Surety issued a Request for Proposals soliciting bids for completion of the project.[150] The Region describes the March 29 RFP as seeking bids for completing the road to the original contract specifications.[151] (Miller Construction disputes that characterization of the March 29 RFP. The March 29 RFP was not entered into evidence and no person testified regarding its contents.) The only proposal received in response to the March 29 RFP was for $12,969,000.[152] The proposal was not accepted.

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145 Alderman testimony; MCC 7351. Zurich was affiliated with Fidelity and Deposit Company of Maryland, and, although SCR 202 refers to Miller Construction's surety as "Zurich," in many other documents, the surety is referred to as "F&D." *E.g.* SCR 207. Because the name of the entity is not important, this decision will refer to Miller Construction's surety as "the Surety" or "Miller Construction's Surety."

146 SCR 201.

147 Hamilton testimony.

148 SCR 202.

149 *Id.*

150 Foster testimony; SCR 207 at 57.

151 Foster testimony; SCR 207 at 57.

152 Foster testimony; SCR 207 at 57; SCR 206 at 3.

- June 2018. After working with the Region, the Surety issued an amended RFP reducing the scope of work in the original RFP.[153] This RFP applied only to work needed to bring the area within the "road prism" up to contract specifications—that is, the area from the ditch line on the high side to the toe of the embankment on the low side. No work to address the over-steep slopes on the high side or the insufficient clearing and grubbing outside the road prism was requested. K&E Alaska, Inc. was low bidder, bidding $2.878 million.[154]
- July 7-11, 2018. The Region and the Surety entered an agreement under which the Surety was relieved of the obligation to build the road in return for a payment of $3.75 million to the Region.[155] In return, the Region accepted the assignment of the partial completion contract with K&E, and pledged that it would apply the money, and its remaining balance of $2.43 million from the original contract, toward the contract with K&E.
- 2018. K&E completed its contract. The road was constructed to a fixed alignment that was designed by Mr. Foster (with input from others and accepted by the Surety). The new alignment generally followed the roadbed laid down by Miller Construction, with some changes. K&E added embankment to the EOP end of the project, which had little embankment on top of the pioneer path cut by Mr. Hamilton.[156] In addition, the Region issued several change orders, expanding the scope of the project to remedy problems with the Miller Construction road that it discovered during construction, including removal of organic material that it discovered underneath the road, and repair or replacement of deficient or damaged culverts.[157]

A map of the project showing the location of many of the areas discussed in this decision, such as the "Change Order No. 2" area, the "fly-rock" area, and the fish pipes/log stringer bridges, is as follows:[158]

153 SCR 207 at 58.
154 *Id.* at 59.
155 SCR 207 at 1-12.
156 Foster testimony.
157 Foster testimony; Warren testimony; *see generally* SCR 209.
158 SCR 338.

F. Miller Construction was capable of completing a compliant road, but had not do so as of the termination date

In the previous sections, this decision has described the project, explained the general process for building the road, and laid out a summary chronology for some of the significant events over the two-plus years of the project. Except as noted, these facts were not significantly disputed.

This decision will now turn to two contested and controversial factual findings. The most important facts in this proceeding can be summarized in two bullets as follows:

- **As of the termination date, December 30, 2017, Miller Construction had not completed the Shelter Cove road, the road that had been built was deficient, and Miller Construction was not on track to complete the road on an efficient and knowable schedule.**
- **As of the termination date, Miller Construction had built a substantial road, and it had the expertise and skill to have substantially completed the project if it had enough money to fund, and time to complete the project.**

These findings are based on a 20,000 foot view of all evidence in the record. This includes numerous videos and photographs of the road as it existed in the fall of 2017, starting in

August and continuing all the way up to the time of termination. It also includes hundreds of hours of testimony.

In general, the roadbed built by Miller Construction looks robust and well-made. This visual evidence, and the testimony by Miller Construction's witnesses describing the road, is persuasive. The road built by Miller Construction was a substantial road. Further, Miller Construction was capable of building a road that complied with the contract requirements.

Yet, although the visual evidence showed a substantial road, by looking to either side of the roadway, and taking into account the testimony of the Region's witnesses, many problems become obvious. These include slopes that are too steep, oversize boulders, damage to trees, trees and stumps sidecasted or left in the embankment, and tops of slopes not cleared or grubbed. Thus, at the contract completion date, much work still remained to be done.

G. Miller Construction's claims against the Region

During the two years of Miller Construction's activity on the project, Miller Construction filed the following five claims against the region:

- November 28, 2017: Fish Stream Bedding Claim for $51,429.[159] This claim asserts that the Region should not have taken a credit for unused fish stream bedding that was not needed when the three fish pipes were eliminated and replaced with log stringer bridges.[160]
- December 19, 2017 (amended on October 5, 2018): Underpayment Claim for $6,670,715.[161] This claim alleged a breach of contract by wrongfully underpaying progress payments and otherwise not paying for work performed.[162] It alleged that the Region did not provide an explanation for paying less than earned value, in violation of the contract and AS 36.90.200.[163] The damages included interest and an assessment for business devastation.
- January 17, 2018 (amended on October 5, 2018): Differing Site Condition Claim for $2,618, 275 (plus an addition sum for improperly assessed liquidated

159 MCC 7350.
160 *Id.*
161 MCC 7351.
162 *Id.*
163 *Id.*

damages).[164] This claim alleged that work done in excesses of estimated quantities was a differing site condition.

- March 2, 2018: Extra Work Claim for $1,331,932 plus an extension of time for contract completion based on the extra work.[165] This claim overlapped with the differing site condition claim, alleging that the Region required work that was not required by the contract.
- October 5, 2018: Wrongful Termination Claim.[166] Miller Construction alleged that the termination for default issued on December 30, 2017, was wrongful. The claim reserved the issue of damages caused the by wrongful termination for further proceedings.

H. The Contracting Officer's Decision

Miller Construction's claims were referred to Lance Mearig, the director of the Southcoast Region. Because of his position as director, Mr. Mearig served as the "Contracting Officer" who would make the initial decision regarding whether Miller Construction's claims had merit.[167] On March 28, 2019, Mr. Mearig issued his "Contracting Officer's Decision" (COD).[168] Except for the issues of additional clearing and liquidated damages, the COD denied all of Miller Construction's claims.

With regard to the most important question raised in this dispute—whether the termination was justified—the COD found that

> MCC's abandonment of contractually required surveying; its abandonment of reasonable means and methods, resulting in inefficiency, delay, and unsatisfactory performance; its breach of agreements reached in spring of 2017 to correct construction errors and bring the parties into accord; its false representations regarding work progress, reflected in pay requests and written communications; its nonpayment to its subcontractors, suppliers, and eventually its workers; its disregard for Contract alignment and design criteria; its noncompliance with DOTPFs pre-default directives, which were intended to correct faulty work and put MCC on a path toward success; and its refusal after notice of default to follow the same directives and perform cure all justify termination.[169]

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164 MCC 7352.
165 MCC 7353.
166 MCC 7354.
167 AS 36.30.620(b). The statute refers to the contracting officer as the "procurement officer."
168 SCR 00.
169 *Id.* at 63.

In addition, the COD cites to Miller Construction's "substandard work," its "failure to substantially complete the project on time," and "bad faith," as further issues that "justify default termination."[170] The COD rejected all of Miller Construction's assertions in its wrongful termination claim that assigned fault to the Region, finding that Miller Construction's arguments were not supported by reliable or persuasive evidence.[171]

The COD then addressed the four remaining claims. In general, for three of the claims—the progress payments, differing site condition, extra work claims—the COD found that many of the issues raised in these claims had been fully analyzed and rejected in the COD's analysis of the wrongful termination claim.[172] For the additional work claimed that had not been discussed, the COD denied the claims because the work was no-cost work, not compensable work, or had already been paid. It also found that Miller Construction's claim for additional time did not meet the requirements of the law on how such a claim must be documented.[173]

The COD did agree, however, that the project plans had underestimated the number of acres of grubbing required in the road prism (meaning from top of cut to toe of embankment, but not including any grubbing needed on the top of the cut).[174] Because the plan had estimated grubbing based on a hypothetical horizontal plane instead of a sloping plane that followed actual ground, it had underestimated actual grubbing by eight acres.[175] Therefore, the COD agreed that Miller Construction was entitled to a credit of $56,000.[176] The COD noted that the plan estimate had similarly underestimated the grubbing required on the top of rock cuts, but provided no compensation for that underestimation because Miller Construction had not done any grubbing on the top of rock cuts.[177]

Regarding the one claim not discussed in the analysis of the wrongful-termination claim—the November 2017 claim seeking return of the credit for unused fish-pipe streambed material—the COD found that Miller Construction had agreed to treat streambed material as separate unit item. The COD reasoned that this agreement meant that Miller Construction could not argue now

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170 *Id.* at 64, 70.
171 *Id.* at 76-84.
172 *Id.* at 84-96.
173 *Id.*
174 *Id.* at 92.
175 *Id.*
176 *Id.* The amount of compensation was determined by multiplying the bid price of $7,000 per acre acre for grubbing by the underestimate of eight acres. *Id.*
177 *Id.*

that the streambed material was merely a lump-sum cost to be paid without regard to how much material was actually used. Because the Region had paid for material for all fish pipes, but no material had been used for the three deleted fish pipes, the COD concluded that Miller Construction would be unjustly enriched unless the value of the unused material was credited back to the Region.[178]

Miller Construction appealed the Contracting Officer's Decision to the Commissioner. The appeal was referred to the Office of Administrative Hearings for a hearing and final decision.

I. Prehearing motions to establish the law of the case

Before the hearing began, the Region filed a motion to establish the law of the case, seeking a ruling on how federal decisions would be interpreted and applied to this case. In addition, both parties filed motions for summary adjudication, seeking rulings on issues that they asserted were clear as a matter of law. The rulings on these motions are incorporated into this decision.[179] As will be seen, consistent with the Region's motion to establish the law of the case, this decision frequently relies on federal cases to fill in the gaps where no Alaska Supreme Court decision has established Alaska law. Both parties acknowledged that when interpreting state-government contracts, federal law is influential, and often dispositive.[180]

III. Discussion

Of Miller Construction's five claims, one—the claim that the Region's termination for default was wrongful—is clearly the main issue. Discussion of that claim requires extensive discussion of the assertions made in Miller Construction' differing site condition, progress payment, and extra work claims. Only the claim for the fish pipe material stands alone.

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178 *Id.*

179 The orders incorporated into this decision are: *Order Granting in Part Region's Motion to Establish Law of the Case* (Dec. 20, 2019); *Order Denying in Part, and Granting in Part, Miller Construction's Motion for Summary Adjudication on the Existence of Errors in SCR's Basis of Bid Quantities* (Dec. 30, 2019); *Order Denying Region's Motion to Collaterally Estop Miller from Relitigating Issues Previously Decided by the OAH* (Dec. 30, 2019); *Order Granting Miller Construction's Motion for Summary Adjudication on the Effect of Default Termination on Pre-existing Claims* (Dec. 31, 2019); *Order Denying Region's Motion in Limine to Exclude MCC's Time Impact (Delay) Analysis Not Presented to the Contracting Officer* (Jan. 2, 2020).

180 In *Earthmovers of Fairbanks, Inc. v. State, Dep't of Transp. & Pub. Facilities*, for example, the Alaska Supreme Court observed that "[b]oth parties have relied exclusively on federal decisions concerning cancelled public contracts. State courts often turn to decisions of the federal Court of Claims and the federal boards of contract appeals for guidance in public contract law." 765 P.2d 1360, 1364 (Alaska 1988). This decision will follow *Earthmovers*, and rely on federal law where appropriate. Where state law is well-established, however, state law will apply.

Therefore, as initial matter, this decision will focus exclusively on the wrongful termination claim.

A. Has the Region proven that Miller Construction did not meet an obligation that the contract identified as a ground for default?

The extreme magnitude of a default termination in a construction contract cannot be overstated. "Default termination is a 'drastic sanction' and should be imposed only on the basis of 'solid evidence.'"[181] Indeed, termination is so extreme that it is considered a type of forfeiture.[182]

To establish that the termination was appropriate, the Region has the burden to prove that Miller Construction was in default at the time of termination.[183] Once default conditions are proved, Miller Construction then has burden to show that its default was excusable.[184] If the default conditions were not sufficiently material to warrant termination, or were caused by the Region, or by other factors outside Miller Construction's control, then termination for default would not be justified. In that case, the termination would be converted to a termination for convenience.

Below, after describing the conditions that make a contractor subject to default, we will discuss briefly discuss the primary issue that led the Region to find that Miller Construction was in default: the fact that the project was not finished on its due date. We will then turn to Miller Construction's arguments that the various default conditions claimed by the Region were either not true, not material, or caused by the Region's own action. This discussion will include a thorough review of the Region's allegations and its criticism of Miller Construction's quality of the work and method and means.

1. When is a contractor in default?

Section 108-1.08 of the contract contains a list of eleven conditions that would permit the Region to default a contractor.[185] In general, these conditions are stated in broad language. For example, default can be found when the contractor "[f]ails to perform the work with sufficient workers, equipment, or material to ensure the prompt completion of the work," or "[p]erforms the

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181 *Mega Constr. Co, Inc. v. U.S.*, 29 Fed. Cl. 396, 413 (1993).
182 *Id.*
183 *Martin Const., Inc. v. U.S.*, 102 Fed. Cl. 562, 573 (2011).
184 *Id.*
185 SCR 330 at 62-63 (§108-1.08).

work unsuitably or neglects or refuses to remove materials or to replace rejected work."[186] Both of these conditions are cited by the Notice of Default and the COD as grounds for default, and both are sufficiently broad and subjective to easily apply to this project (if not nearly every project). Further, if these or any of the first 10 conditions were not broad enough to encompass a project, the last condition is a catch-all that would allow the Department to default virtually any project: "[f]ails to perform the work in an acceptable manner for any other cause whatsoever."[187]

As stated above, the COD cites several issues with the Shelter Cove project that, in the Region's view, justify a default termination. The most straightforward of these, is of course, Miller Construction's "failure to substantially complete the project on time."[188] As additional grounds for default, the COD cites Miller Construction's

- "breach of agreements reached in spring of 2017 to correct construction errors and bring the parties into accord;"
- "false representations regarding work progress, reflected in pay requests and written communications;"
- "nonpayment to its subcontractors, suppliers, and eventually its workers;"
- "disregard for Contract alignment and design criteria;"
- "noncompliance with DOTPFs pre-default directives, which were intended to correct faulty work and put MCC on a path toward success; and its refusal after notice of default to follow the same directives and perform cure;"
- "substandard work;" and
- "bad faith."[189]

As the COD demonstrates, each of these allegations can easily be tied to one or more of the eleven grounds for default listed in section 108-1.08.[190] The COD recognizes, however, given that termination is a drastic sanction, the real issue is whether Miller Construction's apparent breaches of contract are *material* breaches that warrant termination for default. We will return to this question repeatedly in discussing whether Miller Construction has refuted these allegations.

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186 *Id.* The Notice of Termination cites to §108-1.08 at SCR 128 at 1; the COD at SCR 00 at 64, 68, 70, 72.
187 SCR 330 at 62-63 (§108-1.08).
188 SCR 00 at 64.
189 *Id.* at 63-64.
190 *E.g., id.* at 64, 68, 70, 73-74.

2. Was Miller Construction not subject to termination for untimeliness because it was still working on the road on December 30th?

For purpose of allocating the burden of proof, this decision finds that the COD has documented the evidence that supports its many allegations. The Region has proved that the road was incomplete on December 30, 2017, and that the road as built did not meet contractual requirements in several respects. Given that Miller Construction did not have a definite and firm schedule for substantially completing a compliant road within a reasonable time, this failure to complete falls squarely within the grounds for default termination. This means that, without considering any of the evidence submitted by Miller Construction, the COD, and the exhibits attached to the COD, including the expert reports, establish that default termination was justified.

Miller Construction, however, does not accept that its failure to finish the road by the completion date establishes a material breach that switches the burden. It argues that its failure to cure the deficiencies by the December 30th deadline in the Notice of Default and Order to Cure was not a true default because it was still working on curing the road on December 30th. To Miller Construction, this means that, at most, it could be subject to liquidated damages for failure to finish by the contract date. (Miller Construction would dispute any assessment of liquidated damages, arguing that it was owed extra time based on the Region's breaches. That, however, would be a separate issue that does not relate to whether the Region met its initial burden of justifying termination.) In Miller Construction's view, as long as it was still working on the road, it could not be found in default for failure to substantially complete in a timely manner.

Miller Construction has proven that it was still working on the road at the time of termination. For example, the daily log sheets prepared by the Region's inspector for December 2017 describe workers on site and work taking place.[191] In addition, the Region's expert, Joseph Seibold, has presented a chart that shows that Miller Construction's workers worked approximately 300 hours between December 18-30, 2017 and about 900 hours in first half of December.[192] These records refute Mr. Foster's testimony that Miller Construction was not working diligently in the fall and early winter of 2017. Indeed, given that winter shutdown would normally have occurred before the end of December, Miller Construction's presence and work on

191 *E.g.*, MCC 7173 at 528-34.
192 SCR 234 at 41.

the road at the time of termination does demonstrate that it was working to bring the project to completion, albeit late.

Nevertheless, the record compiled by the Region suffices to establish its initial case for termination for failure to complete by the contract deadline. Although the contract allowed for lateness, that does not mean indefinite lateness or that the Region could not establish a final date for cure. As described in the factual findings above, and elaborated on below in the discussion of Miller Construction's claims, substantial work remained to be done.

In sum, for purposes of analysis, the "big picture" approach to the termination for default is, simply put, that the road was not finished on time. In addition, the progress made on the road revealed a product deficient in many respects. Given the broad definition of "default" in the contract, that evidence is sufficient to put the burden on Miller Construction to come forward with evidence to refute the Region's claims.

B. Has Miller Construction refuted the Region's justifications regarding Miller Construction's failure to follow directives, inefficiency, failure to pay subcontractors, suppliers, and workers, and bad faith?

We now move on from the big picture approach to a detailed analysis of each allegation made by the Region. For some of the issues that the COD cites as justification for default termination, Miller Construction argues that the evidence refutes the Region's allegations. For other issues, Miller Construction argues that its failures to perform, although true, are excused because of the Region's breaches of contract.

Below, we turn first to Miller Construction's argument that for some issues the evidence does not establish a material breach justifying default termination. These include the Region's allegations that Miller Construction failed to follow directives, used unreasonable means and methods, failed to pay suppliers, and acted in bad faith.

1. Does Miller Construction's failure to follow directives establish independent grounds for termination for default?

The COD alleges that Miller Construction's failure to follow numerous directives is an independent grounds justifying termination.[193] In *Mega Construction*, for example, the contractor

[193] SCR 00 at 61 ("Grounds for default termination may include the contractor's failure to follow directives"). The COD chiefly discusses failure to follow a directive as evidence of bad faith and failure to cure. *Id.* at 77-84. Analytically, however, analyzing whether failure to follow a directive is bad faith is complicated. Because Miller Construction could contest a directive in good faith, failure to follow a directive is not *per se* bad faith. Given that failure to follow a directive can be a material breach that is an independent ground for default, this decision will

refused to follow a directive to remove a defective slab, arguing that the defects were not its fault.[194] Regardless of who was at fault, however, the defective slab needed to be removed and replaced before the owner would accept the building as substantially complete. Therefore, the contractor "was properly terminated for default because it refused to comply with [the owner's] directives."[195] The question here, then, is whether any of Miller Construction's failures to follow directives were material breaches that, like the failure to replace the slab in *Mega*, warrant default termination.

a. Slope staking

The subject of slope stakes was perhaps the most discussed issue at the hearing. To the Region, Miller Construction's failure to install slope stakes, after being ordered to do so, was evidence of its defiance and recalcitrance. To Miller Construction, the Region's insistence on slope stakes was evidence of its attempt to derail the project and deprive Miller Construction of the benefit of its bargain by insisting on an unnecessary and costly task. Unraveling these arguments will take considerable time and explanation. As will be seen, however, the issue of slope stakes ultimately advances the ball very little in terms of whether default was justified.

The analysis is not helped by the fact that both sides flip-flopped on the issue. Recall that at first Miller Construction proposed that it would install slope stakes, and did so for a time.[196] In August 2016, however, Miller Construction decided that slope stakes were not necessary.[197] The Region agreed, at least until pioneering was completed.[198] Later that fall, as the parties began to struggle with quantifying the rock work that had been done after pioneering, the Region began to insist that slope stakes were needed.[199] In February 2017, the Region sent Miller Construction an email instructing "that MCC survey and stake this project in accordance with Appendix A of the Special Provisions."[200] The email informed Miller Construction that if it objected, it could file a

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analyze the issue of failure to follow directives for whether that failure was material, rather than for whether that failure was in good or bad faith.

194 29 Fed. Cl. at 419.

195 *Id.*

196 SCR 18 at 14-15; SCR 15.

197 MCC 5281.

198 *Id.*; *see also* MCC 7351 at Exhibit Q (email from Project Engineer in October 2016 that "[i]t is impossible to accurately slope stake until the depth of soil and rock elevation is determined.").

199 SCR 14 at 1 (letter from Miller Construction to Region stating that "the Project Engineer assigned last season contended slope stakes were needed in order to issue payment for work performed" and that because of flexible alignment "it is impractical to slope stake at project onset").

200 SCR 41 at 1.

claim.[201] The Region did not, however, issue a directive formally requiring slope stakes at that time. In response, Miller Construction made clear that it did intend to install slope stakes.[202]

In April, the Region appeared to change course and allow the installation of "reference points" (a method of identifying the road specifications that is less time-intensive, and less accurate, than slope stakes) instead of slope stakes.[203] Then, on July 31st, it changed its mind, and issued Directive No. 12, requiring slope stakes.[204] This directive did not set a date for completion of slope staking, but it did require that no later than August 4th, Miller Construction prepare a schedule showing when stakes would be installed.[205]

Miller Construction responded with a detailed letter.[206] In this letter, Miller Construction reiterated its view that slope staking was not required by contract, and its impression that the issue had been resolved with Mr. Foster in April, when Miller Construction agreed to provide reference points.[207] Three weeks later, on August 24th, the Region issued Directive 17.[208] This directive restated the requirement that slope stakes be installed and set a deadline for compliance with the directive as the contract completion date—November 21st. Much later—in November—Miller Construction finally acquiesced and hired a subcontractor to install slope stakes.[209] How many stakes were installed under this contract, however, is not clear. It does not appear that very many were installed before termination.

Analysis of whether Miller Construction's conduct was a material breach will require inquiry first into whether slope stakes were required by the contract. If not, then we must still inquire whether Miller Construction's conduct after Directive No. 12 was issued is akin to the contractor's conduct in *Mega Construction*, and, therefore, warrants default termination.

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201 *Id.*

202 MCC 1921. As Ms. Skaife explained in this March 17, 2017, letter to Mr. Fleming,

> "MCC is building the road
> Then developing the final alignment
> Then staking as needed to do final buildout to the new alignment"

(formatting and punctuation in original); *see also* MCC 7352 at Exhibit E.1 (February 24, 2017, letter explaining no requirement to slope stake).

203 SCR 52-55.

204 SCR 99.

205 *Id.*

206 SCR 100.

207 *Id.*

208 SCR 119.

209 SCR 161.

(i) Was slope staking required by the contract?

The parties vigorously debate whether slope staking was required by the contract. In Miller Construction's view, the special provisions of the contract allowing a flexible alignment made slope staking optional, not mandatory.

Miller Construction reasons that slope staking is a surveying procedure that sets out the location of a known point. When a contractor is building a road to a fixed alignment, the contractor needs slope stakes to know where the locations of the toes and shoulders of the road are in space. When the road does not need to be in one particular place, or built to a pre-specified height, however, as Miller Construction explains it, slope stakes are unnecessary. Although Miller Construction acknowledged that the owner would need to know the precise location of the completed road at the end of the project, and that the road would need to meet the geometric requirements of the contract, both of these requirements could be easily met at the end of the project when an asbuilt survey was completed. If the road needed to be adjusted up or down, or left or right, to meet a geometric specification, that could be done at low cost as part of the final true-up. Using this approach would be much less expensive than slope staking an alignment that is subject to change because the stakes would become obsolete and useless with each alignment change.

The Region makes several arguments in response. First, as a textual matter, it argues that the contract explicitly required slope stakes and that the special provisions allowing a flexible alignment did not amend or otherwise delete that requirement. Further, the Region asserts that Miller Construction's conduct proved that it also interpreted the contract to require slope stakes. Second, requiring slope stakes makes sense even with a flexible alignment, the Region argues, because the only efficient way to build is to decide on an alignment early, after pioneering, and then set that alignment with slope stakes. Any other approach would mean that the contractor would be building a road not knowing whether the road would meet the geometric requirements. Wherever the road failed to meet a requirement, it would have to be reworked—an inefficient way to do business. Third, for purposes of making progress payments, here, where progress payments were based on the "percent complete" for a lane station, if the road was constantly subject to change, how could the owner know whether the road was 100 (or 90 or 80) percent complete? It might look done, or mostly done, but if it was it the wrong place, it would not be done at all. Slope stakes would answer that question and make estimates of progress payments

more reliable and, thus, make it possible to provide the contractor with a larger payment. These arguments are discussed below.

A. Does the text of the contract explicitly require slope stakes?

Turning first to the Region's textual argument, although the contract references slope stakes in various contexts, the contract does not explicitly state that a contractor must install slope stakes at every station. Nor does it make slope stakes a deliverable product. Instead, because the contract refers to slope stakes, and lays out how to install slope stakes, the Region infers that slope stakes must be required.[210]

For example, Appendix A to the contract is the "Alaska Construction Surveying Requirements."[211] This document established standards for survey accuracy, frequency, materials, and notes. Because Appendix A was part of the contract, and included standards for slope stakes, the Region concludes that slope stakes were required. Similarly, the standard specifications required that the contractor perform all "staking essential for the completion of the project," and they included "[s]lope staking" in a list of generally-required survey duties.[212] The Region infers a requirement for slope stakes from these references to slope stakes. In addition, special provision 207-3.02 described "pioneering" as "the temporary construction access along the new roadway route within the slope stakes limits."[213] The Region reads this provision to imply that slope staking was required because a contractor could not pioneer within the slope stake limits unless the contractor has, in fact, installed slope stakes.

Yet, the mere fact that the term "slope stakes" is mentioned in the contract does not convert installation of slope stakes into a requirement. For example, with regard to the mention of slope stakes in special provision 207-3.02, Mr. Foster admitted during testimony that the contract did not require slope stakes to be installed *before* pioneering.[214] He testified that the flexible alignment provision allowed the pioneering process to take advantage of the terrain and geology (such as rock sources) that were revealed during pioneering. Under his view of proper

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210 *See, e.g.*, SCR 5 (Appendix A to contract describing surveying requirements including slope stakes); SCR 2 at 13 (§207-3.02); SCR 330 at 333 (§642-3.01)

211 SCR 5.

212 SCR 330 at 332 (§642-1.01), 333 (§642-3.01).

213 SCR 2 at 13.

214 Foster testimony; *see also* Fleming deposition at 26-27. As the discussion at the preconstruction conference shows, the Region was aware that Miller Construction's alignment would be "shifting back and forth." SCR 18 at 14.

sequencing, the alignment would be determined (and slope stakes set) *after* pioneering.[215] This means that the reference to slope stakes in special provision 207-3.02 must be interpreted contextually to refer to the limits that would be conceptualized as set by virtual slope stakes, not actual physical slope stakes at the time of pioneering. Thus, no inference that slopes stakes are required in a flexible alignment situation can be drawn from special provision 207-3.02.

Nor can a requirement for slope stakes be read into Appendix A. Appendix A described how to install slope stakes where they are required.[216] It did not make slope stakes a deliverable required product under the contract. Finally, Miller Construction's conduct did not turn slope staking into a contractual requirement. Although Miller Construction originally planned to install slope stakes, it quickly abandoned that idea during pioneering, with the Region's approval.

B. Does section 642 impliedly require slope stakes because slope stakes were essential?

Section 642 of the standard specifications of the contract made clear, however, that the contractor must "[p]erform surveying and staking essential for the completion of the project."[217] It also included slope stakes in a general list of tasks, although it did not specify how frequently they must be installed.[218] The Region's inference that slope stakes were required under section 642 would be correct in a fixed-alignment project because in that case, slopes stakes at every

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215 Foster testimony; *see also* SCR 127 at 7; SCR 101 (Region's response to Miller Construction's response to Directive No. 12, stating that slope stakes would be installed after the pioneer road is constructed). Mr. Foster also argued that the requirement in section 201-3.01 that no trees be cut outside the clearing limit meant that the centerline had to be set *before* clearing started. Foster testimony; SCR 2 at 8 (§201-3.01). Yet, this testimony, too, is contradicted by his testimony that pioneering could take place before the alignment was finalized because the contractor cannot pioneer until trees are cleared. Indeed, the flexibility of the alignment is also recognized by section 201-3.01, although it does not explain how, in practice, a contractor is expected to clear only to a precise clearing limit while still having flexibility for that limit to move. In my view, the approach Miller Construction took here was a reasonable approach to implementing a conflicting contractual requirement—it set clearing limits based on the design center line, with a plan to true up the clearing as needed after the alignment was set. If some of the initial clearing later turned out to be outside the final clearing limit because of a horizontal shift, that does not make it a contractual violation. To be clear, if Mr. Foster's point was that section 201-3.01 encouraged the contractor to finalize the alignment earlier, I would agree that would have been a better approach, and it would have made it easier to comply with section 201-3.01. Given the inevitable conflict between not clearing outside of the clearing limits and having a flexible alignment that could not be finalized until after pioneering at the earliest, however, I cannot say that Miller Construction's plan to finalize the alignment at the end of the project was in violation of section 201-3.01. If the Region intended that the alignment be finalized shortly after pioneering, it should have so stated—preferably, in the contract, but, at a minimum, in a directive.

216 SCR 5.

217 SCR 330 at 332 (§642-1.01) *see also* SCR 2 at 13 (§207-3.01).

218 SCR 330 at 333 (§642-3.01).

station would be essential to ensure that the road met the alignment. The issue here, then, is whether slope staking was essential for the completion of this flexible-alignment project.

The testimony at the hearing does not support the argument that slope stakes were essential. Toby Miller, Mr. Johnson, Mr. Shull, Mr. Hamilton, and Mr. Moore all testified that slope stakes were not needed with a flexible alignment.[219] Each is an experienced road builder in southeast Alaska. In addition, although Mr. Foster asserted that slope stakes were required, he admitted that his firm had built a road in the Talkeetna area without using slope stakes.[220]

Moreover, the Region's arguments that slope stakes were necessary for estimating progress payments and keeping survey control are not well-taken. Because the pioneer shovel operators followed the design center line as much as possible, the parties knew that the road was generally following the Region's design alignment.[221] Survey control to identify deviations could have been (and apparently were, at least to some extent) accomplished without setting slope stakes at every station.[222] Indeed, Mr. Foster described in considerable detail how he used the alignment provided by Mr. Moore when walking the project on November 6th to estimate a percentage complete.[223] This approach—relying on survey data other than slope stakes—is consistent with Mr. Foster's representation at the April 2017 meeting, where he agreed that reference points would suffice to meet the Region's needs. Miller Construction reasonably interpreted that agreement to mean that slope stakes were not needed.[224] Further, Mr. Foster's email of August 9th expressly advised Miller Construction that "[b]ased on the electronic survey that MCC provided, I believe that the Department will be able to verify alignment in most of the

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219 Toby Miller testimony, Johnson testimony, Moore testimony.

220 Foster testimony.

221 Shull testimony; Hamilton testimony.

222 *See, e.g.*, MCC 1923 (March 20, 2017, message from Daniel Ignatov, Department surveyor, clarifying that the Region "will check your asbuilt road prism for proper ASHTO geometrics especially in the areas where you all have decided to deviate from the plan set alignment."). This shows that survey data other than slope stakes could be used to perform the necessary oversight. Note that the Region's real complaint here is not the absence of slope stakes—it is the absence of a clear design alignment with survey control. *See, e.g.*, Winters testimony (explaining that you have to have an alignment because otherwise you are lost). The Region is correct that survey control and obtaining permission from the Region for deviation from the centerline of more than 20 feet were required. That, however, is different from slope stakes.

223 As will be described in further detail later, Miller Construction struggled with the task of determining an alignment that complied with the contract. The struggle to bring in a good alignment *is* support for the Region's case. The absence of slope stakes, however, is not.

224 Moore testimony; *cf. also* SCR 70-71. The communications from the Region in these exhibits support Miller Construction's view that slope stakes would not be required if Miller Construction installed reference points.

areas being worked on."[225] This shows that it was the survey data, not the slope stakes, that the Region needed. Slope stakes were not essential.

(ii) Even if not a contractual requirement, was the failure to slope stake after being directed to do so a material breach of contract?

Even if slope staking was not required by the *contract*, however, eventually, the Region issued Directives No. 12 and 17, requiring slope staking. Miller Construction was required by contract to follow directives. If the directive required extra work—work not required by the contract—Miller Construction could later file a claim, and seek compensation for all expenses related to following the wrongful directive.[226]

The Region argues that Miller Construction's failure to make progress on slope staking after being directed to do so is a flouting of the directive, and, therefore, a material breach of contract justifying termination for default. Citing Miller Construction's letters responding to Directives 12 and 17, it asserts that even Miller Construction's arguments against slope staking were bad faith.

For Miller Construction to *argue* against slope staking is perfectly acceptable. For it to *refuse* to follow a directive to install slope stakes (based, as it was, on a plausible interpretation of the contract) would be a breach of contract. Here, the Region has accused Miller Construction of outright refusing to follow a reasonable directive.

What Miller Construction did, however, was to delay. It never directly refused, but it took no steps to install slope stakes until November 2017. It justifies its delay because Directive No. 12 had no completion date and Directive No. 17 gave the project completion date as the date on which slope stakes had to be installed. Thus, Miller Construction has a plausible argument that it never refused to follow a directive—as long as it had installed slope stakes by contract-completion date, it would be in technical compliance with the two directives on slope stakes. Given that Miller Construction argues that the contract-completion date should have been extended, it has preserved its technical argument that it was not in default for its failure to follow the directives on slope stakes.

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[225] SCR 111 at 2.

[226] *Mega Constr.*, 29 Fed. Cl. at 422 ("It is irrelevant whether the contracting officer was right or wrong in [issuing a directive].").

This argument elevates form over substance. Slope stakes installed at the end of the contract would add no benefit. Thus, Miller Construction's delay in installing slope stakes could, in the appropriate circumstances, support a finding of default.

The problem for the Region, however, is that it also delayed. Although the Region had a good-faith basis for considering slope stakes to be required by contract, and for wanting slope stakes in early 2017, it did not issue its directive ordering slope staking until July 31, 2017.[227] The time when slope stakes would have been of most use had waned by late summer of 2017. Moreover, by this time, the record demonstrates that Miller Construction was providing the Region with considerable survey data.[228] And, most important, as the Region knew, Mr. Moore was working on an alignment (which was what the Region needed most at that stage of construction).[229]

Furthermore, Directive No. 12 is different from the directive at issue in *Mega Construction*, where a contractor had been ordered to replace a defective slab, and refused to provide the slab.[230] In that case, regardless of who was at fault for the defect, the new slab was needed. The slab was a deliverable. Slope stakes, on the other, were a tool to be used in building the road. They were not a deliverable, and, as discussed above, were not in fact required by contract.

It follows that Miller Construction's delay in following Directive No. 12 was not a material breach of contract justifying default termination. Although Miller Construction's delaying conduct adds some support for the Region's overall case for termination based on Miller Construction being an uncooperative contractor, the Region's own delay in issuing the directive, while not bad faith, undercuts that case. In sum, the issue of slope stakes, even though it was among the most-litigated issues at the hearing, contributes little to the case for either side.

b. Directive No. 13: Change Order No. 2 alignment

The second major directive not followed by Miller Construction that the Region cites as grounds justifying termination for default is Directive No. 13, issued on August 2, 2017. This

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227 SCR 99 (Directive 12).

228 *E.g.*, SCR 42; MCC 1921; 7372; 7352 at Exhibit E.1; Skaife testimony; McLain testimony.

229 The absence of slope stakes did make the Region's oversight job somewhat more difficult because it was harder to identify location. The point here is that if the Region was going to demand slope stakes, the time to do so was early in the project when they would have provided significant utility. By August 2017, the other survey data in the Region's possession was sufficient. Stakes were no longer needed.

230 *Mega*, 29 Fed. Cl. at 422-23.

directive ordered that Miller Construction construct the road to the alignment specified in Change Order No. 2.[231] Miller Construction did not attempt to comply with this order.

Change Order No. 2, issued on February 2, 2017, was the order that realigned the road to go up and over a hill t.[232] The new alignment avoided a landslide risk present in the original alignment, which had placed the road on a steep side-hill. The new alignment designed by Mr. Lester, and authorized in Change Order No. 2, required some blasting and excavation on the top of the hill to alleviate steepness and comply with the geometric requirements for sight distances. His design did not take the hill down very far in order to minimize the excavation.

Miller Construction had discovered, however, that the rock on the top of the hill was good-quality rock. Toby Miller characterized it as "the best rock on the project."[233] Miller Construction planned to quarry this rock for use throughout the project, and take down the top of the hill considerably further than provided for in the Region's redesign. As the quarrying was in progress, Miller Construction's design for a final alignment in the Change Order No. 2 area was in flux. In some places, the horizontal alignment of the final road would likely be more than 20 feet from the redesign. The vertical alignment would be considerably lower than the redesign.[234]

With regard to whether Miller Construction's approach at Change Order 2 was appropriate, Mr. Winters testified that quarrying should only take place to the left or right of the alignment, not, as here, in the roadway itself.[235] Mr. Winters appeared to be discussing a situation where a quarry would result in a dip in the roadbed and thus cause the road to fail the geometric requirements for vertical curves.[236] His testimony does not, however, establish that a quarry in a roadway that flattened a hilltop would be objectionable. Indeed, Mr. Foster testified that "we knew it was going over the top and we also didn't see that as a big problem."[237]

As Miller Construction noted in its response to Directive No. 13, by the time of the directive, it had been quarrying in Change Order No. 2 area for a considerable time. While the Region's redesign would have had the finished road elevation at 131 feet, on August 18th the road

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231 SCR 102.
232 SCR 35.
233 Toby Miller testimony.
234 Toby Miller testimony; Moore testimony.
235 Winters testimony.
236 *Id.*
237 Foster testimony. Mr. Foster further admitted that in the end the Miller approach was "incorporated into the final alignment." *Id.*

was already down to 120 feet.[238] Complying with Directive No. 13 would have required bringing the road back up to 131 feet. The result would be a steeper road, which was much less desirable.

At closing argument, the Region asserted that Directive No. 13 was reasonable because Miller Construction had not requested, and did not have, approval for an alignment shift in the Change Order No. 2 area.[239] In fact, however, the record reveals that Miller Construction submitted preliminary alignment work in March 2017, and on July 5, 2017, Miller Construction made a formal request for an alignment change in this area.[240] The Region at first approved the overall change in general, subject to a having a compound curve at 561+20 to 562+00 corrected.[241] Miller Construction accepted the conditional approval, noting that it would undertake further work on the alignment at a later time, and asserting that the particular error cited by the Region was not within the area for which it was seeking approval at that time.[242] In response, the Region rescinded its approval, and, on August 1st, instructed that "[i]f MCC does not submit its realignment with the noted corrections by COB August 1, 2017, the Department will issue a Directive to MCC to build the road to the alignment included in CO 2."[243] The Region made good on its threat, issuing Directive No. 13 on August 2nd.[244] The Directive required Miller Construction to replace the rock it had removed from the quarry as needed to build the road back up to original design.

The Region defends Directive No. 13. It argues that it had authority to require preapproval of alignment changes.[245] It also argues that the terms of Change Orders No. 2 and 3 gave it authority to order strict compliance with Change Order No. 2. Those orders specified that any changes to the alignment in the change order greater than the discretionary 20 feet allowed by contract had to be approved in advance.[246]

Having nominal authority to issue an unreasonable directive, however, is beside the point. Directive No. 13 was not calculated to advance the project toward successful completion. The

238 SCR 103; Toby Miller testimony.
239 Region's closing argument; SCR 00 at 71.
240 MCC 7354 Exhibit 46 at 6.
241 *Id.* at 23 (July 31, 2017).
242 *Id.* at 18.
243 *Id.* at 17.
244 SCR 102.
245 *See, e.g.*, SCR 104 (Department's Response to MCC's August18, 2017 Response to Directive No. 13, asserting that Directive 13 was warranted because "[p]er Subsection 203-2.01 and 642-3.01, such alignment shifts and quarrying require approval from the Department, which MCC has not obtained.").
246 SCR 00 (COD) at 31, 75; SCR 35 at 4.

action ordered by this directive was unreasonable, requiring expenditure of money and resources to make the road worse, not better. Using formal authority to issue a directive that would be harmful to the project is an abuse of process.

Moreover, the Region's argument regarding strict compliance is based on the Region's view that Miller Construction had to provide an engineered final alignment before it undertook the quarrying. This also does not make sense—the purpose of the quarrying was to obtain as much rock as needed while lowering a hill to make a better road. In this case, like pioneering, it would make better sense to do the final engineering after the quarrying, not before. Further, if an engineered alignment was the goal, the Region had other options to achieve the needed result. It did not have to issue Directive No. 13 requiring Miller Construction to build to an alignment that was no longer viable. Finally, the email exchanges in MCC 7354 Exhibit 46 make clear that Miller Construction had submitted a draft proposed alignment, but that the Region wanted some minor changes to it before approval. Both parties are petty in this email exchange.[247] Yet, it was the Region that escalated this minor argument into a directive that was both counterproductive and not germane to the real issue in dispute.

As will be discussed later in this decision, the parties had an obligation of good faith and fair dealing when administering and implementing the contract.[248] Under this obligation, the Region could not take an action to deprive Miller Construction of the benefit of the contract or act in a way that a reasonable person would consider unfair.[249] Taking an enforcement action that is punitive to the contractor and harmful to the project simply "because I can" violates the covenant of good faith and fair dealing.[250]

Accordingly, Miller Construction was not obligated to follow this unreasonable directive. The Region cannot use Miller Construction's refusal to follow Directive No. 13 as justification for termination for default.[251]

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247 MCC 7354 at Exhibit 46. Each party drew a line in the sand and refused to budge over a dispute that was of little consequence. *Id.*

248 *See, e.g., Alaska Pac. Assur. Co. v. Collins*, 794 P.2d 936, 947 (Alaska 1990), *as amended on denial of reh'g* (Aug. 30, 1990).

249 *McConnell v. State, Dep't of Health and Soc. Servs.*, 991 P.2d 178, 184 (Alaska 1999).

250 *Cf., e.g., N. Star Alaska Hous. Corp. v. United States*, 76 Fed. Cl. 158, 190, *dismissed*, 226 F. App'x 1004 (Fed. Cir. 2007) (finding that government officials had administered contract in bad faith, specifically quoting official who had acknowledged the reason she had taken act that harmed the contractor was "because I can.").

251 The dispute over Directive No. 13 also included an argument by Miller Construction that the Region's requirement that the road be built to "AASHTO standards" was unreasonable. *See, e.g.* SCR 103; Toby Miller

c. Corrective-action plan in stations 590-598 and 621-627

In addition to the two failures to comply with a directive described above, the COD also alleged that Miller Construction failed to comply with Directive No. 17's instructions relating to the "corrective-action plan" at stations 590-598 and 621-627. These stations were in steep areas, and in April 2017, the Region understood that Miller Construction had built the road in these areas with a partial bench. (The "bench" refers to the part of the road that is dug into the hillside and supported by solid ground.) The remainder of the road would be supported by the embankment, which, as explained earlier, is composed of compacted rock and soil that slopes down to the catch point on the hillside. In proper circumstances, the embankment can be a reliable structural support for the road.

At stations 590-598 and 621-627, however, the Region was concerned that the embankment would not suffice. These areas were steep, making it difficult under any circumstances to stabilize the road that was supported by the embankment slope. Most concerning, the embankment slopes contained organic material (which was not allowed), including live trees. These were not structural—organic material is inherently weak, and eventually would rot. Trees could be uprooted by the lateral pressure put on them from the road. The Region required Miller Construction to cure the embankment slopes in these areas.[252]

In early May 2017, Miller Construction sent the Region a corrective-action alignment modification proposal for stations 590-598 and 621-627.[253] It proposed that the road would be moved into the hillside in these areas so that it was on a "full bench"—that is, all of the road would be supported by the ground itself, not by the embankment slope. It would then cut any trees that were in the nominal (but no longer structural) embankment slope.[254] The Region agreed to Miller Construction's proposal, noting that a new alignment would be required. It also listed

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testimony. (AASHTO stands for "American Association of State Highway and Transportation Officials." It is a body that sets standards for roads and highways.) If followed literally to include all AASHTO standards, Miller Construction argued, the directive would cost millions and add two years to the project. SCR 103; Toby Miller testimony. Applying a commonsense gloss of reasonableness, however, the directive only meant that the contractor was to build to *applicable* AASHTO standards. Miller Construction's argument on the AASHTO issue is not well-taken.

252 Kemp testimony; Foster testimony.

253 MCC 7354 at Exhibit 47.

254 Kemp testimony; MCC 7354 at Exhibit 47. The written proposal described the plan as "[i]n areas where the sliver fill supports the roadway and the toe was not benched Miller Construction will adjust the alignment into the hillside to ensure that the foreslope toe catches at a higher elevation on original ground." *Id.* at 3.

several already-established requirements for the road, relating to blasting, embankment, and grubbing.[255] Miller Construction responded that it would adhere to all contract requirements.[256] It also noted, however, that it would not be designing a realignment before doing the work because any shift would be less than 20 feet. The re-design would be documented in the asbuilt survey provided at contract completion.[257].

Later, following the May 24th meeting described above, the Region wrote in its post-meeting summary the following: "Re-alignment corrective action from Sta 577 forward. Submitted Corrective Action Plan started at Sta. 590. Embankment prior to Sta. 590 is unacceptable. Provide a proposed alignment by PR#22."[258] Toby Miller signed this summary.[259]

Directive No. 17 noted that the corrective-action alignment in these areas had not been completed.[260] The COD gives two reasons for why Miller Construction's activity in the corrective-action plan areas provided justification for termination:

- Miller Construction did not obtain approval for its alignment changes of greater than 20 feet within the corrective-action areas.[261]
- Miller Construction refused or failed to perform the promised corrective action, and the replacement contractor eventually had to move the road to solid ground.[262]

With regard to the issue of Miller Construction's failure to provide an alignment for the corrective action areas, the Region is correct that Miller Construction had not provided an engineer-stamped technical drawing for its proposed alignment at stations 590-598 and 621-627 at the time of Directive No. 17, or, indeed, by termination.[263] This failure, however, provides only nominal support for default. Miller Construction had explained its intent, and had received permission to pursue the approach. Whether the shift would be greater than 20 feet was not clear, but Miller Construction was under an obligation to comply with all geometric requirements of the contract. As discussed below, the timing of when the alignment would be finalized is a legitimate

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255 MCC 7354 at Exhibit 47.
256 *Id*.
257 *Id.*
258 SCR 66.
259 *Id.*
260 SCR 119 at 10.
261 SCR 00 at 27, 29, 66, 83-84.
262 *Id.* at 52 n.40; 84.
263 Miller Construction had provided a document called "Alignment modification" that was stamped by an engineer. MCC 7354 at Exhibit 47. That document described Miller Construction's plans for the corrective action areas, but did not layout the precise proposed engineered alignment to be followed.

concern, and does affect how the Region approaches progress payments. Given that Miller Construction had engineers capable of designing a compliant alignment, however, the lack of a final engineered design for the corrective action areas, ultimately, provides only slight support for default.

The failure to complete the work, or at least have a clear plan explaining how and when the work would occur, however, would, if true, be significant support for default termination. Given that notice and an opportunity to cure were provided, the lack of a cure for work that was not done correctly can be a viable ground to terminate.[264] This rationale could be applied even if Miller Construction was due additional time for the project as a whole—if a failure to cure by the cure deadline proves a failure to make progress, it can be an independent ground for default termination.[265]

Mr. Foster testified that the needed work in the two corrective-action-plan areas had not been done at the time of termination, and that the replacement contractor had to do all of this work.[266]

In rebuttal, Toby Miller testified that much of the road in the corrective action areas had been built on a full bench originally and that, where needed, the remedial work had been done.[267] He presented pictures of the road during construction that showed excavation into the hillside and creation of either a full bench or at least a narrow bench in locations along the corrective action areas.[268] At closing argument, Miller Construction asserted that it had built almost the entire road on a "full bench," and that the issue of faulty embankment being a structural hazard was a red herring. In support, it cited the survey that Mr. Foster had conducted in August 2017, in preparation for the Region's response to Miller Construction's Request for an Equitable Adjustment. According to Miller Construction, the cross-sections from that survey would show that every station within the corrective-action areas was fully benched.

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264 *See, e.g., Armour of Am. v. United States*, 96 Fed. Cl. 726, 757–58 (2010) (holding that facts showed that after plaintiff "was afforded the opportunity to cure" the "Navy's termination of the contract for default was reasonable and not accelerated.").

265 *Id.*; *see also* SCR 330 at 62 (§108-1.08).

266 Foster testimony.

267 Toby Miller testimony.

268 MCC 7286; 7354 at Exhibit 48.

I have reviewed the August 25, 2017, cross sections for the correction-action areas to determine whether the road was built on a full bench.[269] In general, for nearly all stations in these areas, the Region had designed the road as a cut section, with a full bench and ditches on both sides. What Miller Construction had done, however, was build the road at a higher elevation than designed—it had not excavated as deeply as the design, and thus its road did not have a ditch on the downhill side.[270]

With regard to whether the road built by Miller Construction was on a full bench by the time of the August/September survey, for the second corrective-action area, stations 621-627, the cross-sections confirm Toby Miller's testimony that the corrective action either had been completed or had never been required in the first place—except for station 626+00, the road is on a full bench.[271] For station 626+00, the hill is not as steep. The design called for a partial bench, which Miller Construction had built. The cross-section shows extensive embankment at a less-steep slope than the design at this station, so Miller Construction would have no trouble ensuring that the embankment was sound and structural (although it may have had to clean up any debris in the embankment).

For the other corrective-action area, stations 590-598, the situation is not as clear. Stations 590, 596, and 597 were, in fact, only partially benched in August 2017.[272] For these stations, the embankment slope is structural. To meet the corrective-action plan's goal of eliminating dependence on the embankment slope, the road would have to be moved further into the hillside or cut deeper.

For five of the six remaining cross-sections in this area, the road is on a near-full bench.[273] For these stations, the embankment slope appears to be supporting a few feet of the road, but the

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269 MCC 7354 at Exhibit 50 (at cross sections). Exhibit 50 is the Region's response to Miller Construction's Request for Equitable Adjustment. It is an 826-page unnumbered exhibit. The cross-sections were prepared in September, and the photographs show a September date. *Id.* The cross-sections show the date of the asbuilt survey as August 25, 2017.

270 *Id.*

271 MCC 7354 at Exhibit 50.

272 Toby Miller testified that the pictures in MCC 7354 at Exhibit 48 showed a rock hammer at station 590 bringing the slope back on August 10, 2017. The as-built survey conducted on August 25th still shows only a partial bench at station 590, and the accompanying photograph shows at least one standing tree in the embankment. MCC 7352 at Exhibit 14. Nevertheless, Mr. Miller's testimony and photographs demonstrate that Miller Construction was working on the corrective action plan. This refutes Mr. Foster's assertion that no work had ever been done on the plan.

273 MCC 7354 at Exhibit 50.

photographs show that the road is wide. This means that the road could be dressed so that it is narrowed and fully-benched. For the remaining station, station 593, the situation is not clear because the exhibit indicates a turnout is required, and the turnout had not been built as of August.[274]

Thus, the evidence of the cross-sections shows that by August the corrective-action issue is not nearly as extensive as alleged by the Region—except for three stations, it had either already been addressed, or was never an issue. Precisely how much of the road needed to be moved further into the hillside on December 30th is not clear. To the extent some work needed to be done in the corrective action areas to achieve a full bench, this was a minor issue. It provides some, but not extensive, support for the Region's assertion that failure to perform, and failure to follow directives, was a ground for default termination.

In sum, with regard to Miller Construction's failure to follow directives, the Region has established that Miller Construction was a difficult contractor who would balk at directives that it considered unnecessary or bothersome. The evidence also establishes, however, that the Region was a difficult owner, inconsistent in its demands and willing to use directives on occasion for purposes other than a true need to achieve the object of the directive itself.[275]

2. Did Miller Construction use inefficient and unreasonable methods and means that justify termination for default?

The COD cites Miller Construction's unreasonable methods and means as grounds for default termination.[276] In a typical construction matter, a contractor's methods and means would not be subject to scrutiny because the contract gives the contractor the discretion to select the means and methods of construction.[277] In general, how a contractor staffs a project, and the resources and equipment that the contractor uses, are not directed by the owner.[278]

There is, however, some give and take on this. The contractor submits plans, schedules, and list of planned equipment, to the owner in advance of the project. The contractor cannot hire

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274 *Id.*

275 Although the Region has alleged other failures to comply with Directive No. 17's comprehensive list of substandard work, because the deadline for those requirements was the contract completion date, this decision will not analyze those issues as failures to comply with a directive. Many of these issues, including the deleterious material in the embankment and failure to grub on the top of rock slopes, are discussed in other contexts.

276 SCR 00 at 64-70.

277 SCR 330 at 21 (§104-1.01), 59 (108-1.05).

278 Toby Miller testimony; Foster testimony.

additional subcontractors without owner approval. And, most important, the contract allows for default if the contractor "[f]ails to perform the work with sufficient workers, equipment, or material to ensure the prompt completion of the work," or "[p]erforms the work unsuitably."[279]

It follows that the means and methods selected by the contractor are entitled to deference. Should they prove to be so deficient that they risk derailing the project, however, the erroneous means and methods are grounds for default termination.

a. Did Miller Construction fail to use reasonable means and methods?

Mr. Foster presented expert testimony on the means and methods chosen by Miller Construction. He testified that Miller Construction did not follow a logical sequence for building a road, which he laid out in his testimony and report.[280] He further testified that Miller Construction was inefficient and failed to follow reasonable means and methods in many respects. In his view, it

- used undersized equipment;
- had too many supervisors (resulting in conflicting instructions to workers and other difficulty in clear communication), including some supervisors who were not qualified for the position;
- inappropriately sized and positioned its blasting shots (resulting in pollution of the inlet, excess fly rock, and significant amounts of other wasted rock that was too large to use; also causing the back slopes to be too steep and requiring additional blasts that would not have been necessary if the blast had been done correctly in the first place);
- lacked appropriate equipment (including having an undersized crusher and not having a rock hammer attachment for an excavator until the Region provided for one in June 2017);
- had equipment breakdowns far more frequently than normal;
- understaffed the project, particularly on the fish pipe installations;
- had to backhaul material that had been dumped in the wrong place.[281]

279 SCR 330 at 62 (§108-1.08).
280 Foster testimony; SCR 127 at 7.
281 Foster testimony; SCR 127.

As explained next, most of the inefficiency issues cited by Mr. Foster have some validity and may have contributed to the failure of the project. For some issues, however, the level of inefficiency is only slightly more than we would see on many construction projects. Other issues are more troubling and are discussed in more detail. As will be seen, for blasting, sequencing the clearing and grubbing on top of rock cuts, and failing to timely conform the alignment to the road (or vice versa), the evidence supports an inference that Miller Construction's method and means were materially substandard.

(i) Were Miller Construction's general equipment, staffing, backhauls, and breakdowns significantly less efficient than normal?

Some of the Region's allegations of inadequate means and methods have been refuted by the evidence. Others, although evidence of inefficiency, were not significantly more inefficient than the normal inefficiency that would occur on any project. For example, with regard to the undersized equipment allegation, Toby Miller persuasively testified that, other than the crusher, the equipment Miller Construction used on the BOP side of the project was right-sized.[282] The equipment used by Mr. Hamilton on the EOP side was somewhat old and undersized, but Mr. Foster agreed that Mr. Hamilton's efficiency was not an important consideration in the default.[283]

Toby Miller also addressed the allegation that the staffing on the fish pipe installations was deficient.[284] Mr. Trousil, a hydrologist with the Department, had observed the installation of the fish pipe at station 708. The installation had not gone well. Miller Construction was not able to get the pipe in quickly, and the turbidity in the diverted stream was significant.[285] Mr. Trousil reported that he saw only two workers on site, plus one excavator operator.[286] He concluded that the installation was understaffed. Mr. Miller controverted this testimony. He knew that many workers worked on that fish pipe. He suggested that Mr. Trousil may have miscounted or failed to see some of the workers.[287] Overall, however, the testimony does show a struggle with the fish pipe at station 708. The problems may have been caused in part by understaffing, at least for a time.

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282 Toby Miller testimony.
283 Foster testimony. Mr. Hamilton did not have a crusher on his side of the project. Hamilton testimony.
284 Toby Miller testimony.
285 Trousil testimony; *see also* Exhibit 6 to Barnett deposition.
286 Trousil testimony.
287 Toby Miller testimony.

On the issue of supervision, many witnesses, including Miller Construction witnesses, testified that, particularly after Mr. Johnson left the project in April 2017, the leadership and supervisory staff for Miller Construction was in flux, at times unqualified, and the source of confusion.[288] The lack of clear and consistent leadership contributed to the inefficiency of the project.

With regard to equipment breakdowns, several witnesses testified that the breakdowns on the Shelter Cove project were significant.[289] Toby Miller and Mr. Johnson, however, explained that equipment breakdowns happen on all jobs. On a remote job on a narrow workpad and steep hillside, we would expect the impact of the breakdowns to be more significant, and more obvious, than a breakdown that occurred on a job closer to mechanics, spare parts, replacement equipment, and a yard or parking area where the broken equipment would not be so visible. The evidence shows that Miller Construction did have mechanics, spare parts, and additional equipment, some in Juneau and some in the vicinity.[290] In general, with the exception of the crusher and the drill, it often did repair its equipment or have other equipment available to replace broken equipment.[291]

At Mr. Fleming's request, the Region's inspector, Robert Lacey, began tracking the equipment on the job that was idle and needed repair.[292] Mr. Lacey characterized the frequency and extent of downed equipment as "a little much."[293] This decision accepts Mr. Lacey's summation as accurate—more than it should have been, but not extraordinary.

Equipment breakdown could be a more significant issue, however, because of the timing of the breakdowns. The Region's expert, Mr. Seibold, presented a graph that showed a significant volume of equipment breakdowns occurring during the most crucial time of the project—July through December 2017.[294] This graph addressed all essential equipment (the crusher breakdown

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288 Shull testimony; Jones deposition; Barajas testimony; Foster testimony; Hamilton testimony. Although Troy Cunningham was underqualified to be superintendent, that was not a significant drain on the efficiency of the company. He made clear that he was middle-management, not top management. Cunningham testimony. In general, as stated earlier, the evidence supports a decision that Toby Miller was a qualified manager who knew how to run a construction company and deliver a quality product. After Mr. Johnson left, however, Mr. Miller apparently employed a number of different people in managerial-level capacity, including Mr. Cunningham, Anton Miller, and Chris Jones. Foster testimony; *see also* Shull testimony; Hamilton testimony. When these individuals gave inconsistent or uncertain directives to workers, having so many supervisors was inefficient.

289 *E.g.*, Barajas testimony; Foster testimony.

290 Toby Miller testimony; Skaife testimony; Cunningham testimony.

291 Toby Miller testimony; Johnson testimony; Hamilton testimony.

292 Lacey Depo. at 110-12.

293 *Id.* at 112.

294 SCR 234 at 40.

is discussed separately below). Some testimony indicates that this graph is overstated because it includes idle redundant equipment as well as broken equipment.[295] Nevertheless, the evidence that a significant volume of equipment was either idle or broken during the crucial time for making progress toward completion of the project is evidence that Miller Construction's means and methods likely contributed to the failure of the project (unless, of course, Miller Construction is able to show that the Region caused or is otherwise responsible for the equipment being idle or broken).

(ii) Did Miller Construction's lack of a rock hammer and a right-sized and operable crusher significantly affect the failure of the project?

Mr. Foster persuasively testified that an additional crusher, with larger capacity than the three crushers Miller Construction had on the job, as well as a rock hammer, were needed to keep the job moving appropriately. He described how rock was wasted because Miller Construction had only one large-capacity crusher, and even it was not large enough to crush some of the larger boulders that were produced by Miller Construction's blasts.[296] Mr. Foster also explained that a rock hammer could have been used to break up some of the oversized rock, and also could have been used to attack some of the rock remaining in a rock slope after a blast that needed to be removed to obtain a correct backslope or for some other reason (and that could have been removed by a rock hammer, but not by an excavator bucket).[297]

More important than the crusher size and wasted rock, and more important than the other equipment breakdowns, however, was the breakdown of the large crusher. Mr. Foster explained that the large crusher went down at a critical time for the job, and remained down for an extended period. This inevitably slowed Miller Construction's rate of embankment.[298]

In sum, the late procurement of the rock hammer, and the breakdowns of the crusher, did contribute to delay and inefficiency. The evidence does not prove that these issues were insurmountable, but it does tend to confirm the Region's case that Miller Construction was responsible for some of the problems that led to its failure to complete the project.

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295 Toby Miller testimony.

296 Foster testimony. Not all of the large rock was wasted—some of the rock that Mr. Foster thought was wasted was in fact used as rip rap for slope stabilization purposes. Moore testimony. Nevertheless, some pictures displayed by Mr. Foster clearly showed wasted rock. *E.g.*, SCR 227 at 93. A larger crusher and/or a rock hammer could have salvaged some wasted rock.

297 Foster testimony.

298 *Id.*

(iii) Was Miller Construction's blasting procedure a significant contributor to the failure of the project?

We turn next to a method and means issue that is more clearly significant in explaining the failure of this project: blasting. Blasting is done by designing a "shot"—a series of holes drilled according to a predetermined pattern in the rock. The holes are then packed with dynamite and exploded. Blasting rock is an important aspect of a construction project. It opens the hillside up for the roadbed. It makes rock available to be crushed and used in embankment.[299]

Tony Barajas, an experienced blasting professional who sold blasting supplies to Miller Construction, and who observed and contracted with Miller Construction regarding the blasts on the project, testified about blasting in general. He also testified in particular about Miller Construction's blasts on the Shelter Cove project. Mr. Barajas explained that a skilled and experienced blaster can design a blast that shapes the road and the slopes, and results in rock that is accessible and useable.[300] A less skillful blaster, however, will bring in a blast that only partially opens up the rock, requiring a reblast. A poorly-designed blast may result in wasted rock either because the rock is too big to be used or because the blasted rock is catapulted too far off the road way to be accessible. It can also cause environmental damage if the flyrock is not controlled. The flyrock can exit a blast at such a velocity that it destroys trees or other vegetation that were not supposed to be affected by the construction. If it lands in a body of water, the flyrock is considered pollution.

At the outset of the project, Miller Construction had on staff two skilled blast technicians working on the BOP end of the project.[301] During 2016, the blasts went well—big blasts, good shot design, deep drilling, and good fragmentation of the rock.[302] After they left, however, Miller Construction had no licensed blaster (except for Mr. Hamilton, who was on the EOP end), and blasting became a serious problem for Miller Construction on the BOP side of the project, which had considerably more rock than the EOP end.[303] No experienced blaster was giving guidance to the drillers on the BOP side of the project. When Miller Construction had Mr. Barajas, a licensed blaster, come to set the powder and conduct the blast, it was too late to improve the design, and

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299 *See generally, e.g.*, Warren testimony; Barajas testimony.
300 Barajas testimony.
301 *Id.*
302 *Id.*
303 *Id.*; Hamilton testimony.

the results that he observed were inefficient and problematic—the spacing of the drill holes were poorly designed, and the depth of the drilling was too shallow.[304]

In addition, Mr. Barajas was critical of Miller Construction's drilling equipment. He referred to Miller Construction's three drills as "junk."[305] The company spent more time repairing the equipment than drilling.[306]

The problems with blasting are among the most serious in this record. The evidence shows that the blasting issues caused delay, waste, and inefficiency. For example, Mr. Foster testified, and the photographic evidence demonstrated, that rock was wasted.[307] In addition, a poorly-designed blast resulted in the "flyrock incident"—destroying the trees adjacent to the road, and depositing a significant volume of rock in the inlet in violation of the Department's Clean Water Act permit. This was a serious matter, requiring the Department to reach out to federal authorities, and demand an extensive cleanup effort by Miller Construction.[308] (Note, however, that Miller Construction *did* clean up the flyrock, and this cleanup project did not end until November 28, 2017—well after the Region had signaled its intent to terminate Miller Construction.[309]) Without question, these problems contributed to the failure of the project.

More important, however, is that Miller Construction's struggles with blasting contributed to significant failures to meet contract requirements. First was the failure to grub on the top of the rock slopes.[310] This should have been done at the same time as, and in coordination with, the blasting that shaped the rock slopes—blasts could have been done in sequence, allowing the excavator access to the top of the slopes to complete the grubbing, and then get back down.[311]

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304 Barajas testimony.

305 *Id.* Two of the drills were from Miller Construction's equipment yard. The third was purchased as a replacement. It, too, however, was not a quality piece of equipment. *Id. See also* Hamilton testimony (confirming that Miller Construction's drill had blown oil cooler and wear and tear from age and exposure to salt water).

306 Barajas testimony.

307 Foster testimony. As stated earlier, some of the oversize rock was used for stabilization. Toby Miller testimony; Moore testimony. Some, however, was wasted.

308 Barnett Deposition at 12.

309 *See* MCC 7172.

310 Foster testimony. For photographic evidence of the failure to clear and grub on the top of the rock slopes, see, e.g., SCR 227 at 95, 99-104. The grubbing at the top of the rock slopes was to extend at least10 feet from the top of the cut; clearing had to extend to 30 feet from the cut. Note, however, that Miller Construction was working to correct some of these deficiencies even as the project was winding down. For example, on November 28, 2017, the tree cutters were at work cutting trees above the slopes at station 550. MCC 7172 at 4. Yet, no evidence shows that Miller Construction was grubbing on the top of the rock slopes.

311 Foster testimony; *see also* MCC 7275 at 10 (Mr. Johnson's report agreeing that "on rock cuts that are very high, the standard practice is to blast an access road to the top of the cut").

Now, after the slope was completed, the tops of the slopes are difficult to access. Even after the replacement contractor finished its contract, the tops of the rock slopes had not been grubbed.[312] This is a major issue. Because Miller Construction has not refuted the Region's evidence on this issue, to avoid default, it will have to show that its failure to complete this task was excused by the Region's conduct.

Second, Miller Construction left rock slopes that were too steep, including some that had overhanging rock.[313] Mr. Foster testified that this work was not corrected by the replacement contractor (because, in his view, it would have been too costly), although in some areas the ditch line was widened so that if the slope failed, the rock would fall into a ditch, rather than on the road.[314]

Miller Construction argues that the Region had implicitly deleted the requirement that rock slopes be sloped back at one-half to one because the Region had deleted from the contract the requirement that the slopes were to be shaped by use of controlled blasting. Instead, the contractor was free to use production blasting, which was much cheaper, but would not result in as clean a break and was not as predictable a method for achieving the correct backslope.[315] This argument, however, is not persuasive. The contractor was still required to backslope the rock slopes at at least one-half to one.[316] How the contractor achieved that slope was up to the contractor. The deletion of controlled blasting as a contractual requirement was not an implied amendment to the contract. In sum, the fact that Miller Construction had not properly backsloped the rock slopes, that it did not have a clear plan for how to correct the failure, and the fact that the slopes remained out of conformance even after the Region hired a replacement contractor, demonstrate another serious failure to perform that Miller Construction must show is excused.

Third, although a minor issue, as explained above, to the extent that Miller Construction had not fully met the corrective action plan to move the road onto a full bench in stations 590-98, that failure may also have been related to blasting. Because blasting was required to implement

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312 *Id.*

313 Foster testimony. For photographic evidence of steep slopes, see, e.g., SCR 127 at 45, SCR 227 at 99-101.

314 Foster testimony. For the corrective action area, the benching was achieved by the replacement contractor, with correct slopes. SCR 210.

315 Terry Miller testimony; Moore testimony; Skaife testimony.

316 SCR 3 at 6.

the corrective action, Miller Construction's problems with blasting may have played a role in the failure to fully complete the corrective action.[317]

(iv) Was Miller Construction's failure to timely finalize an alignment a significant contributor to the failure of the project?

The major criticism of Miller Construction's means and methods leveled by the Region relates to Miller Construction's sequencing and approach to the work. Much of this criticism, however, focuses on slope stakes. As discussed above, Miller Construction's decision to build without slope stakes was not a violation of the contract, and this decision accepts the testimony of Miller Construction's experienced leadership that it could build a road to meet the requirements of this contract without slope stakes.

The Region has, on the other hand, proven that Miller Construction's approach to the alignment was not a good choice. Except for areas that served as a rock source, having a reliable and accurate design alignment early would have been more efficient. Notably, with a reliable design alignment, the clearing and grubbing limits could have been established and the dilemma of later having no access to the top of the slopes avoided. In addition, with an established design, the operators have better guidance on where to embank, the project engineer would know whether a portion of the road was complete, and the contractor would not have to return to a station to move the embankment because of changes in alignment.[318]

Moreover, the facts show that Miller Construction struggled with bringing in an alignment that worked. Leif Abel, a surveyor who was in the field on the Shelter Cove project for a short time, and then worked for a while in Miller Construction's office to design a new alignment, testified that it was difficult to design a road that met the geometric requirements of the job.[319] Later, Mr. Moore assumed the task of designing a compliant alignment. As Chris Jones, a worker

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317 The COD documents that achieving the benching required by the corrective action plan did require blasting. SCR 00 at 52 n.40.

318 This discussion reprises the slope stakes issue. The Region would argue that slopes stakes are needed to translate the alignment to the construction. I agree that slope stakes would accomplish this. Some construction workers, however, can bring in a compliant road with no slope stakes (still requiring, of course, some survey data). The evidence shows that Toby Miller and Mr. Shull are among those skilled and competent workers who would not require slope stakes. Indeed, close examination of the cross-sections for the asbuilt road as of August/September 2017, shows that for many stations the asbuilt road was a very good match to the designed road. MCC 7354 at Exhibit 50 (*see, e.g.*, cross-sections for stations 528-34; 539-44; 603-06; 635; 640-41; 662-679; 684-90; 692-93; 716; 722; 774-79; 791; 813-14; 829-35). This is evidence that Miller Construction could build a road that matched a design alignment without slope stakes.

319 Abel testimony.

on the project, testified, however, "From Toby's [engineer] -- his name's Tracy Moore -- I was given many, many alignments. And every alignment that I put into my data collector either put us up in the hill or in the ocean. None of his alignments ever worked."[320] Mr. Foster testified that in November, he used the alignment provided by Mr. Moore to walk the project with Miller Construction personnel in order to determine how much of the road was completed. At many stations, however, the November alignment was not a good match for the road, resulting in a low number for percent complete—at a few locations, it was zero.[321]

Even at the hearing, Mr. Moore struggled with explaining his final alignment. Mr. Foster had testified that the final alignment the region received from Mr. Moore was not compliant with the geometric requirement of the plans.[322] (Mr. Moore produced this alignment to the Region in September 2018, long after termination.[323] Apparently, Miller Construction continued to work on the alignment after termination.) Mr. Foster explained that the September 2018 final alignment from Mr. Moore had some hand-written changes, but that even when these changes were entered, some of the tangents to the curves did not line up. In rebuttal, on the last day of the four-week hearing, Mr. Moore explained that he had, in fact, finalized an alignment that met all requirements, and that he believed he had provided a copy to Mr. Foster.[324]

In his rebuttal testimony, Mr. Moore produced a new exhibit (MCC 8364) that plotted the centerline for the alignment he had designed, and shoulders of the road as it existed on December 31, 2017, and on August 17, 2017. He asserted that his exhibit refuted a similar exhibit that had been prepared by Mr. Foster, that also plotted the road, and showed where it did not match the alignment prepared by Mr. Moore.[325]

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320 C. Jones Depo. at 39; *see also, e.g.,* Winters testimony (stating that all the way to the end they were still struggling to come up with an alignment). Note, however, that Mr. Winters testimony indicating his view that Miller Construction should have built to the Region's design alignment is not well taken. That suggestion indicates a lack of understanding of the project and the advantage of a flexible alignment.

321 Foster testimony.

322 Foster testimony. Mr. Foster related that Mr. Moore stated at his deposition in 2019 that the alignment shown to him by the Region was not his final product. *Id.* Different versions were subsequently produced. *Id.*

323 Foster testimony; *see also* SCR 389.

324 Moore testimony.

325 Moore testimony. I admitted MCC 8364 over strong objection from the Region, with the reservation that it would not be given much weight as to its accuracy because the Region had not had the opportunity to review the exhibit. I was curious, however, to study the plot prepared by Mr. Moore. Although I cannot accept the exhibit as necessarily accurate, the circumstances of the exhibit's preparation, and the fact that in many places the alignment still does not match the existing road, support the Region's argument that Miller Construction's approach to the alignment of the project was deficient.

I have examined both exhibits.[326] In general, they show that the asbuilt road at termination tracks fairly well for most of its length with Mr. Moore's alignment. Yet, both exhibits show that, in some places, deviations remain.[327] This means that either the road would have to be moved in those places, or yet additional refinements to the alignment would have to be made.

The parties draw radically different conclusions from this episode. Miller Construction concludes that it has proven that it was perfectly capable of designing a compliant road. The Region concludes that even with all this time, Miller Construction cannot come in with a perfect alignment and its road does not match the proposed alignment.

The important takeaway from this last-minute hearing room drama, however, does not relate to Miller Construction's ability to prepare a compliant alignment or build a road to that alignment. Given that the road was never finished, these issues are not significant. Moreover, even if some minor adjustments to curve tangents had not been fully resolved, Miller Construction has proved that, but for the termination, Mr. Moore could have designed a compliant alignment.

The significance of the last-minute contretemps is that Miller Construction struggled with the alignment. It took an inordinate amount of time to design, and was still unsettled and uncertain at the time of the hearing. Miller Construction's approach was inefficient and caused delay.

And, even more significant than the inefficiency of Miller Construction's approach to the alignment are its failures to meet contract requirements mentioned above in the discussion regarding blasting: Miller Construction's failure to clear and grub on the top of rock slopes, to properly slope rock slopes, and to move the road onto a full bench at the "corrective action plan" location. These issues are a direct result of faulty planning and not properly sequencing the project. If Miller Construction had a design alignment earlier in the project, it could have identified clearing and grubbing limits, including those extended limits at the top of the rock slopes, in time to get that work done before the final slopes were shot. In sum, the outcome here with regard to the struggles with alignment, and the undone work that should have been done

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326 *Compare* MCC 8364 *with* SCR 389-93.

327 MCC 8364. To use just one example, the deviation noted by Mr. Foster at station 575, where Mr. Moore's alignment is outside the road constructed by Miller Construction, remains in Mr. Moore's exhibit. *Id.*

early in the project, are strong support for the Region's argument that Miller Construction's sequencing approach to the project was faulty.

(v) Was Miller Construction's planning and sequencing of the fish pipes unsuitable?

Another hotly contested planning and sequencing issue was Miller Construction's approach to the seven (later expanded to eight) fish pipes. Three of the originally-planned fish pipes, and the additional pipe that had been identified late, were not installed. They were scrubbed from the project and replaced by log-stringer bridges.[328]

Although the failure to install contractually-required fish pipes would appear to be a breach of contract, the Region did not allege at the time, and does not allege here, that the failure was an outright breach. Instead, it argues that Miller Construction's failure was one more example of a breach of Miller Construction's duty to adequately plan and prepare for the project.

Mr. Foster testified that the reason the fish pipes at the EOP end of the project were canceled is that the Region realized in June that Miller Construction could never install those pipes before the close of the fish-pipe window. The two ends of the project were not joined until July 17th.[329] Mr. Hamilton did not have a crusher at his end to prepare the rock that would be used as bedding in the fish pipes. Neither the pipes nor a stockpile of bedding was available at the EOP end, and, with the road not connected, there was no way to get sufficient material to do all four pipes.[330] In addition, Miller Construction's large crusher was down during some of the critical period.[331] The Region considered alternative installations that might make installation easier, but never finalized those plans.[332] An extension of the fish pipe window was not possible.[333] According to Mr. Foster, the only reason the fish pipes were deleted from the project was because of Miller Construction's failure to adequately plan and prepare for the installations and meet the tight timeline.[334]

The evidence shows, however, that the Region was concerned about the bedrock in the fish streams, and the presence of an additional fish stream that it had failed to include in the

328 MCC 1992.
329 Foster testimony.
330 *Id.*
331 *Id.*
332 Trousil testimony.
333 *Id.*
334 Foster testimony. *See also* Winters testimony; Trousil testimony.

plans.[335] Indeed, the backup sheet to Change Order No. 4 states "[f]ish culvert pipes P-147 and P-168 are deleted as a result of bedrock and alignment conflicts" and that "[f]ish culvert pipe P-150 is deleted as a result of bedrock and alignment conflicts."[336] Thus, the Region's documentation identifies the bedrock and the new stream as the reason for deletion of the four fish pipes. It does not identify Miller Construction's lack of preparation as the cause. Further, the Region did not assert at the time that Miller Construction was responsible for the cancelation of the fish pipes or that Miller Construction's failure to install the pipes was a breach of contract. This supports a conclusion that the Region considered the issues of bedrock and the presence of an additional stream (and the delay caused by these issues) to be its own responsibility.

Moreover, Toby Miller testified that he had a plan, and the means, to have completed the fish pipes on time. The plan involved barging bedding material prepared at the BOP end down to the EOP end so that the material could be used for the additional pipes. The only reason that did not happen, he testified, was that he was advised before the first of July that the material would not be needed.[337]

In sum, the evidence regarding the cancellation of the four fish pipes does not prove that they were cancelled because of Miller Construction's failure to adequately plan and prepare for the installations. The evidence that Miller Construction struggled with at least one of the four pipes that it did install, and the fact that it did not finish that installation until late in July, however, do provide support for a conclusion that Miller Construction would have been strained if it had been required to install all eight fish pipes. Thus, although the Region's own documents place the blame on the bedrock and alignment, the fish-pipe episode adds some further support to the evidence that Miller Construction's planning and preparation was deficient.

(vi) Was Miller Construction's inclusion of deleterious material in the embankment a significant contributor to the failure of the project?

The COD presents two reasons for why deleterious material in the embankment is a ground for termination. First, it alleges that the embankment material itself was nonconforming because of debris mixed into the embankment material. This allegation is properly treated as a

335 MCC 784; 8314, 1992.

336 MCC 784.

337 Toby Miller testimony; MCC 1992 (email from Mr. Foster on June 29, 2017, advising Miller Construction that fish pipes would be deleted). Toby Miller recalled being advised by Mr. Fleming that he could take off for the Fourth of July. Had it not been for Mr. Fleming's assurances, Mr. Miller would have worked over the holiday moving material for installation of the EOP fish pipes. Toby Miller testimony.

criticism of Miller Construction's means and methods. Second, it alleges that Miller Construction had improperly buried waste under the road surface, in such a manner that the burial could not have been discovered. This allegation is an independent ground for termination, and will be discussed in the next subsection of this decision.

With regard to visible debris, the evidence proves that Miller Construction had built the road with debris mixed in with the rock in the embankment—obvious stumps, root wads, and even live trees were visible at various places in the embankment. As Mr. Jones testified, "[w]e've had basically trees in the slope. You know, that's not usual" and "we had -- we'd have trees like four or five feet away from the -- the road. Like full grown trees."[338] This debris was an obvious nonconformity. Not only was it a weakness in the embankment because organic material is inherently unstable, but it also was not allowed simply because it was an eyesore.

The evidence shows, however, that during November and December 2017, Miller Construction was cleaning up the embankment. For example, Mr. Lacey's daily report from November 25th states "Toby/340, w/ Bruce & Tony begin removal of logs, trees, roots, etc. in the 594+00 area, using a choker."[339] Nevertheless, K&E's project manager, Joe Williams, testified that, at the time that K&E first assessed the project site, "there were stumps and logs and things sticking out of fill, in – I don't want to say throughout the project, but there were numerous areas that had that."[340] This testimony proves that, at the time of termination, Miller Construction had considerably more work to do to remove visible debris from the embankment.

Thus, the evidence regarding the visible-debris-in-the-embankment issue shows that Miller Construction was dealing with the issue, and was capable of producing a roadway that conformed to the requirement that there be no debris mixed into the embankment. It also shows, however, that, from an early time, the Region had reason to be apprehensive about the project. The debris looked bad. Anyone observing the project would be concerned that it was not a well-built road that would be structurally sound. Further, it adds support to the Region's argument that Miller Construction was sloppy and inefficient. Finally, the lack of a clear schedule that shows a

338 Jones Depo. at 80-81.

339 MCC 7172 at 527. For additional evidence of embankment clean-up, see, e.g., 7173 at 532-34 (daily reports for Dec. 12, 19, and 20, noting stump removal at 560+00, debris removal (limbs and logs) at 640+00, and removing of "stump debris" at 550+00). Note that these daily reports confirm the Region's allegation that debris was present in the embankment. Note also, however, that Miller Construction's activity cleaning up the debris refutes that Region's allegation that Miller Construction refused to obey Directive No. 17.

340 Williams testimony.

final date upon which the embankment would be clear of debris and conform to the contract, gives the Region a basis for concluding on the termination date that the project would not be finished within a reasonable time.

Thus, the visible-debris issue adds to the reasonable grounds for the Region to issue its default notice in September 2017—the notice that echoed the findings in Directive No. 17, and gave Miller Construction until November 21st (later extended to December 30th) to cure the deficiencies. It also supports a conclusion that the Region had reason to be wary about overpaying Miller Construction for progress on embankment, when that embankment was deficient and could not be paid in full until cleaned up. Because the problem was not fully cured by December 30th, and it was not clear that it would be fully cured in a reasonable time, this issue supports the termination for default.

In sum, the evidence generally supports many of the Region's criticisms of Miller Construction's means and methods as inefficient and leading to a deficient product. Whether the Region has established a material breach that independently would support termination will be discussed next.

b. Were Miller Construction's inefficient means and methods, considered as a whole, a material breach of contract?

The above discussion shows that the Region's criticisms of Miller Construction's means and methods are, in part, valid. Whether Miller Construction's inefficiency was a material breach of contract justifying termination for default, however, merges into the overall issue of whether Miller Construction's failure to complete the road was excusable. The point here is simple. All contractors are inefficient to some extent. All make mistakes. All have equipment breakdowns. Miller Construction more than most, perhaps, but it is difficult to say whether Miller Construction's inefficiency was the *cause* of its failure to bring the project to a timely completion.

Indeed, the Region's own expert, upon examining Miller Construction's balance sheets, testified that in its previous successful projects, Miller Construction was never a particularly efficient contractor.[341] Yet, before this project, Miller Construction has always finished its projects, and no evidence contradicts the testimony of the Miller brothers and their witnesses that

[341] Seibold testimony.

Miller Construction did quality work on these projects.[342] The preponderance of the evidence would support a conclusion that Miller Construction was capable of bringing this project to a successful conclusion in spite of its inefficiency, even though, as the Region has shown, Miller Construction's inefficiency is a plausible contributor to the causes of the failure here.

An important takeaway from the discussion of Miller Construction's means and methods is that the Region has proved that at least three of the major tasks remaining to be done when Miller Construction was terminated on December 30th—the clearing above the rock slopes, the removal of debris from the embankment, and obtaining the correct back slope on the rock slopes—were a result of Miller Construction's disordered approach to the project. This proof adds to the burden on Miller Construction to show that the Region's wrongful conduct was the cause of the project's failure. This is not an impossible burden—we must remember that Miller Construction was a very experienced firm that had some highly experienced and skilled construction workers who could accomplish a great deal in a short time. But because the Region has shown that Miller Construction's approach led to the dilemma of unfinished work (some of which is still unfinished even after a replacement contractor worked on the project), in order for Miller Construction to prevail, it must show that but for the wrongful conduct of the Region, the project would have been timely completed.

Before reaching Miller Construction's argument regarding excusable delay, however, we must address three additional arguments for default—hidden defects in the embankment, failure to pay subcontractors and suppliers, and bad faith.

3. Did Miller Construction breach the contract by burying debris under, or using soft fill and oversize material in, the embankment?

We turn next to the second embankment issue: the discovery of debris, oversize rock, or soft fill buried underneath the embankment and hidden from view by the rock cover.[343] These defects were discovered when the replacement contractor, K&E was working on the road.

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342 Terry Miller testimony; Toby Miller testimony; Skaife testimony; Van Leuven testimony. In addition, as a Juneau resident, over the years I have observed many of the projects described by the Miller witnesses, although I was not necessarily aware that Miller Construction was the contractor. They generally appear to be quality installations. For example, the Glacier Highway upgrades, the Glacier Highway extension, and the Statter Harbor rebuild are all visually pleasing.

343 SCR 00 at 56 (citing "sections of the Road where MCC, prior to termination, covered up defective work to make it look presentable" as grounds for termination.

Notably, the COD relies more on the allegation of buried debris as a basis for termination than it does on the visible debris issue.[344]

Mr. Foster's report identifies three different types of buried material. First, is the corduroy or logs that were buried with less than four feet of embankment. Second is the use of soil in the embankment that does not meet specification. Third is oversize rock that was hidden under the embankment.[345] These three issues are addressed below.

a. Was Miller Construction's use of "non-spec" soft soil a material breach of contract?

Mr. Foster's report and testimony identified "non-spec" soil in the embankment—soil that is of such poor quality that it is waste and should be deposited in a waste area.[346] The Region paid K&E to remove this "non-spec" material.

A contractor may use some common excavation (soil) when installing Type C embankment. To greatly oversimplify, the basic general criterion for material used in Type C embankment is that it has to be compactible.[347] Miller Construction included some common excavation in the embankment.[348]

The issue here is whether the embankment contained soil that had too high a moisture content (or was otherwise of very poor quality) to be compactible, or was placed where only rock

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344 *E.g.*, *id.*

345 SCR 209 at 9-12

346 *Id.* at 10.

347 Foster testimony; SCR 330 at 84 (§203-3.01). Miller Construction excavated a considerable amount of soil when building this road. The quality of most of the soil was too poor to include the embankment. Moore testimony. Mr. Lester had estimated that only about 30 percent of the common excavation would be useable. Lester testimony; SCR 7 at 6.

348 Mr. Moore's testimony on the use of common excavation was confusing—at times implying that Miller Construction never used common, and at times admitting that Miller Construction used common. Moore testimony. His report stated that the job was almost all rock with no common excavation used for embankment. MCC 7352 at Exhibit 21 at 6. In its July Request for Equitable Adjustment, however, Miller Construction admitted that it had used common excavation in the embankment. MCC 1636 at 2. Mr. Foster's position was also contradictory. His report and testimony criticized Miller Construction's deposit of truckloads of common on the roadway. Foster testimony; SCR 127 at 15 (showing "common excavation material" that was "being placed in the road prism"). Yet, in his report and testimony, he stated that Miller Construction had used no common and that its failure to use common excavation in the embankment was an example of its inappropriate methods and means of construction (because using more common would reduce the need for additional borrow). Foster testimony; SCR 127 at 14 (stating "MCC chose not to salvage useable common excavatrion").

embankment was permitted. Mr. Foster's testimony establishes that the embankment contained some "non-spec" material.[349]

This testimony, however, does not establish that Miller Construction's use of "non-spec" soil in the embankment was a material breach of contract. Mr. Foster's report does not quantify the amount of non-spec soil or provide a laboratory report or compaction test regarding the quality of the soil.[350] Given that use of common excavation in the embankment was allowed, the remedy for when a contractor uses some common excavation in the embankment that did not meet specifications is to require remediation of the deficient embankment. Without more evidence, the quantity and quality of the faulty soil in the embankment here adds only slightly to the Region's general case that Miller Construction was not performing as required and does not establish a material breach of contract.

b. Was Miller Construction's use of oversize rock and failure to cover bedrock with sufficient embankment a material breach of contract?

The evidence showed that at the time of termination, Miller Construction had left oversize rocks in the embankment and, in some places where bedrock was present under the road, had failed to cover the bedrock with the required two feet of embankment.[351] Mr. Foster explained that the Region had to pay K&E to remediate these nonconformities, which were discovered as K&E was working on the project. The cost to the Region was $27,248.90.[352]

The oversize rock and the bedrock are further examples of nonconforming work done by Miller Construction. Standing alone, this work would not be material grounds for default—although not excusable, all road construction will have some nonconformity in the embankment, and a $27,000 error on an $11 million project is not material. Nevertheless, the oversize rock and the bedrock are breaches that contribute slightly to the overall justification for default.

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349 The Region's proof that the "non-spec" embankment is nonconforming is based on Mr. Foster's (or his employee's) inspection of the material—the record does not have any analysis of the soil discovered in the identified stations.

350 SCR 209 at 12.

351 Foster testimony; SCR 209 at 12; 110-42; SCR 330 at 88 (§203-3.03 (stating no rock larger than 8 inches allowed in within two feet of subgrade)).

352 SCR 209 at 12.

c. Was the nonconforming organic debris buried in the embankment a material breach of contract?

Clayton Warren, K&E's superintendent, identified the areas where K&E found and remediated buried debris as follows:[353]

Stations (approximately)	Nonconformity
494-501	Shallow corduroy
515-518	Rotted stumps covered by about three feet of rock
536-540	Shallow corduroy covered by about two feet of rock
556-559 or 560	Shallow corduroy covered with two to three feet of rock
580 to just shy of 590	Root wads covered by about two feet of rock. Some visible root wads at the toe holding up the embankment and some shallow corduroy
618-621	Shallow corduroy
627-628+5	Shallow corduroy
646-649	Shallow corduroy; some with only about one foot of rock covering it
654-656	Stumps in the embankment about 2½ feet deep
723-725	Shallow corduroy covered with about two feet of embankment
743-744	Stumps at the toe of the road and some shallow corduroy
811-815	Shallow corduroy in the road
830-833	Shallow corduroy in the embankment with about two feet of rock

[353] The following table is based on testimony by Mr. Warren regarding the areas where the buried debris was discovered and his marking those areas on a map of the project, which became exhibit SCR 310. Note that the stations could be off by a little because the stations changed with new alignment drawn for the replacement contractor and the map Mr. Warren was studying to record the nonconforming areas used the original stations on the original design. Warren testimony.

A similar table can be found in Mr. Foster's Post-Termination Report.[354] Mr. Foster lists twenty different stations where K&E had to do remedial work to repair "soft fill."[355] (His description of soft fill includes both the organic debris material described by Mr. Warren and the "non-spec" soil discussed above.[356]) The total cost for remediating the 1,829 feet of deleterious matter (five percent of the project length) was $154,021.[357]

The trees, roots, and stumps in the embankment and dug up by K&E in remediating the Shelter Cover Road project constitute one of the most important issues in this case. Simply put, the Region points to this material as proof that Miller Construction had built a substandard road. Because this material was hidden from view, and only found because a different contractor was on site, the Region asserts that Miller Construction never would have completed the road to the specifications of the contract.

Miller Construction argues that the Region has not proved any material breach of contract. In its view, most of the organic matter dug up by K&E was actually deliberately placed alongside the road in waste areas, and then covered with embankment. According to Miller Construction, this practice was permitted by the project engineer because the project generated an enormous amount of waste while having nowhere near enough designated waste areas.[358] Then, when the Region (or, more accurately, the Surety, as accepted by the Region) changed the alignment, it

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354 SCR 209 at 12. The stations identified by Mr. Foster do not match the stations identified by Mr. Warren. *Compare* SCR 209 at 12 *with* Warren testimony. The discrepancy between Mr. Warren's memory and Mr. Foster's table (prepared apparently from the change orders) is not significant. Mr. Warren was a credible witness and we would not expect his memory to be precise. As the photographs attest, K&E did dig up trees and stumps from under the roadway. *See* Foster testimony; SCR 209 at 20-108.

355 *Id.* Note that the Region's October 3, 2017, response to Miller Construction's Request for Equitable Adjustment included a chart that shows the design embankment amount for each station. For two of the stations listed in Mr. Foster's chart as soft fill areas, 499 and 580, the response states that the design calls for zero cubic yards of embankment. MCC 7354 at Exhibit 50 at Appendix D at 1-2. At station 499, the response states that Miller Construction installed 146 cubic yards and at 580, 21. *Id.* The design numbers are not evidence that Miller Construction did not err because Miller Construction was responsible for installing proper embankment. They do tell us, however, that the expectation for these areas was for rock embanked in place.

356 SCR 209 at 10.

357 *Id.* at 12.

358 Toby Miller testimony; Moore testimony. Note that the Region does not agree that sidecast waste was permitted. Winters testimony; Fleming testimony; Palmer testimony. In its view, at most, the Region would have permitted some spreading of waste soil excavation to the side of the roadway outside the embankment that could have been covered by rock. Winters testimony; Shull testimony (recalling that Mr. Fleming had said it was okay to mud out on the edge). The evidence does not support a finding that sidecasting waste debris other than soil was permissible.

shifted the road into the waste areas, causing K&E to dig up waste material. Thus, Miller Construction concludes, little or no unauthorized waste was hidden under the roadway itself.

In addition, the first mile of the road was built directly over an existing logging road. Typically, logging roads are built over corduroy, especially in soft areas, because this stabilizes the rock that becomes the surface of the road.[359] Where there was existing road, Miller Construction did not disturb the existing roadbed. Instead, it capped the road with additional rock. The inspector and the project engineer did not object to this practice. Mr. Foster's report identified and included pictures of at least two instances of K&E digging up the road in this area and exposing the corduroy that had been underneath the logging road.[360]

Finally, Toby Miller and Mr. Moore testified that they had carefully examined the pictures in Mr. Foster's report. Mr. Moore testified that he recognized some of the areas being dug up as the areas where Miller Construction had sidecast waste, which he viewed as allowed by the Region.[361] Mr. Miller testified that many pictures do not show a violation because they do not show organic material underneath a shallow layer of embankment. Instead, they show deep material being dug up by K&E. He saw material that had been lifted from its resting place, which he concluded, based on the fact that the tread of the excavator was two feet high, had most likely been under four feet of embankment until dug up. In addition, he testified that he identified a photograph in which live tree roots were being dug up by K&E. In his view, that is proof that K&E was working on a new alignment, away from the road that had been grubbed and constructed by Miller Construction (and where no live roots could have been found). Moreover, with regard to the allegation that K&E discovered soft spots in the road, Toby Miller was confident that any softs spots were of K&E's own making—either from the heavy equipment it was running or the work and quality of embankment it was installing.[362]

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359 Nichols testimony; Toby Miller testimony.

360 SCR 209 at 20-23. These pictures show excavation of buried material at stations 499 to 500 and 540+80 to 540+90. Note that Mr. Foster's table does not include the 10 feet of excavation at 540+80 to 540+90 as among the remediated sites paid for by the Region.

361 Moore testimony.

362 Toby Miller testimony. Note that Mr. Foster's report admits that "[a]reas of the existing road as constructed by MCC that were not properly constructed over soft ground were discovered based on excessive rutting of the road due to construction traffic." SCR 209 at 9. Rutting during construction would likely occur even on a gravel road that was compliant. Nevertheless, the issue is not the heavy equipment; the issue is whether the embankment was conforming.

The photographs included in Mr. Foster's report, coupled with Mr. Warren's testimony, establish that some shallow corduroy was present in the road constructed by Miller Construction. Some of the excavation does appear to be outside of the road itself, which gives some support to Miller Construction's theory that K&E was digging up tree roots (but not waste sites). Using Miller Construction Exhibit 8330, I was able to verify that the road built by K&E shifted sideways from the road built by Miller Construction in five of the sites identified by Mr. Warren, and two of the sites identified in Mr. Foster's report.[363] Each time, however, the road shifted to the left (from the BOP side), meaning to the uphill side. Yet, the sidecasting of waste by Miller Construction was generally to the downhill side.[364] Therefore, I would have expected any uncovering of waste sites to be on the downhill side. The fact that much of the shifting of the alignment was to the uphill side significantly undercuts Miller Construction's argument that all waste uncovered by K&E was in approved waste sites.

Miller Construction has proven, however, that the problem of buried organic material was not as extensive as implied by the Region. First, with regard to the stations that were at the EOP side of the project, the Region acknowledged that Miller Construction had not completed embanking those stations.[365] The presence of corduroy with less than four feet of embankment in those areas is not a separate breach of contract from the failure to finish on time. Second, the stations in the first mile of the project, where the existing logging road was capped with no objection from the Project Engineer, do not establish a violation. Third, the testimony of Toby Miller, regarding the actual depth of the embankment shown in the photographs, makes clear that we do not know the extent of the problem. Some of photographs in Mr. Foster's report acknowledge that the organic material was covered by three or four feet of embankment, and Mr. Warren's testimony also acknowledged that most of the corduroy he dug up had at least two feet of embankment, and some more.[366] Moreover, of the 20 locations identified by Mr. Foster as needing remediation, only two are longer than 200 feet.[367] With regard to the 18 other instances of shallow embankment, for there to be some short runs of embankment that are a foot or so shy

363 *Compare* MCC 8330 *with* Warren testimony *and* SCR 209 at 12.
364 *See, e.g.*, Palmer testimony; Shull testimony; Foster testimony.
365 Foster testimony.
366 Warren testimony.
367 SCR 209 at 12.

of final thickness on an unfinished road would not necessarily be evidence of a significant breach of contract.

Yet, the table in Mr. Foster's report includes two long runs of areas that required remediation—one 400-foot run starting at station 719+10 and one 270-foot run starting at 789+20.[368] For these areas, I have carefully examined the photographs in Mr. Foster's report, and compared them with the photographs of the same areas taken by Mr. Foster in September and included in the denial of Miller Construction's Request for Equitable Adjustment.[369] For the area starting at station 719, the photographs in the report show shallow organic material, some corduroy, and some of what looks like roots, rather than corduroy.[370] The roots are present in places in the Miller Construction roadway, not in an area to the side of the road. This indicates a possible failure to grub.[371] The shallow embankment in most (but all) of this 400-foot stretch is consistent with the photographs and cross-sections from September 2017, some of which show what looks like thin embankment constructed on original ground.[372]

The photographs at the second long stretch, 270 feet starting at station 789+20, confirm shallow embankment over what looks like corduroy and a debris mat, with some possible original ground.[373] The September photographs also indicate a shallow embankment at these stations at that time (which may merely show that more embankment was planned).[374] This shows that the issue of the embankment depth is a genuine concern.

Close examination of both of these long stretches confirm serious nonconformities relating to insufficient embankment covering the debris mat. Given that Miller Construction claimed these areas had been fully embanked, or nearly fully embanked, we cannot dismiss these stretches as merely awaiting additional fill. Furthermore, the photographs in the record, and Mr. Warren's

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368 *Id.*

369 *Compare* MCC 7354 at Exhibit 50 *with* SCR 209 at 66-76, 81-87.

370 *See* SCR 209 at 66-76. The photograph at page 68 shows a sufficient depth of embankment. The other photographs, however, show shallow embankment. Roots and overburden appear in the roadway under the embankment in the photographs at 70, 72, and 74.

371 Mr. Foster testified that there were areas in the roadway where no grubbing occurred prior to embanking the road. Foster testimony. Thus, a possible additional nonconformity, not significantly noted in the COD, could be a failure to grub. The evidence of a failure to grub in the roadway, however, is not extensive. In addition, Mr. Foster also testified that no grubbing was needed where four feet of embankment was to be installed. Moreover, the photographs, and the testimony of Mr. Shull, confirm that extensive grubbing did occur. Therefore, we will treat the issue of failure to grub as no different than and included in the allegation of shallow embankment.

372 MCC 7354 at Exhibit 50.

373 SCR 209 at 80-85.

374 MCC 7354 at Exhibit 50.

testimony, confirm that the depth of the debris mat was a problem in areas throughout the project, although not as extensive as alleged.

Note, however, that the thin embankment in both of the long stretches was clearly visible, even to my unpracticed eye, from looking at the September photographs.[375] A project engineer could conduct a probe, or dig up a section, to examine the depth of embankment or presence of a nonconforming debris mat before agreeing that the roadway passed inspection. Therefore, at least in some of the areas, we would expect that the issue of embankment depth would have been explored, identified, and remediated before project closeout.

In sum, the issue of hidden and buried nonconforming material under shallow embankment, in areas claimed by Miller Construction to have complete embankment, is additional evidence that Miller Construction must show was excused for it to establish its claim for wrongful termination. Unlike the visible debris, Miller Construction was not addressing or curing this nonconformity at the time of termination. In those areas considered fully embanked, the buried debris would have been in the final product delivered by Miller Construction unless discovered by the Region during its inspection process.

To look ahead, the facts that the Region has not proven that all of the debris remediated by K&E was due to Miller Construction, that the cost to the Region for all of this remediation was $154,021, and that at least some of the nonconformity was discoverable, will all be important in determining whether Miller Construction can overcome this evidence.[376]

4. Was Miller Construction's failure to pay subcontractors, suppliers, and workers a material breach of contract?

The COD cites Miller Construction's "nonpayment to its subcontractors, suppliers, and eventually its workers" as grounds for the default termination.[377] As mentioned earlier, the contract and the law required prompt payment of subcontractors.[378]

With regard to failure to pay subcontractors, which is specifically cited in the contract as a ground for default, Mr. Hamilton admitted that he was not paid in full by Miller Construction before termination. He submitted a claim to the Surety, which was paid after he assisted in

375 *Id.*
376 SCR 209 at 12.
377 SCR 00 at 59.
378 SCR 330 at 62 (§108-1.08) AS 36.90.200.

removing Miller Construction's equipment from the site.[379] In addition, the COD cites to an exhibit that, according to the COD, is a list of claims made to the Surety and paid, in whole or in party, by the Surety.[380] This exhibit documents that subcontractors Byron Construction, LLC, and R&M Engineering, in addition to Mr. Hamilton, had not been paid in full at the time of termination.[381]

Miller Construction does not refute that it failed to pay its suppliers, and ample evidence support that Tyler Rental and Austin Powder had not been paid at the time of termination.[382] Miller Construction argues however, that suppliers are not subcontractors under the definition of subcontractors found in the contract. Because only a failure to subcontractors, not a failure to pay suppliers, is listed in the contract as a ground for default, Miller Construction argues that the COD cannot rely on its failure to pay suppliers.

The Region argues that the procurement code requires prompt payment of subcontractors, and the code defines subcontractors to include suppliers.[383] Therefore, it concludes that Miller Construction's failure to pay suppliers is grounds for default under the "failure to pay subcontractors" provision.

The Region's argument is sound—Miller Construction itself cites AS 36.90.200 as controlling the parties' contract. Regardless of whether the failure-to-pay-subcontractors clause of the contract applies to suppliers for purposes of default, however, Miller Construction's failure to pay its suppliers on the Shelter Cove Project is a significant matter. As Mr. Barajas's testimony shows, not being able to procure supplies hampered the project.[384] Further, the debt to suppliers, and the unpaid bills in general, demonstrate that the project was underfunded. Finally, as the fact that the Surety had to issue payments to subcontractors shows, subcontractors also were not fully paid by Miller Construction.

Miller Construction's failure to pay subcontractors and suppliers is a serious issue. This issue will be revisited below when we discuss whether Miller Construction had demonstrated that its financial incapacity to finish the project was due to circumstances beyond its control.

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379 Hamilton testimony.
380 SCR 00 at 71 (citing SCR 220).
381 SCR 220.
382 Kikendall testimony; Barajas testimony; Skaife testimony; SCR 220.
383 *See* AS 36.90.290(2).
384 Barajas testimony.

5. Did Miller Construction act in bad faith that was a material breach of contract?

The COD alleges bad faith and misrepresentation by Miller Construction as an additional independent ground for default termination.[385] The conduct cited by the COD as bad faith was Miller Construction's

- Objection to, and failure to follow, directives;
- Rescission of the April 20, 2017, agreement;
- Submission of pay requests for work that had not been accomplished;
- Claim that the Region's underpayment caused its business devastation;
- Giving a subcontractor, RCM Engineering, whose contract was approved by the Region only to install slope stakes, additional tasks intended to bolster Miller Construction's claim against the Region; and
- Redirecting emails sent to the project superintendent so that they went to Ms. Skaife.[386]

In addition, at the hearing, the Region cited the following conduct as additional evidence of bad faith:

- Mr. Kemp's suggestion in February 2017 that Miller Construction attempt to trap the Region into a mistake regarding the lack of an Engineer's stamp on a document; and
- Mr. Johnson's testimony that Miller Construction's initial plan to slope stake the project may not have been sincere but simply an attempt to lure the Region into paying for additional surveying.

As was briefly discussed earlier, the Region is correct that under Alaska law, "[a] covenant of good faith and fair dealing is an implied component of all contracts as a matter of law."[387] This covenant has both subjective and objective elements. The subjective element "prohibits one party from acting to deprive the other of the benefit of the contract."[388] The objective element "requires both parties to act in a way that a reasonable person would consider

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385 SCR 00 at 70-74.
386 SCR 00 at 71-73.
387 *Alaska Pac. Assur. Co. v. Collins*, 794 P.2d 936, 947 (Alaska 1990), *as amended on denial of reh'g* (Aug. 30, 1990).
388 *McConnell v. State, Dep't of Health and Soc. Servs.*, 991 P.2d 178, 184 (Alaska 1999).

fair."[389] Using this framework, we will first analyze whether Miller Construction's overall approach to the project was to deliver a road that did not meet the contract's specifications. We then address the allegations of individual instances of bad faith.

a. Miller Construction' overall approach to the project was not intended to deprive the Region of the benefit of the contract

Taking a big picture approach to begin the analysis of bad faith, the Region asserts that the evidence shows that Miller Construction never intended to build a compliant road. For example, the evidence shows that the Region and Miller Construction had different views of the overall intent of the project. Miller Construction interpreted the contract as a contract to build a road more akin to a logging road, while the Region viewed it as a contract to build a long-term public use road.[390] Thus, the Region concludes, Miller Construction's approach to the road, and its subsequent deficient conduct, are evidence that Miller Construction was acting to deprive the Region of the benefit of the contract.

As explained above, the Region's interpretation of the contract is correct—the road was a public access road. It was not intended to be a temporary road to resources that lasted for only a few years while the resources were extracted. Miller Construction's inclusion of excess deleterious material in the embankment is evidence that, if not for the intervention of the Region, Miller Construction would have built a road that was not up to the requirements of the contract in several places.

Yet, however conceptualized, the road was a low-speed narrow wilderness road. Using a comparison like "logging road" or "public access road" in describing the project does not show bad faith any more than it modifies or negates a provision of the contract. A person could reasonably think of this project as akin to a logging road, and still build it to meet the specifications. This means that Miller Construction's approach to the road is not evidence of bad faith.[391]

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389 *Id.*

390 *Compare, e.g.*, Johnson testimony, Hamilton testimony, Toby Miller testimony, and Moore testimony *with* Carroll testimony and Winters testimony.

391 The Region's evidence that Miller Construction viewed the project as akin to a logging road is, however, explanatory evidence—it helps explain why Miller Construction was relatively careless with regard to debris in the embankment and other specifications.

Miller Construction is also correct that sometimes the engineer may accept nonconforming work as sufficient, even for a public access road that is intended to last many years.[392] As Mr. Fleming acknowledged in his deposition, "it happens on these contracts all the time."[393] This does not mean that the engineer's first call is binding or that the Region cannot require additional work even after an initial acceptance in the field. It does show, however, that engineering judgment is a matter of degree and strict compliance with general standards is not always required. That the parties had differing views of how strict they had to be with the specifications is not proof of bad faith.

With regard to whether Miller Construction engaged in bad-faith deception to deliberately conceal a low-quality product, Mr. Foster did testify that he was told by Mr. Fleming that Miller Construction had deliberately capped the road just before Mr. Foster arrived, so as to hide the defects.[394] I cannot, however, credit this hearsay testimony as proof of bad faith. It makes no sense to cap an entire road in one day to fool Mr. Foster when others, such as Mr. Fleming, knew of the defects, and capping the road surface would not hide the defects in and beyond the embankment. Indeed, all Region witnesses who visited the project testified to seeing visual defects.[395] The Region's "lipstick on a pig" analogy is perhaps more fitting than intended—neither a cap on a visually deficient road nor lipstick on a pig would be effective at hiding the truth.[396]

To address the Region's theory that Miller Construction was trying to hide defects, I have reviewed hundreds if not thousands of pictures of the road. In general, the road itself looked

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392 Moore testimony. Mr. Moore testified that some nonconforming material will inevitably wind up the embankment, and sometimes three feet of embankment over the debris mat sets up so well that it suffices even though the specs call for four feet. In his view, the engineer can make a judgment call that, given the quality of the ground, the embankment is "good enough." *Id.* Nothing in this analysis implies that a contractor is or should be permitted to do less than 100 percent of what is required. Nor does it imply that doing substandard work cannot be evidence of bad faith. It merely recognizes that substandard work does not, standing alone, necessarily establish bad faith.

393 Fleming designated deposition at 72.

394 Foster testimony.

395 Palmer testimony; Fleming deposition; Winters testimony; Carroll testimony; Mearig testimony; Jones deposition; Willliams testimony.

396 Warren testimony. The Region queried Mr. Warren, and he agreed, that the fact that Miller Construction built a good-looking road was analogous to putting lipstick on a pig. *Id.*

good.[397] The sides of the road told a different story—the deficiencies in the embankment were obvious.[398] That Miller Construction built a good-looking roadbed is not evidence of bad faith.

Moreover, the lead witnesses for Miller Construction all testified that for at least some aspects of the road, Miller Construction used its considerable knowledge of construction in Southeast Alaska to go beyond the minimum requirements of the contract to build a better road than required.[399] The evidence shows that the principals of Miller Construction were proud of their company and proud of their work. Thus, for some aspects of the project, Miller Construction's approach may have led to a better road than contemplated by the Region. Some of its acts or omissions may well have been in violation of the contract, but not every violation is in bad faith. With this understanding, we briefly evaluate the individual acts identified by the Region as evidence of bad faith, on both the subjective and objective prongs.

b. Miller Construction's response to directives, departure from the April agreement, inaccurate pay requests, and redirecting of emails, are not evidence of bad faith

With regard to Miller Construction's response to the Region's directives, a reasonable person would not consider it unfair for a party to question a directive issued by the other, to suggest that the demands in the directive would be better constituted as punch list, or to attempt to negotiate a different approach. Further, with some exceptions explained above, the evidence generally shows that Miller Construction did attempt to comply with the directives.

The COD cites to Miller Construction's alleged "rescission of its promises made in exchange for consideration in April 2017" as evidence of bad faith.[400] This issue, however, is not well developed, in part because, except for the provisions of Change Order No. 3, the terms of that agreement were never set out in contract amendment signed by the parties. Instead, the agreement was memorialized in email exchanges among counsel.[401]

The evidence in the record shows that progress was made at the April meeting in good faith on behalf of both parties.[402] No evidence supports an inference that Miller Construction's

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397 *See, e.g.*, MCC 7354 at Exhibit 50.

398 *See, e.g.*, SCR 227 at 85-134; MCC 126 (showing roadway from sideview with obvious nonconformities).

399 *See, e.g.*, Terry Miller testimony and Toby Miller testimony (explaining that Miller Construction frequently used materials and methods superior to those that were required, including the fill in the fish pipes and the quality of the top layers of the embankment); *see also* Moore testimony; Johnson testimony; Skaife testimony; Hamilton testimony.

400 *E.g.*, SCR 00 at 71; *see also id.* at 27-28; 42.

401 SCR 55.

402 *Id.*

participation in the April 20th agreement was an underhanded tactic taken to lull the Region into a concession. Further, both sides did take action to implement the agreement, including the issuance of Change Order No. 3 by the Region (providing pay and additional time for the change required by Change Order No. 2 (which moved the road to avoid the landslide area)) and withdrawal of Notices of Intent to Claim by Miller Construction regarding the landslide issue.

Later, the good feeling generated by the April event deteriorated, and both sides returned to pre-agreement positions. For example, although in April Miller Construction had agreed to install reference points, in May, it asserted that the installation of reference points were extra work. It asked that the Region share the cost.[403] The Region began to reassert that slope stakes were necessary, eventually issuing Directive No. 12, requiring slope stakes.[404] This dispute, however, is not proof of bad faith—it is evidence of an ambiguity in the contract and the April agreement. As stated earlier, the problem here is that some significant survey control was necessary and should have been provided to the Region. The contract was vague about exactly what was required. (As stated above, Miller Construction was required to provide survey control of the project. The parties dispute what this meant. The installation of reference points might be a reasonable approach, but the evidence is not conclusive on this point.) Given the lack of clarity, the fact that this dispute kept resurfacing after the April agreement is not evidence of bad faith by either party.

With regard to inaccurate pay submissions, no evidence shows that Miller Construction knowingly submitted pay request for work that it had not performed. Indeed, given the mismatch between progress on the pay stations and quantity of earthwork, which is discussed below in detail, an error in location of work, that is accurate as to quantity of work, would not cause a reasonable person to conclude that Miller Construction was unfair.

Finally, the Region alleges that Ms. Skaife's act of routing emails sent by the Region to Toby Miller and Mr. Cunningham so that they came to her is evidence of bad faith. In the Region's view, this rerouting usurped its deliberate attempt to carefully establish communication chains.[405] The evidence showed, however, that Ms. Skaife was an important member of Miller Construction's management team. For her to read emails sent by the Region to another member of the management team, even if done without the Region's knowledge and contrary to the

403 SCR 60.
404 SCR 99.
405 SCR 00 at 73.

Region's intent, is not an act that would deprive the Region of the benefit of its bargain or that a reasonable person would consider unfair.

c. Miller Construction's subcontract with RCM Engineering is not evidence of bad faith

The controversy regarding the RCM contract occurred at the very end of Miller Construction's work on the project. On December 1, 2017, Miller Construction informed the Region that it had hired RCM Engineering to do the slope staking required by Directive No. 12.[406] The email from Miller Construction asked several questions regarding what the Region required on the stakes. This is evidence that the intent of the contract at that time was, indeed, to install slope stakes.

Because hiring of a subcontractor on a project must be approved by the Region, on December 6th, Miller Construction submitted the form requesting approval of the subcontract.[407] It was approved on December 15th.[408]

On December 26th, Miller Construction amended the contract with RCM to include performing work on an asbuilt survey of the road.[409] Miller Construction did not request approval from the Region for this amendment. The most logical explanation for needing an asbuilt survey on December 26th (four days before termination) is so that Miller Construction would have a record of the quantity of work it had done on the project for purposes of making claims after termination. The COD alleges that the amendment was in bad faith because Miller Construction had tricked the Region into approving a contract for one thing, while its intent all along was to have the subcontractor engage in activities not related to building the road, but, instead, to bolster Miller Construction's claim for damages.[410]

The problem here is that this entire episode is something of a charade because it occurred late in the game when termination for default was imminent. Both sides knew that the work being done by RCM, and the approval of the RCM contract by the Region, was simply posturing for purposes of making or refuting claims after termination. Slope stakes installed in December 2017 marking Miller Construction's alignment were entirely a charade. No one was going to complete

406 SCR 161.
407 SCR 211.
408 *Id.*
409 SCR 212.
410 SCR 00 at 58-59.

the road to Miller Construction's alignment. This episode was not bad faith, however, because both sides knew of, and both sides participated in, this charade.

Having an asbuilt survey at the time of termination, on the other hand, was needed. For Miller Construction to amend its contract with RCM in advance of termination and then request access to the site after termination was reasonable. Ideally, the parties would have communicated regarding the asbuilt survey. Had they communicated, the amendment would not have been needed because eventually, the asbuilt was performed by Mr. Foster's firm. Although Miller Construction should have informed the Region of the amendment earlier than it did, its failure to do so immediately does not show that the original contract with RCM for slope stakes was a sham (any more than it was a sham already, but a sham endorsed and joined in by the Region).

d. Mr. Kemp's and Mr. Johnson's bad acts are evidence of bad faith intent, but the bad faith is not a material breach

In a February 19, 2017, email to other Miller Construction personnel, Mr. Kemp outlined a plan to catch the Region out on a detail that required an engineer's stamp, but for which the Region was unlikely to know of the requirement.[411] Mr. Kemp expressed the view that this trap would "just makes them look more inept."[412]

A reasonable person would conclude that this idea to trap the other party to make its principals look inept is unfair and not designed to advance the project. Therefore, the Region has proved a bad-faith intent on the part of Mr. Kemp. Mr. Kemp, however, was a consultant for Miller Construction. There is no evidence that Miller Construction ever set this trap, or that the Region was harmed by Mr. Kemp's bad-faith scheme.

A more concerning instance of bad faith occurred at the hearing, when Mr. Johnson testified that Miller Construction's initial written plan to install slope stakes may never have been genuine. Mr. Johnson implied that the plan was a subterfuge to trick the Region into paying for a topographical survey.[413]

The scheme Mr. Johnson outlined is textbook bad faith. A reasonable person would conclude that for the project superintendent to propose a false plan for implementing the contract, in order to induce authorization for additional services and more pay, is unfair. Therefore, in

411 SCR 36.
412 *Id.*
413 Johnson testimony.

taking this step—drafting the plan as a trick—Miller Construction violated the covenant of good faith and fair dealing.

Here, however, the evidence shows that the trick contemplated by Mr. Johnson had no effect. The Region did not agree to pay for the topographical survey. Therefore, it was not damaged by Mr. Johnson's bad faith. Moreover, Miller Construction did initially install slope stakes, and then later changed course, after agreeing with Mr. Fleming that having the pioneer shovel set the alignment based on consideration of both the design center line and topographical features obviated the need for slope stakes. Thus, although Mr. Johnson's intent was a bad-faith breach of contract, the breach was not material for the purposes of justifying default termination.

6. Summary: the evidence regarding the issues of failure to follow directives, inefficiency, failure to pay subcontractors, and bad faith shows some support for default

To sum up, this section of this decision has addressed the evidence of the independent grounds for default that Miller Construction either denied existed or denied were material grounds for breach. The evidence has shown that the Region has proved some issues that, although not independent material grounds for termination, supply some support for a finding of default. This includes Miller Construction's delay in following directives and its general overall inefficiency.

The evidence also shows serious issues with regard to the quality of Miller Construction's work product. Miller Construction had made significant errors of planning and sequencing, which resulted in poorly executed blasts, and a failure to cure the deficiencies in the road as built (presence of deleterious material in the embankment, over-steep embankment slopes, over-steep back slopes, and no grubbing and clearing at the top of slopes). In addition, Miller Construction had failed to pay suppliers and subcontractors. These issues are material elements in the Region's justification for default.[414]

Because these issues are not refuted, we will return to them in the next section, which addresses whether Miller Construction has shown that its breaches of contract were excused because they were caused by the Region's conduct.

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[414] The Alaska Supreme Court has explained that "whether a breach is material is a question 'of degree, centering on the reasonable expectations of the parties, and a material breach is one that will or may result in the other party not receiving substantially what that party bargained for.'" *State, Dep't of Nat. Res. v. Alaskan Crude Corp.*, 441 P.3d 393, 401 (Alaska 2018) (quoting Restatement (Second) of Contracts §241 (Am. Law Inst. 1981)). By designating these issues as material, I do not mean that they were sufficient to independently establish grounds for termination. They are not, however, matters that can be overlooked because of insignificance or formality.

C. Has Miller Construction proven that its failures to meet the obligations in the contract were excused?

Above, we have examined the Region's case for default, and Miller Construction's arguments that the Region's case was not supported by the facts. We have determined that, although Miller Construction has refuted some of the Region's contentions, the Region has nevertheless proved that Miller Construction left an unfinished substandard road on December 30, 2018, with no clear plan for completing the project. We now address a different topic: has Miller Construction proven that the default was excusable?

1. Has Miller Construction proven that the Region wrongfully withheld money from progress payments?

The most important topic in this proceeding is money. Money is the root of the failure of this project.

Both Toby Miller and Mr. Moore testified that the reason for the failure here was that Miller Construction did not have enough money to finish the job.[415] They are correct. The evidence shows that, if given enough money, and enough time, Miller Construction could have built a road that fully complied with the specifications of the contract.

Standing alone, however, that conclusion tells us little. The question is not whether Miller Construction could build a compliant road. The question is whether it could have avoided default if it had been timely provided with the money and extra time that was due under the contract. To break that down further, we ask first whether the Region had wrongfully failed to pay money or award time owed to Miller Construction. We then turn to the hypothetical question of whether a timely payment and allowance of time would have enabled Miller Construction to avoid default.

The timely payment issue turns on whether the Region made undersized progress payments. Under Alaska law, "[t]he right to withhold progress payments is limited to circumstances which clearly warrant it."[416] A withholding may be justified, however, when a contractor "has failed to substantially perform [its] contractual obligations entitling [it] to the payment."[417] To address that question, requires first an inquiry into the Region's obligation to make progress payments, and then inquiries into whether the Region breached that obligation, and, if so, when and to what extent.

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415 Toby Miller testimony; Moore testimony.

416 *Arctic Contractors, Inc. v. State*, 564 P.2d 30, 43 (Alaska 1977) (holding that state breached contract by withholding progress payments without notice based on contractor's failure to obtain bonding).

417 *Howard S. Lease Const. Co. v. Holly*, 725 P.2d 712, 715 (Alaska 1986).

a. What is the obligation of the Region with regard to progress payments?

(i) The obligation for progress payments under the contract

Under the contract, the Region was required to make progress payments "based on estimates of the value of the work and materials on hand."[418] That does not mean, however, that a progress payment had to be for the full value. "If the Engineer finds that satisfactory progress is not being made or payment for satisfactory work by a subcontractor or lower tier subcontractor is not being paid according to Subsection 108-1.01, the Engineer may withhold up to 100 percent of the total amount earned from subsequent progress payments."[419]

When withholding money from a progress payment, the Region was required to explain any difference between the contractor's payment request and the progress payment. "The Engineer will notify the Contractor in writing within eight working days of a request for a progress payment of the reasons why part or all of the payment is being withheld for unsatisfactory performance and what actions may be taken by the Contractor to receive full payment."[420]

(ii) The obligation to make progress payments under AS 36.90.200

The contract also required that the Region make progress payments in accordance with AS 36.90.200.[421] This statute governs payments to contractors working on public construction contracts.[422] It requires that a state or political subdivision pay a prime contractor for satisfactory performance "within 30 calendar days of the date the state or political subdivision receives a payment request from the prime contractor that complies with the contract."[423] If full payment is not made, the governmental entity must explain in writing within eight days "why part or all of

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418 SCR 330 at 76 (§109-1.06). The special provisions of the contract stated "[c]omposite road construction will be paid for at the contract unit price for the number of lane stations completed and accepted. Progress payments will be made based on an approved Schedule of Values for the following major components of work comprising this item: Clearing[;] Grubbing[;] Excavation[;] Embankment." SCR 9 at 1 (§207-5.01). Miller Construction submitted a schedule of values for progress payments, establishing the percentage that each component would be of the total. For example, "clearing and grubbing" was 11 percent; "road constructed to support truck traffic" totaled 40 percent. SCR 13. Progress payments were based on the percent complete for the individual tasks identified in the schedule of values.

419 SCR 330 at 76 (§109-1.06).

420 *Id.*

421 *Id.*

422 AS 36.90.200.

423 AS 36.90.200(a).

the payment is being withheld and what remedial actions may to taken by the prime contractor to receive the full payment."[424] If a governmental entity does not comply with AS 36.90.200, the entity must pay interest on the withheld amount.

The difference between AS 36.90.200 and the contract is subtle. The contract states that full payment of a progress payment is the estimate of the value of the work.[425] The statute presumes that the contractor's *pay request* represents the full amount due for the progress payment, at least to the extent that the government is required to explain an amount is being withheld from the pay request for unsatisfactory performance.[426] Given that the contract also requires an explanation for when the progress payment is less than the pay request, the difference between the contract and AS 36.90.200 does not appear to be significant. Both emphasize that the Region was not allowed to ignore the contractor's pay request. It must explain any decrement from that request and what the contractor must do to achieve full payment.

b. Was the Region's failure to pay the full amount of Miller Construction's payment requests a breach of contract?

Miller Construction has presented the issue regarding progress payments in two different ways. First, it argues that the progress payments should have been the full amount of its pay request because it had based the pay requests on its costs. In making this first argument, Miller Construction asserts wrongful underpayment without regard to whether the Region's measurement of quantities was right or wrong. As will be seen, this approach to the issue is inconclusive.

Miller Construction's second attack on the progress payments, on the other hand, yields a square hit. Under this approach, Miller Construction argues that the Region's failure to properly estimate and measure quantities led to inadequate progress payments once plan quantities had been reached. Analyzing this argument will require an in-depth inquiry into Miller Construction's July Request for Equitable Adjustment, the Region's October Response to that request, and the parties' calculation of actual quantities needed for construction of the road.

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424 AS 36.90.200(c).
425 SCR 330 at 76 (§109-1.06).
426 AS 36.90.200(a).

(i) What was the gap between pay requests and progress payments?

Miller Construction has presented a chart that shows the difference between its bimonthly pay requests and the Region's actual progress payments. That chart is presented below: [427]

Pay #	Date	Accrued Amount Paid ADOT	% Revised Contract	Accrued Amount Billed MCCLTD	% Revised Contract	DELTA
1	7/20/2016	$644,305	6%	$644,305	6%	$0
2	8/8/2016	$1,479,742	12%	$1,479,742	12%	$0
3	8/22/2016	$1,577,432	13%	$1,577,432	13%	$0
4	9/3/2016	$1,977,442	17%	$1,977,442	17%	$0
5	9/19/2016	$2,066,244	17%	$2,066,244	17%	$0
6	10/3/2016	$2,393,181	20%	$2,393,181	20%	$0
7	10/17/2016	$2,561,094	22%	$2,561,094	22%	$0
8	10/31/2016	$3,015,499	25%	$3,015,499	25%	$0
9	11/14/2016	$3,110,393	26%	$3,110,393	26%	$0
10	11/28/2016	$3,398,620	29%	$3,878,344	33%	($479,724)
11	12/12/2016	$3,704,440	31%	$3,979,940	34%	($275,499)
12	1/19/2017	$3,894,620	33%	$4,081,535	34%	($186,915)
13	2/13/2017	$4,233,342	36%	$4,233,342	36%	$0
14	2/27/2017	$4,397,464	37%	$4,638,322	39%	($240,858)
15	3/13/2017	$4,576,613	39%	$5,043,302	42%	($466,689)
16	3/27/2017	$4,669,005	40%	$5,225,782	44%	($526,777)
17	4/10/2017	$4,860,461	41%	$5,328,222	45%	($467,762)
18	4/24/2017	$5,337,979	45%	$5,771,029	49%	($433,049)
19	4/28/2017	$5,571,733	47%	$5,889,021	50%	($317,287)
20	5/8/2017	$5,843,672	49%	$6,007,012	51%	($163,341)
21	5/22/2017	$6,317,531	53%	$6,506,465	55%	($188,934)
22	6/5/2017	$6,678,296	56%	$6,773,842	57%	($95,546)
23	6/19/2017	$7,049,228	59%	$7,361,766	62%	($312,537)
24	7/3/2017	$7,377,193	62%	$8,429,609	71%	($1,052,416)
25	7/17/2017	$7,790,050	66%	$8,499,485	72%	($709,435)
26	7/31/2017	$8,173,118	69%	$8,834,306	74%	($661,188)
27	8/14/2017	$8,306,651	70%	$9,298,548	78%	($991,896)
28	8/28/2017	$8,463,276	71%	$9,423,660	79%	($960,384)
29	9/11/2017	$8,567,146	72%	$9,683,668	82%	($1,116,522)
30	9/25/2017	$8,624,071	73%	$9,683,668	82%	($1,059,598)
31	10/9/2017	$8,733,093	74%	$9,868,668	83%	($1,135,575)
32	10/23/2017	$8,733,389	74%	$10,092,557	85%	($1,359,168)
33	11/6/2017	$8,932,714	75%	$10,427,694	88%	($1,494,980)

[427] MCC 7351 at Payment Claim Final Supplemental at 25-26. All calculations are as presented in the Exhibit, which may include some rounding.

This chart reveals substantial differences between progress payments and pay requests. A significant difference between the two is a threat to the project because the contractor needs money to pay employees, subcontractors, and suppliers. As the Alaska Supreme Court has explained, "one reason for providing for instalment payments as construction proceeds is to supply the funds necessary for the agreed performance; and failure to pay one or more instalments is more likely to cause inconvenience and difficulty to the building contractor."[428] Although a contractor must have starting capital and be able to borrow money to finance a portion of the project, the owner cannot wrongfully withhold substantial payments for work performed, thus putting all the burden to finance the project on the contractor.[429]

The chart shows no significant problem before February 2017. After Miller Construction started work early in 2017, however, the difference ballooned to $500,000 on March 27th. Remarkably, the difference had closed to $95,546 on June 5th. The Region credits Mr. Foster's involvement for this progress, and the evidence supports an inference that he had some success in his efforts to narrow the gap.[430]

The pay disputes started back up again in earnest, however, in late June and early July, with the gap reaching over $1 million on July 3rd. It narrowed somewhat during July, but increased throughout August and the fall to almost $1.5 million by November 6th.

The size of this difference throughout the fall of 2017 is significant. This was the time that Miller Construction needed to be ramping up to finish the project. The evidence in this hearing supports Miller Construction's theory that an influx of an additional 1.5 million dollars in funding during the fall would have significantly affected the progress on this project.[431]

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428 *Arctic Contractors*, 564 P.2d at 43.

429 *See, e.g., id.* at 43, 45 (explaining that progress payments are important to reduce credit risk taken by construction contractor (citing 3A A., *Corbin on Contracts* §692, at 269, 271 (1960))); *Appeal of DWS, Inc.*, 87-3 B.C.A. (CCH) ¶ 19960) ("if the Government directly causes this financial position to weaken to the point that it cannot perform, [] the contractor [may] be excused from the default." (citation omitted.)). *DWS* also cautions, however, that "[a] contractor who initially is thinly capitalized and inadequately financed cannot shift the risk of nonperformance to the Government." *Id.*

430 *See, e.g.*, Palmer testimony, Foster testimony.

431 Toby Miller testimony; Moore testimony.

(ii) Are Miller Construction's pay requests based on cost evidence of earned value?

Even though the $1.5 million gap is significant, Miller Construction still must prove that this gap was a *wrongful* deprivation of payment for earned value. Miller Construction first attempts to do so without reference to the Region's underpayment of quantities. It explains that its pay requests were based on its accumulated costs incurred during the period.[432] Because these costs were real, and incurred for the purpose of working on the project, Miller Construction assumes the costs must be compensable. In short, Miller Construction asserts that the chart speaks for itself—the fact that such a big gap could occur between pay requests based on real costs and payments is, in its view, proof that the Region was responsible for the failure of the project.

As the Region argues, however, proving that a contractor incurred costs is not the same as proving that the contractor provided earned value on the project.[433] Mr. Foster noted in his testimony that the Region not only made progress payments for earned value, it also paid Miller Construction for stockpiled items, such as culverts and crushed rock, in advance. He concluded that if Miller Construction was running out of money in the fall of 2017, it was because Miller Construction had underbid the project or had wasted money by inefficient practices. He also offered another possible explanation: that Miller Construction simply did not have enough equipment or tradespeople to complete the job.[434] Given that the Region has proved that Miller Construction was inefficient (spending more resources than necessary to complete certain tasks—particularly with regard to blasting and design), we would expect that progress payments would not necessarily reflect all costs expended. Therefore, although Miller Construction's presentation of the chart showing the difference between pay requests and payment, and backing that chart by showing that its pay requests were based on actual costs, raises significant questions, it is not sufficient to prove that the Region's failure to pay the full amount was wrongful.

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[432] MCC 7351 at Payment Claim Final Supplemental at 24.

[433] Miller Construction's experts, who have years of experience with how the Department determines progress payments, testified that the progress payment is based on an engineer's reasonable estimate, often negotiated with the contractor, of percent complete. Johnson testimony; Moore testimony; Kemp Testimony. This testimony supports the Region's view that the progress payments cannot be based on cost data.

[434] Foster testimony.

(iii)Does the evidence of activity show earned value?

Miller Construction responds to the Region's argument that its costs do not represent earned value by asserting that it can prove that it was working on the road. It offers Mr. Lacey's day-by-day log notes as proof that Miller Construction was at work providing value during this time. These notes, and, indeed, the chart provided by the Region's expert, Mr. Siebold, showing certified payroll, do prove considerable activity by Miller Construction during June-October 2017.[435] The log notes show that progress was being made on the road. For example, the daily log note for September 19, 2017, documents considerable hauling for embankment, deep fills, and waste, all of which is earned value.[436] The note also illustrates, however, some of the inefficiencies described by the Region. For example, it documents time spent on repairing equipment, fixing flat tires, a worker being given conflicting directions, and the road being blocked by a load of material causing delay for a worker and the state truck on the other side.[437]

In short, the evidence, including the records of costs and activities, and the photographs and videos that show considerable progress being made, does show earned value and that the earned value might well exceed the progress payments being made by the Region. Nevertheless, given the proven inefficiency, Miller Construction's claims based on cost do not accurately represent earned value.[438] Without specific evidence (other than cost data) of progress that equates to earned value, Miller Construction cannot prove that its pay requests are equivalent to earned value.

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435 For the daily records, see MCC 7169; 7171. For Mr. Siebold's report, see SCR 234 at 41. Note that Mr. Siebold has presented his chart as a way of demonstrating inefficiency—he argues that the fact that the progress payments do not increase relative to Miller Construction's activity (as shown by certified payroll) proves that Miller Construction was inefficient. Siebold testimony. This argument, however, relies on an assumption that the progress payments are an accurate measure of earned value—an assumption that is not proved, anymore than Miller Construction's assumption that cost is an accurate measure of earned value. The most systematic approach to the issue of earned value in this record is found in Mr. Foster's *Payment History Report.* SCR 205. This report systematically examines value per item for each payment category described in the schedule of values submitted by Miller Construction. *Id.* Although Miller Construction does not systematically refute Mr. Foster's conclusions, I cannot rely on the *Payment History Report* because it starts from the incorrect assumption that the schedule of values is based on a reasonably accurate estimate of quantities. *Id.* As discussed below, that assumption is not correct—the actual quantities significantly exceeded the estimated quantities.

436 MCC 7169 at 21.

437 *Id.* at 21-22.

438 Of course, this brings us back to some of the same disputes that we have been working through relentlessly in this decision. Many of the things that the Region was demanding before it would release additional money, such as slope stakes or engineered alignments for the Change Order No. 2 and the corrective action areas, were, in Miller Construction's view, unnecessary and not required by the contract. As fully discussed above, Miller Construction's view has some justification. Nevertheless, the Region also had valid reasons for withholding some payment.

In addition, the Region has asserted valid grounds for withholding payment. The installed embankment did have visible deleterious material in it—a problem brought to Miller Construction's attention early and often by the Region.[439] The slopes were often not sloped correctly, the clearing and grubbing on top of the rock slopes had not been done, and flyrock had been deposited in the inlet. Furthermore, the Region could reasonably withhold money for those locations on the road where Miller Construction had moved the alignment and the Region had grounds to be concerned that the new design might not meet geometric requirements of the contract. These were serious matters, and the Region was within its rights to withhold some progress payments for them, as long as it followed proper procedure for doing so.

(iv) Did the Region fail to follow proper procedure in withholding money from progress payments?

In addition to arguing that the progress payments were not representative of earned value, Miller Construction argues that the Region did not follow proper procedure for progress payments. According to Miller Construction, it never received written communication that complied with statutory or contractual notice requirements.[440] An owner must follow proper procedure for withholding progress payments.[441]

The Region dismisses the requirements of AS 36.90.200 as a nonissue. It notes that even if the Region did not technically fully comply with the statute, the only remedy for noncompliance is payment of interest on the wrongly withheld amount.[442] In its view, its duty to not overpay was more important than the duty to provide written notice of the grounds for the withholding. Further, it concludes, the statute's own limitation of the remedy for a violation to payment of interest means that AS 36.90.200 was never intended to affect the evaluation of whether a withholding of a progress payment was right or wrong when analyzing a default termination of a contract.

The Region is correct that it had a duty to not overpay progress payments, and that duty, owed to public fisc and the people of the state, is an important duty. It is not correct, however, that performance of this duty is incompatible with its duty under AS 36.90.200. Indeed,

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439 Fleming testimony; Palmer testimony.

440 *E.g.*, MCC 7351 at Executive Claim Summary at 3; Skaife testimony.

441 *See, e.g., Arctic Contractors*, 564 P.2d at 43; *National Eastern*, 477 F.2d at 1358 (examining whether contracting officer had followed procedure in suspending progress payments and approving termination because officer had followed the procedures in regulations requiring discussion and exploration of contractor's financial condition).

442 *See* Region's closing argument; AS 36.90.200(d), (e).

providing a timely analysis and explanation for its withholding of a progress payment would help the Region fulfill its duty to safeguard the public fisc.

The COD asserts that the Region did comply with its duty to provide written notice within eight days of its reasons for not paying the full amount of Miller Construction's pay requests. "For all progress payments relevant to MCC's claims, DOTPF provided written notice to MCC of the basis for the progress payment. This information, in the form of backups and spreadsheets accompanying each pay estimate, provided ample explanation to MCC of the basis for any deviation to the requested payment."[443] Further, Mr. Foster would provide Toby Miller with a list of actions needed before the next pay request.[444] Mr. Foster testified that providing written and oral notice of deficiencies was his standard practice.[445]

In general, then, the Region gave notice of the deficiencies that caused the withholding of progress payments. The notices given by the Region did not fully comply with AS 36.90.200, however, because they do not explain the percent of the amount withheld for each identified task.[446]

Proper procedure is important in this case. Because termination for default is a drastic remedy, failure to follow proper procedure, although not necessarily fatal to the Region if the numbers show that its progress payments were reasonable, will be considered in analyzing the justification for termination.

The ultimate issue here, however, is not the process. The ultimate issue is whether the Region wrongly withheld money. This inquiry requires examination of Miller Construction's claims regarding the Region's failure to amend the contract to pay for actual quantities. The analysis is long and detailed, and must begin with Miller Construction's July Request for Equitable Adjustment.

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443 SCR 00 at 89. Mr. Foster admitted in testimony that the Region did not comply with the requirement of documentation before he arrived on the project.

444 *See, e.g.,* SCR 66 (list of needed actions provided to Miller Construction by Mr. Foster on May 24, 2017, and signed by Toby Miller). *See also, e.g.,* MCC 7222 at 8.

445 Foster testimony.

446 *See, e.g.,* SCR 66.

c. Was the Region's denial of Miller Construction's July 2017 Request for an Equitable Adjustment a breach of contract?

(i) Miller Construction notifies the Region that it had already installed design quantities

In late July 2017, Miller Construction submitted a Request for Equitable Adjustment to the Region.[447] The request advised the Region that Miller Construction had already met the contract quantities for excavation and embankment.[448] It suggested that the contract be converted to allow for a unit price payment for excavation and embankment at the rate used by Miller Construction in preparing its bid—$10 per cubic yard.[449]

The July Request is directly related to the issue of progress payments. If Miller Construction had reached plan quantities, then the Region needed to amend the contract to provide for additional payment. This would increase the total value of the contract by a substantial amount—according to Miller Construction, about $1.84 million.[450] If the Region wrongly refused to acknowledge that Miller Construction was owed additional money, it would mean that it was wrongly underpaying the progress payments.

The July Request was based on truck haul data, blast records, and estimates. It did not purport to provide accurate measurements. It noted that issues would have to be worked out and measured, included the oversize rock that was unused, the amount of earthwork remaining, and the question of whether any of the increase was due to a change of alignment by Miller Construction. It concluded that final resolution of the amount of compensable earthwork on the project would ultimately be determined at the end of the project "from drill logs, truck counts and finished asbuilt."[451]

The July Request suggested two causes for the quantity overrun. First, the design did not account for the fact that additional embankment would be needed to replace the material that was removed by grubbing and stripping. Second, the design did not account for the fact that in soil areas, the weight of the rock and the equipment would cause the road to sink. Additional embankment would be needed to bring the road to the proper elevation.[452]

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447 SCR 97. For a copy of the Request with all backup material attached, see MCC 7352 at Exhibit 12.
448 *Id.* at 3.
449 *Id.*
450 *Id.*
451 *Id.*
452 SCR 97.

(ii) The Region denies Miller Construction's Request for Equitable Adjustment

On October 3rd, the Region denied Miller Construction's July Request for Equitable Adjustment.[453] The Region concluded that Miller Construction's estimate of quantity was incorrect. Rather than rely on the truck haul data, blasting records, and estimates that Miller Construction had used to determine that it had reached design quantities, however, the Region elected to do an asbuilt survey to measure quantity. The survey was done by Mr. Foster and his staff.[454]

Surveying is recognized as a reliable measurement technique.[455] The effort taken by the Region to respond to Miller Construction's request was herculean. The data accompanying the Region's response is immense, including

- photographs taken from both directions documenting the lane station where the measurement was taken,
- cross-sections for each station, and
- elaborate tables showing the excavation and embankment at each station for both the Region's design estimate, and that actually measured for the asbuilt road.[456]

This effort is impressive. Further, it was entirely appropriate. A survey, properly done, is a superior way to measure quantities than truck counts or blasting records.[457]

The Region established that the data relied on by the Miller Construction—truck hauls and blast records—are not very accurate measures of quantity. Trucks can be only partially filled and can sometimes be rehauling excavated material already hauled once.[458] The inaccuracy can also go the other way—as Mr. Moore testified, truck hauls can underestimate the embankment quantity because they do not include material spread by the excavator directly on the road with no truck involved.[459] Blasting records are required to be kept by law, so they are accurate indicators of the blasts.[460] They do not directly measure excavation, however, because not all blasted rock is

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453 SCR 129. For the appendices that accompanied the narrative, see MCC 7354 at Exhibit 50.
454 Foster testimony.
455 SCR 330 at 68 (§109-1.02).
456 MCC 7354 at Exhibit 50.
457 *E.g.*, Kemp testimony (stating that truck records are probably not as reliable as blasting records); Foster testimony.
458 Kemp testimony; Moore testimony; Foster testimony.
459 Moore testimony.
460 Kemp testimony.

excavated—some blasted rock is inevitably lost down the hillside or unusable.[461] In addition, they do not measure excavation of soil.

The truck-haul records and the blasting records, on the other hand, do show activity directly related to excavation. They can be used to determine quantities as long as a reasonable deduction is made to account for the material blasted or hauled that is not compensable excavation.[462] Further, these records are daily, contemporaneous measurement records.[463]

Nevertheless, for the reasons stated above, the Region elected to obtain a more accurate measurement by conducting a survey. That decision was appropriate. It should have yielded a result that was authoritative and reliable.

The Region's calculations of quantities, however, were markedly different from the calculations made by Miller Construction based on truck hauls and blasting records. According to the Region, the asbuilt survey showed that by late August to early September 2017, Miller Construction had excavated 182,966 cubic yards and embanked 172,401 cubic yards, for a total of 355,367 cubic yards.[464] This was considerably less than Miller Construction's estimate, which was 290,000 cubic yards of excavation and 275,265 cubic yards of embankment, for a total of 565,265 cubic yards.[465] It was also less than the design alignment quantity estimate, which, accounting for the changes to the alignment (which reduced the number of stations), and subtracting the top layer of finish rock (called subbase, 13,351 cubic yards), was 510,898 cubic yards.[466]

Going one step further, the Region then estimated the total excavation and embankment that Miller Construction would need to complete the road. It did this in two ways. First, it used

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461 Foster testimony; Barajas testimony.

462 Kemp testimony; Moore testimony. Mr. Kemp testified that the blasting records were the best sourcing documents to *verify* the earthwork formula because they were a known quantity. I found this testimony persuasive.

463 *See, e.g.*, SCR 330 at 35 (§105-1.17) ("If the Contractor believes additional compensation or time is warranted, the Contractor shall immediately begin keeping complete, accurate, and specific daily records concerning every detail of the potential claim including actual costs incurred").

464 SCR 129 at 5.

465 SCR 97 at 1-2.

466 *Id.* Note that the design estimate does not include the additional excavation of rock required from sources outside the roadway, called "borrow." This issue is explained in detail later in subsection III(D)(1)(b) of this decision. It is appropriate to not include this borrow here because the change to a unit price would occur once Miller Construction reached design quantities stated in the basis of estimate without regard to the design borrow quantity. When making a comparison between design quantity and actual quantity for purposes of doing a test for reasonableness, however, we must remember that the design excavation quantity was more than the quantity stated in the basis of estimate.

Miller Construction's estimated percent complete for each station, based on Miller Construction's pay requests. Under this methodology, the total excavation and embankment needed would be 437,505 cubic yards—14.4 percent less than the design volume of 510,898.[467] Second, it added to its calculated total the volume of excavation and embankment that Miller Construction had estimated would be needed to complete the road—140,000 cubic yards.[468] This total was 495,367—still less than the design volume.[469] Thus, the October Response concluded that Miller Construction had not met design volume, and never would meet design volume. Therefore, there was no need to convert the contract to a unit-price contract for payment of excavation and embankment.

Miller Construction and its experts have asserted two types of error in the August/September asbuilt survey. First, it asserted errors in the methodology of the survey. Second, it asserted that the Region continued the same errors in the earthwork formula that Miller Construction had identified in the original bid estimate—the failure to account for subsidence and replacement of material that had been stripped or grubbed.[470] As explained above, the accuracy of the survey has major implications because if the Region's refusal to change the contract to a unit-price contract was unjustified, then the Region was in breach. We turn next, therefore, to the issue of whether the survey was in error, starting with issue of the survey's methodology.

(iii) The alleged methodological errors in the August/September survey

Turning first to the Region's methodology, Miller Construction's experts described a number of possible mistakes. They concluded that even without accounting for replacement material or subsidence, the survey was in error.

A. Use of the average end area

In using survey results to calculate volume, the Region used the "average-end area" method to calculate the cubic yards of embankment. Under this methodology, the square-footage of the embankment at a station is calculated by using the cross-section that was created for that

467 SCR 129 at 6.
468 *Id.*
469 *Id.*
470 Kemp testimony; MCC 7274.

station. This square-footage is then multiplied by 100 feet—the distance between stations—to arrive at a volume measurement.[471]

In estimating the design quantities, however, Mr. Lester had used a different approach. He used the "surface-to-surface" method for calculating quantity.[472] Under the surface-to-surface methodology, the computer calculates the volume of excavation and embankment using data points generated from the continuous road, without regard to the cross sections.[473]

Mr. Kemp was critical of the Region's use of the average-end method, when the designer had used the surface-to-surface method to calculate quantities. In Mr. Kemp's view, it was error to change methodologies.

The average-end method, however, is identified in the standard provisions as the approved method for measurement with a survey.[474] Further, as will be explained shortly, Mr. Moore used the average-end method himself when making quantity calculations for determining final quantities.[475] Although this contract did not require any measurement, the inclusion of the average-end method in the standard specifications, as well as the testimony of several experts, confirms that it is reliable.[476] Mr. Kemp may be critical of changing methods midstream, but that criticism does not tell us that the average-end method would produce incorrect results or bias the results in favor of less volume.

B. Use of surveyed original ground instead of LiDAR original ground

A second criticism leveled by Miller Construction's experts was Mr. Moore criticism of the Region's failure to use the original ground elevations found in the original plan documents. In his view, the August/September surveyor's identification of original ground was arbitrary—it could vary with stick placement, GPS accuracy, and other factors. Better, he testified, would have been to use the original ground calculated by the LiDAR method before any construction had taken place.[477]

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471 Foster testimony; Kemp testimony. The volume is stated in cubic yards.
472 Lester testimony.
473 Carroll testimony.
474 SCR 330 at 68 (§109-1.02).
475 Moore testimony.
476 *Id.*; Foster testimony; Carroll testimony.
477 Moore testimony.

Why the use of the surveyed original ground instead of the LiDAR original ground should result in a lower calculation of excavation and embankment, however, is not obvious. Although the LiDAR here was apparently remarkably accurate, topographical survey results should, in general, be more accurate than LiDAR.[478] The August/September survey might be less accurate than normal with regard to identifying original ground because the ground was disturbed at the time of the survey, but the evidence on that issue is not sufficient to conclude that the Region's use of surveyed original ground heights is inherently inaccurate or would bias the results in favor of lower volumes of earthwork.

C. Use of a straight line for the bottom of the average end

A third criticism, identified by Mr. Kemp, was that when the Region calculated the average-end areas for purposes of the October Response, it assumed a straight line for the original ground from ditch line on the uphill side to the catch point on the downhill side. This assumption affects the calculation, because the ground is the bottom edge of the geometric form whose area is being measured. As Mr. Kemp demonstrated with a diagram, anywhere where the hillside is convex, and the embankment is fill that is higher than original ground, using a straight line will understate the quantity of embankment.

The Region's use of a straight line to represent original ground when computing the area of the cuts and fills is problematical. The actual original ground, of course, was not a straight line between the catch point and the ditch line—it curved up and down. The use of a straight line necessarily understated embankment when the original ground was a convex curve because it left out the fill that was needed below the straight line. Because each area calculation was multiplied by 100 feet to arrive at an estimate of volume from mid-station to mid-station, the cumulative error could be significant.

Mr. Foster explained, however, that he was confident that this approach did not underestimate embankment because, when the hill was concave, a straight line would overstate embankment.[479] In his view, the straightline methodology would be a wash. Mr. Kemp testified that this assumption was dubious.[480] As explained below, when Mr. Kemp reran the numbers

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478 Foster testimony. As stated earlier, the parties agreed that the LiDAR here was well within the acceptable bounds of accuracy. Moore testimony; Foster testimony.

479 Foster testimony.

480 Kemp testimony.

from the asbuilt, using the surface-to-surface methodology (which used a continuous calculation of actual ground, not a straight line), he proved that embankment was understated by the Region by at least 50,000 cubic yards (without reference to the earthwork formula).[481]

Mr. Kemp may be correct that Mr. Foster's straightline assumption was unjustified, and the methodology may have underestimated embankment.[482] Yet, the shape of the hill will also affect excavation quantity in cut areas. The straight line would have the opposite effect on the calculation of excavation volume. Therefore, without additional evidence, we cannot be sure that the straight line was a source of error in the calculation of quantities in the October Response.[483]

D. Failure to measure excavation outside the road prism

The fourth criticism, also identified by Mr. Kemp, related to excavation of borrow. On a road construction project, "borrow" refers to the rock embankment that must be acquired from somewhere other than the excavation for the road itself.[484] Not all of the embankment is borrow.

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481 *Id.*; MCC 7274 at 21. Mr. Kemp's calculation of excavation also exceeded that of the October Response by 102,202 cubic yards. *Id.*

482 To determine how the hillside shape affected the calculation, I attempted to do an "eyeball audit" of the cross-sections from the August/September asbuilt. MCC 7354 at Exhibit 50. Using a ruler, I set out to determine how many cross-sections would either underestimate or overestimate embankment when original ground was converted to a straight line. Although I looked at dozens of cross-sections, I quickly realized that this exercise was fruitless because the variance from the straight line could be large or small, so counting the number of cross-sections in each category tell us nothing without knowing the area of the variance from the straight line. In addition, the majority of the cross-sections fell in the "can't tell" column because in many cases the scale was not fine enough for me to determine which side most of the wiggly line representing original ground fell on, and because the dashed line representing the asbuilt road often did not have a clear starting or stopping point.

483 The October Response states that the design volumes were recalculated to account for the changes in design. SCR 129 at 5. This recalculation was done using the average-end-area methodology. *Id.* This recalculation yielded results that were remarkably similar to the design estimates. *Id.* If this recalculation had been done using the straightline methodology, it would tend to show that the straightline assumption was valid. Mr. Foster appeared to testify at hearing, however, that when verifying the design estimates, he used the LiDAR original ground rather than the straightline methodology. Foster testimony. If Mr. Foster did indeed revert back to the LiDAR original ground for doing his verification even though using the average-end method, this change in approach by Mr. Foster (and the fact that the LiDAR original ground yielded a consistent result even though the measurement method changed from surface-to-surface to average-end) supports Mr. Kemp's testimony that the straightline approach was invalid. I cannot conclude for certain that the error is in the straightline methodology, however, because Mr. Foster's testimony, even on review, is confused with regard to distinguishing between the original design, the verification of the original design, and the calculation made using the asbuilt survey data. Thus, I do not know which approach to original ground he used for his verification.

As will be seen, this decision finds that the October Response must have a methodological or computational error. Although the straightline methodology does not appear to be inherently flawed, it may be a valid explanation of a methodological error in this case. Alternatively, however, the October Response could be flawed due to a computational or spreadsheet error, rather than a methodological error. Regardless of the source of the error, however, the evidence supports a conclusion of a methodological or computational flaw (in addition to the flaw of not adjusting the earthwork formula).

484 *E.g.*, Terry Miller testimony; Johnson testimony. The standard specifications define "borrow" to mean "[a]pproved material required for embankments or for other portions of the work, and obtained from sources outside

Sometimes the road will be cut into rock. In this situation, the excavation needed in the road prism will supply rock, perhaps enough rock for several lane stations. When the contractor runs out of rock supplied by the excavation of the road itself, however, the contractor will have to find borrow. This can be obtained by widening the cuts in the areas where good quality rock is found, or by quarrying for rock outside of the road prism.

Using the example of lane station 575, and comparing the excavation volume estimated in the original design to the excavation volume measured by the Region for the asbuilt road, Mr. Kemp was able to conclude that volume numbers included in the spreadsheet in Appendix D to the Region's October Response included only excavation within the road prism.[485] At that lane station, however, Miller Construction had widened the cut to excavate additional rock for borrow. Mr. Kemp concluded that the Region's survey methodology had wrongly excluded excavation outside the road prism.[486]

Mr. Kemp is correct that at lane station 575, the Region's calculation of only 2,397 cubic yards of actual excavation, when the design estimate was 4,146 cubic yards, cannot be correct. This is because, as the cross sections show, the actual excavation was much wider than the design.[487] Mr. Kemp calculated the actual excavation at station 575 to be 6900 cubic yards.[488] This example proves that at this lane station, the Region did not calculate excavation outside the road prism. Yet, I was not able to verify that this was a consistent practice. At stations 546 and 547, for example, as at station 575, the actual cuts are wider than the design cuts (we do not know why it is wider here, but the photographs indicate it was also for rock mining). For these stations, Appendix D to the Region's response shows considerably more actual excavation than the design excavation volume estimate, even though the road elevation is the same for the asbuilt as for the

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the right-of-way." SCR 330 at 84 (§203-2.01(3)). As used by the parties, however, and as used by this decision, "borrow" will mean rock obtained from excavation other than the excavation needed to construct the road, without regard to whether the source was within the right-of-way. The point is not that the contract is wrong or being ignored. The point is that we must have some name for the rock that was acquired within the right-of-way but outside the road prism, and "borrow" appears to be an accepted name for that rock.

485 Kemp testimony

486 *Id.*

487 Kemp testimony; MCC 7354 at Exhibit 50. Even with the wider excavation for purposes of rock mining, the actual elevation is higher than the design elevation at this station, which is consistent with Miller Construction's intent to change the design to reduce overall excavation and embankment. Nevertheless, it is obvious from the cross-section that the actual construction involved considerably more excavation than planned, in spite of the slightly higher actual elevation. MCC 7354 at Exhibit 50.

488 Kemp testimony.

design. This means that at this location, the response did calculate excavation outside the road prism.[489]

Thus, the issue of calculating excavation only in the road prism identifies a source of error in the Region's calculation of excavation. The evidence is not conclusive, however, on whether it is a comprehensive source of error.

E. The comparison between a recalculation and the October Response proves error

Mr. Kemp stated that when he received the CAD data for the August/September asbuilt survey from Mr. Foster, he recalculated the quantity of excavation and embankment using that data.[490] Mr. Kemp, however, used the methodology (surface-to-surface) used by Mr. Lester in creating the original design, rather than the average-end method. His calculation showed that Miller Construction had excavated 102,202 more cubic yards, and embanked 53,542 more cubic yards, than calculated in the Region's October Response.[491] He pointed out that this calculation, like those of the original design and the response, did not adjust the earthwork formula to add additional embankment needed to replace the stripped or grubbed material and to compensate for subsidence—which would have increased the actual excavation and embankment.[492] He concluded that Mr. Foster's methodology was in error.

Notably, the Region did not demonstrate that Mr. Kemp's recalculation was flawed. Nor did it allege that the surface-to-surface approach used here by Mr. Kemp was inaccurate or likely to bias the result in favor of higher quantities than actual.

As will be further explained below, the Kemp report is accepted as authoritative. This recalculation proves a methodological or calculation error in the October Response, without regard to issues of subsidence and replacement of grubbed/stripped material.

The explanation for the error, however, remains somewhat elusive. The criticisms of the Foster calculation described here, particularly the use of the straightline assumption and the failure to calculate at least some of the excavation outside the road prism, provide some plausible explanations for why the survey calculations in the Region's response were so far off from the recalculation made by Mr. Kemp, and from the estimate based on truck counts and blast records.

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489 MCC 7354 at Exhibit 50.
490 Kemp testimony.
491 *Id.*; MCC 7247 at 21.
492 Kemp testimony.

The following discussion will further develop the thesis that the October Response was in error. In addition to explaining the error from the failure to adjust the earthwork formula, this discussion will address additional evidence that strongly supports a conclusion that the October Response contained a methodological or computational error—as explained next, the Region abandoned the approach used in the October Response when it calculated final quantities.

(iv) The calculations of final quantities

At the hearing, the Region did not address the October Response to the July Request for Equitable Adjustment in detail. Indeed, other than explaining and defending the assumption behind using a straight line to represent original ground when calculating the average end area, the Region's expert, Mr. Foster, did not testify at length regarding the October Response.

Both parties, however, did discuss in detail a different, but related calculation: the calculation of the actual volumes of excavation and embankment completed by Miller Construction at the time of termination. This makes sense—the final volume is what matters for purposes of any damages. For our purposes here, however (the inquiry into whether the October Response was in error) the calculation of final quantities is relevant. If the Region can show that final volumes never met plan volumes, then the Region will have shown that the denial of the July Request was correct (because the basis for the July Request was an assertion that plan volumes had already been completed). Therefore, this decision will delve into the question of the calculation of final volumes here, with one caveat—the reader must be aware that the issue of *measurement* of volume will be treated differently depending on the context. As will be explained in more detail later, the calculation of volume for determining when plan quantities have been met does not require strict measurements. When calculating volume for assessing damages owed Miller Construction, on the other hand, measurements must be more precise.

For both time periods, August/September, and post-termination, the Region conducted an asbuilt survey.[493] As explained above, the October Response was based exclusively on the data from the survey.

Notably, however, Mr. Foster did not perform any calculations of volume based on the asbuilt survey for the December 30th road. This is troubling because for the December 30th road, we have Mr. Moore's volume calculation (using the average-end area methodology), based in part

[493] Foster testimony.

on Mr. Foster's survey, and in part on Mr. Moore's design alignment.[494] The most straightforward way for Mr. Foster to refute Mr. Moore's calculation, and Miller Construction's claim, would have been to calculate volume based on his second asbuilt survey, just as he did in the October Response using the August/September asbuilt survey. That he did not do so raises questions about whether the methodology used to calculate volume for the October Response was reliable.

What Mr. Foster did in his attempt to refute Mr. Moore's calculation was to start with the design estimate.[495] He then made adjustments to the design, to account for additions and subtractions that should have been made by the designer. He then concluded that this calculation was the total actual quantity of excavation and embankment performed by Miller Construction.

Mr. Foster repeatedly stated that he was using design volume to calculate actual volume because Miller Construction's experts were also relying on the design volume. Thus, without doing any measurement, he used 270,000 cubic yards of excavation and 243,500 cubic yards of embankment as reasonable starting points for calculating actual volumes.[496] He then made adjustments to these numbers, and concluded that the total actual excavation was 187,314 cubic yards, and the total actual embankment was 189,632 cubic yards.[497]

Common sense tells us that this approach is flawed. As the cross-sections from his own survey show, Miller Construction did not build the design alignment.[498] Although the road built by Miller Construction generally followed within a few feet of the Region's design centerline for purposes of horizontal alignment, the asbuilt survey shows that Miller Construction often did not excavate the roadway to the design depth or cut as far into the hillside as the plan design.[499] Because the road did not match the design, and because Mr. Foster had available to him an asbuilt survey that could be used to measure the actual road, it makes no sense to rely on the obsolete design for purposes of calculating actual quantities.

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494 Moore testimony.

495 Foster testimony.

496 *Id.* Mr. Foster stated, "What I have over here in the actuals, so we start out in the basis of this and, everybody agrees that the basis of this is 270,000." *Id.*

497 *Id.* The adjustments made by Mr. Foster were to subtract grubbing volume from excavation (because it was paid as grubbing), add 3,000 cubic yards to embankment for subsidence (sinking in soft soil), subtract the volume of the culverts and culvert bedding from embankment, and subtract the volume of the debris mat from the embankment. *Id.* These adjustment are explained and addressed in the analysis that follows.

498 MCC 7354 at Exhibit 50.

499 *Id.*

Moreover, contrary to Mr. Foster's testimony, the Miller Construction experts did not use the design estimate to calculate actual quantities. Mr. Moore explained that his calculation of quantity was based on actual measurable excavation in the road that was built, not the road that was designed. He showed that actual excavation in the roadway was much *less* than the design excavation—190,000 cubic yards instead of 270,000 cubic yards.[500] That is exactly what I would expect from having reviewed cross sections of the actual road compared to cross sections of the designed road—Miller Construction redesigned the road to reduce excavation.[501]

An important point to note here is that excavation in the roadway itself only tells part of the story. Excavation for borrow outside of the roadway was needed to obtain additional rock for the embankment. The 270,000 cubic yards of excavation estimated by the design, however, only included excavation in the roadway. It did not include any additional excavation for borrow.

As explained in detail later in this decision, the backup material in the bid documents showed that the expected design volume for borrow was 45,000 cubic yards—in addition to the 270,000 cubic yards.[502] This means that any person starting, as Mr. Foster does, with design volume estimates, would expect actual total excavation volume to be 45,000 cubic yards more than design volume.

According to Mr. Moore, the actual number for borrow was much more than 45,000 cubic yards.[503] He calculates borrow to be 176,197 cubic yards (this number includes his corrections to the earthwork formula, discussed below).[504] Mr. Foster's failure to include borrow in his analysis

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500 Moore testimony. Note that the 190,000 actual cubic yards of excavation calculated by Mr. Moore, and the 270,000 cubic yards estimated by the designer are apples to apples comparisons. Neither includes borrow (rock excavated outside the roadway) and neither subtracts out the grubbing volume. Mr. Foster's calculation of final actual excavation, 187,314 cubic yards, on the other hand, subtracts out his estimate of the "grubbing" volume, meaning that it is not comparable to the other two numbers. Put another way, Mr. Foster's calculation of actual excavation assumes that total excavation in the roadway including the grubbed component was 270,000 cubic yards. Mr. Moore has proved that it was not. The total excavation, including the grubbed component, was 190,000 cubic yards. That means that Mr. Foster's reliance on the design number to calculate the actual number is inherently flawed.

501 MCC 7354 at Exhibit 50.

502 SCR 7 at 6.

503 Moore testimony; MCC 8333.

504 Moore testimony; MCC 8333. Although much of the additional borrow is due to the earthwork formula, some is due to the change in alignment. Again, this is consistent with the cross sections, which show more embankment and less excavation in the actual roadway than in the design, meaning we would expect more borrow than the 45,000 cubic yards estimated by the design. As to whether the changes in alignment could have resulted in *more* total earthwork, not less (which, under the contract, would mean that the additional earthwork would not be compensable because it was caused by Miller Construction), no evidence suggests that this was the case. My review of the cross-sections, although not scientific or conclusive, suggest that the changes in alignment did not result in

means that his theoretical calculation of excavation will inevitably be lower than actual excavation—even if the design numbers could be used as a starting point for the calculation (which they cannot be because the road was not constructed to the design alignment).

That Mr. Foster's calculations of quantities are unreliable is further shown by the fact that his total for excavation was *less* than his total for embankment—187,314 cubic yards for excavation versus 189,632 cubic yards for embankment. This is not possible, however, because some of the excavation in the roadway is unusable common and muck.[505] That excavation had to be hauled to a waste site. Therefore, even accounting for some embankment in place, total excavation would exceed total embankment because the embankment had to be excavated, whether it was from the roadway or from a borrow source. The mismatch between excavation and embankment should have alerted the Region that its approach to calculating final quantities was in error.

In sum, had the Region shown that final quantities were less than plan quantities, it would have strongly supported its defense of its termination. Such a showing would mean that its denial of the July Request was appropriate. The evidence, however, cuts the other way. The Region abandoned the measurement approach that it had used in the October Response, suggesting that, as Miller Construction asserts, the methodology used in the October Response measurement was flawed. In place of using a measurement, the Region has used an unsound theoretical approach to quantity calculation. Even without discussing the Region's omission of necessary adjustments to the earthwork formula, the Region's approach to quantity measurement makes the October Response unreliable.[506]

(v) The Region's allegations that Miller Construction's embankment quantities are inflated

In addition to asserting that the October Response proved that Miller Construction had not installed plan quantities, the Region argued that the actual quantities it presented in the October Response yielded numbers that were inflated in Miller Construction's favor. Although the

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additional earthwork. Miller Construction was modifying the alignment to reduce the earthwork. Indeed, although several cross-sections show additional embankment than design quantity, several others show less. MCC 7354 at Exhibit 50 at, e.g. cross-sections 734-47; 751-53; 757-60; 785-89; 792-93; 796-97; 798-803; 810; 815; 821; 826-27; 836-39; 843; 848-51; 853-58; 860-61; 867-68; 876-77; 785-89 (showing less embankment than design). For cross-sections that show more embankment than design, see, e.g., cross-sections 567-69; 589-96; 620-27; 636-38; 646-53; 659-60; 682; 803-08; 816. Note that this evaluation was based on the August/September survey. The later survey would doubtless reveal additional excavation and embankment.

505 Foster testimony; Lester testimony; SCR 7 at 6.

506 SCR 129 at 1; Foster testimony.

October Response is rejected as unreliable, these arguments are relevant because, if applicable to the measures of quantities on which we can rely, might undercut any conclusion that Miller Construction had reached plan quantities.

For example, the Region argued that Miller Construction had used excess embankment because it had built the road too wide. But Mr. Moore explained that it was not too wide—just that it needed to be "dressed." In other words, the embankment, which was currently too wide with steep edges, would be narrowed, and the edges would be shaped to a more gradual slope. The dressing, which would occur at end of project, would narrow the road to meet design specification.[507] Indeed, Mr. Lacey's daily report for December 7, 2017, states that Miller Construction "is on the 708+00 (causeway)" and "is dressing up the slopes (narrowing the road)."[508] This shows that the width issue that existed in August/September (the time of the first asbuilt survey) was being resolved. Thus, although the Region's point that the embankment was inflated by the road being overbuilt is almost certainly true in some places, the video footage does not reveal a systematic issue of overbuilding that makes it unlikely that Miller Construction had reached plan quantities.

The Region also asserted that the embankment is inflated because it contained nonconforming material.[509] On that issue, as explained above, the Region is correct.[510] As explained below, to account for this, and other issues, this decision will use the Region's estimate for percent complete (which was lower than Miller Construction's estimate largely because of the nonconforming material) when estimating the appropriate progress payments.

In testimony, Mr. Foster offered two additional reasons for Miller Construction's measurement of embankment being inflated. First, he asserted that it was appropriate to deduct the debris mat from the total volume of the embankment where the total embankment was more than four feet thick.[511] He reasoned that the plans allowed a two foot-thick debris mat in this circumstance, and the debris would substitute volume for volume for the embankment. This

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507 Moore testimony.

508 MCC 7173 at 529.

509 Foster testimony.

510 Although the Region is correct that the nonconforming material in the embankment means that the volume of embankment was overstated somewhat, the actual quantity of nonconforming material in the roadbed appears to be quite small relative to the total embankment. The visible deleterious material that was proved to exist was in the side slopes of the embankment. It was being removed at the end at the project. Except for the issue of the soft soil mixed in the embankment, which was neither measured nor assessed, the issue with the buried debris under insufficient embankment was not evidence that the embanked rock was anything other than rock.

511 *Id.*

would make sense if we had an actual measure of the debris mat, and proof that the thickness of the compressed debris mat did substitute for embankment. In the absence of any measurement, however, Mr. Foster's approach is not persuasive. Although Miller Construction did frequently use a debris mat, the assumption that the debris mat substituted for embankment is not warranted. The debris mat would compress and sink into soft soil. Without a measurement, we cannot assume that it substituted for embankment.

Second, Mr. Foster also asserted that the volume of the road occupied by the culverts and the bedding associated with the culverts could be deducted from embankment. This may be correct when assessing damages—Miller Construction should only be paid for the quantity of embankment actually installed. For determining whether plan quantities were reached as of the July Request, however, we do not need to deduct for the culverts. Neither the October Response nor the plan design quantities performed this deduction. Given that precise measurement was not required for this calculation, that the embankment material excavated for the culverts would be reused, and that not all culverts were installed at the time of the October Response, this refinement to our calculation is not needed.

Finally, an additional adjustment to earthwork quantity made by Mr. Foster at the hearing was to deduct grubbing volume from excavation volume.[512] This is because grubbing is paid by the acre, so using a survey to calculate excavation volume pays for some of the grubbing volume twice (because the survey includes all material removed below original ground). Yet, there is an inherent mismatch here—grubbing is an area calculation, not a volume calculation. Although Mr. Foster is correct that some grubbed material will be below original ground, some will be plant material above original ground and not included in excavation measured by a survey. Further, as will be explained in the next section of this decision, Mr. Foster has not estimated grubbing volume correctly because he has included muck and common excavation in his definition of grubbing.[513] In short, grubbing volume is a matter that can only be addressed in the earthwork formula. To the issue of the earthwork formula we turn next.

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512 Foster testimony.

513 *Id.* In addition, Mr. Foster's approach contains a logical error. As explained in the next section, Mr. Foster asserts that embankment needed to replace grubbed and stripped material need not be measured as embankment because it is measured as excavation. Yet, in arriving at his determination that total actual excavation was187, 314 cubic yards, and total embankment was 189,632 cubic yards, Mr. Foster deducted grubbing from excavation. Foster testimony. He cannot have it both ways. The grubbed area cannot be both used as a proxy for additional embankment when included in excavation and then excluded from excavation. This approach is further proof that Mr. Foster was not a reliable witness for purposes of calculating quantities.

(vi) The errors in the earthwork formula

Along with slope stakes, the issue of the earthwork formula was one of the most discussed issues at the hearing. The issue was first identified in Miller Construction's July Request for Equitable Adjustment, which suggested that one reason that Miller Construction had reached plan quantities so quickly was because of the errors in the earthwork formula used to estimate the quantities in the bid.[514]

Miller Construction pointed out that the original bid calculated embankment area using a simple calculation of height times width, where height was measured from original ground to top of fill. Mr. Kemp and Mr. Moore testified that engineers do not, and should not, rely solely on this simple formula when calculating earthwork quantities for a project. Instead, engineers would make adjustments to volume estimates to compensate for factors that would inevitably increase the amount of embankment needed.[515]

First, original ground was not the bottom of the depth measurement for embankment. Before embankment would be placed, the top layer of the original ground—the organic waste, muck, and common soil—was removed in the grubbing and stripping process. Therefore, the actual height of the embankment was from a line below original ground (by approximately between one to two feet) to the top of the fill.[516]

Second, was the issue of subsidence. The embankment was heavy, as was the equipment working on the road. That weight, and the compaction of the material, would cause the embankment to sink in some soil conditions. To bring the sunken road back up to design height, more fill would be needed.[517]

The parties disagree on whether these issues mean that the Region's October Response (which took the same approach to embankment found in the original design estimate of quantities) was flawed. Their arguments on this issue are discussed below.

A. Replacement of stripped and grubbed material

Turning first to replacement of stripped and grubbed material, Mr. Foster acknowledged that additional embankment was needed to replace the grubbed layer, in order to bring the final

514 Moore testimony; Foster testimony; Kemp testimony.
515 Moore testimony; Kemp testimony. *See also* Carroll testimony.
516 Moore testimony; Kemp testimony. *See also* Carroll testimony.
517 Moore testimony; Kemp testimony. *See also* Carroll testimony.

embankment up to the design elevation.[518] He explained, however, that the quantities did not need to be adjusted for the additional embankment because it would be exactly balanced by a reduction in excavation.

The reason for this is as follows. When using a survey for measurement, excavation is computed by measuring all material removed below original ground. This removed material includes the grubbed layer—the organic material, including stumps and plants. Grubbing, however, is paid under a different schedule than excavation. Grubbing is paid by the acre. Thus, to the extent that the measured volume of excavated material includes grubbed material, the contractor would be paid twice for grubbing within the road prism—once as grubbing and once as excavation. Although Mr. Foster acknowledged that the removed grubbing had to be replaced as embankment, and that the earthwork formula only calculated embankment above original ground, not above the ground left after the removal of the grubbed layer, he testified that no additional compensation was due. In his view, as shown in the following diagram, the excess payment for excavation of the grubbed layer compensated one-for-one for the fill that replaced the grubbed layer.[519]

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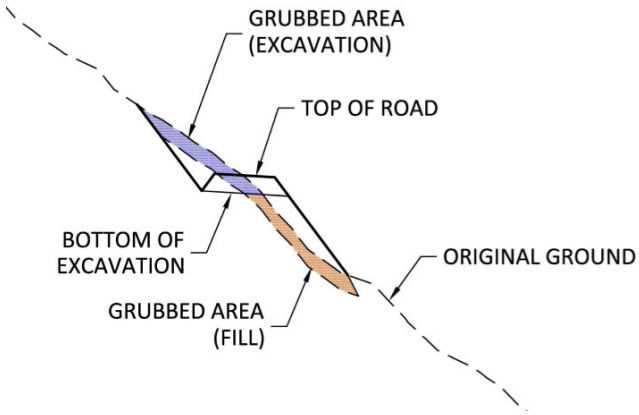
518 Foster testimony.

519 *Id;* SCR 367. In testimony that I did not fully understand, Mr. Foster also asserted that no additional compensation for embankment replacing the volume of grubbed material was warranted in fill areas because, in his view, Miller Construction did not grub in fill areas. Foster testimony (citing SCR 437, and concluding that no grubbing took place in the area included in this video because he did not see waste on the side of the road). Although this may be true in some areas, in general, the videos and photographs that I viewed showed grubbing. *See, e.g.,* MCC 7286 at slide 2. Certainly, where there were stumps, which was frequent, there had to be grubbing. Furthermore, both Mr. Foster and Mr. Palmer testified to and showed pictures of Miller Construction's sidecasting grubbed waste, which supports the conclusion that grubbing was near-universal. Because this issue was not fully developed or supported by Region (for example, I have not been provided with inspector reports or other evidence of lack of grubbing), I will not discuss it further. In a different argument, Mr. Foster attempted to refute the Kemp report by claiming that it included type B material in the calculation of the replacement for the grubbed/stripped ground, and, in Mr. Foster's view, this had to be error. Foster testimony. This is not persuasive testimony, however, because even if the type B itself was not in the replacement sector of the embankment, some material had to be placed in the grubbed/stripped area so that the two-feet of type B at the top of the embankment would be at the proper elevation.



Mr. Moore and Mr. Kemp disagreed. Mr. Moore explained that the grubbed layer was limited—it was simply the "green and growing" material.[520] Additional waste organic material also had to be excavated, and that material was legitimately paid for as excavation. Therefore, when using a survey to measure quantities, the engineer always had to add additional embankment to compensate for the organic soil below the grubbed layer that had to be removed. Mr. Kemp acknowledged that excavation would overlap with grubbing to some extent. To compensate, he explained that designers would subtract the grubbed layer from the estimate of excavation quantity in rock areas, but not in soil areas.[521] The important point to him is that a designer (or engineer doing a measurement based on an asbuilt survey) had to use an earthwork formula in order to get the quantities right.

Mr. Moore is correct that the contract explicitly limited the grubbed layer to "stumps, roots, moss, grass, turf, debris or other objectional material."[522] The waste organic soil beneath that layer of plant life also had to be removed. Under the contract, removal of unsuitable "soils, organic matter, and other material" was compensable as excavation of muck, not grubbing.[523] This proves that Mr. Foster's testimony is incorrect. Substantial waste material had to be removed and replaced. Removing that material was compensable excavation. Replacing it was compensable as embankment. In addition, given that the design acknowledged that 70 percent of common excavation would be unusable waste, it makes no sense to assume that all of the excavation of waste material that had to be replaced by embankment was compensated twice, once as grubbing and once as excavation.

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520 Moore testimony.
521 Kemp testimony.
522 SCR 330 at 79 (§201-3.03).
523 *Id.* at 84

Further, as the above analysis suggests, an addition flaw in Mr. Foster's analysis of the replacement of stripped and grubbed material is that it still does not account for borrow. Except in a few areas, the embanked material that is used to replace the grubbed and stripped layer has to be excavated before it can be embanked. Even if the material that it replaces has been completely paid for once as grubbing, if the embankment is excavated material, it is compensable once when it is excavated, and once when it is embanked. Because Mr. Foster's analysis started with the assumption that the design estimate of quantities was reasonable, and his adjustments to those quantities did not include borrow, it certainly cannot be true that any double payment of the grubbed layer as both grubbing and excavation compensates fully for the cost of the embankment that replaces the grubbing.

In short, the fact that the grubbed layer (which could be considerable in some places, where the roots of large trees are extensive, or minimal in other areas) would be duplicated in excavation if all material removed below original ground is included in excavation, merely tells us that the engineer needs to adjust the earthwork formula for excavation. It does not tell us that none of the additional embankment needed to replace the grubbed and stripped material is compensable. Thus, the Region's failure to add additional embankment to reach final elevation is not justified, and clearly was error in both the original design and in the October Response.

B. Subcuts

A related problem with the Region's earthwork formula has to do with what are called "subcuts." Subcuts occur in areas where very poor-quality soil or muck is discovered, and it extends deeper than the expected layer of poor-quality organic muck.[524] Mr. Moore and Mr. Kemp testified that the unsuitable material must be removed and replaced with material that will support the roadway.[525] Mr. Moore testified that this occurred frequently on this project, and quantified the total excavation for subcuts at 18,500 cubic yards.[526]

Mr. Foster disputed the concept of "subcuts."[527] In his view, if unsuitable soil at a greater depth than the usual stripping and grubbing layer occurred, then the contractor should make a written disclosure and request a change order to be specifically compensated for the excavation

524 Moore testimony. The depth of organic material that had to be removed was about two feet. *Id.*
525 *Id.;* Kemp testimony.
526 Moore testimony; MCC 8333
527 Foster testimony.

and embankment. He also testified that the unsuitable soil could be ignored in all areas that required more than four feet of fill. In these areas, according to his interpretation of the contract, no grubbing would occur—just lay down a debris mat on original ground, and then install four feet of embankment.[528]

Mr. Foster's interpretation of the contract, however, is incorrect. First, the contract explicitly requires that "[w]hen unsuitable material is encountered at the required depth of excavation, remove the unsuitable material to the depth specified or directed. Allow for measurement to be taken before backfill is placed."[529] This shows that the contract anticipated subcuts, and that subcuts are considered compensable excavation. I agree with Mr. Foster that Miller Construction's failure to measure the subcuts raises a legitimate question regarding whether it can be compensated for them. Nevertheless, to the extent that unsuitable material was encountered, Miller Construction was in the right to excavate the unsuitable material and replace it with suitable embankment material, and this action should be considered in determining whether Miller Construction had met plan quantities. (As mentioned earlier, and will be explained later, whether Miller Construction reached plan quantity, and therefore needed an amendment of the contract, is a different issue from whether it has properly presented its claim for excess quantities.)

Second, to the extent that Mr. Foster denies the likelihood of subcuts because there would be no grubbing in areas with four feet of fill, such as in wetlands, he is again not correct. Although the computations sheets prepared by Mr. Lester state "assume areas within wetlands are cleared only" that statement is later clarified to mean that "[m]uskeg areas will not be grubbed."[530] The *muskeg* area where grubbing was not required (places of boggy soil that did not support trees) was not extensive on this project.[531] As Mr. Kemp and Mr. Moore testified, other

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528 *Id.*

529 SCR 330 at 84 (§203-2.01).

530 SCR 7 at 3-4.

531 For testimony on the extent of the muskeg, see Foster testimony (estimating 300 feet total of muskeg); Hamilton testimony. Note that Mr. Kemp stated his expert opinion that it was at least as expedient to grub and subcut in muskeg areas than attempt to use a debris mat on ungrubbed original ground with four feet or more of embankment, as advocated by Mr. Foster and specified in the plans. My understanding is that Miller Construction did grub and excavate the muskeg. Foster testimony. If this approach (contrary to the approach suggested by the designer) caused significant additional excavation and embankment, that additional work would not be compensable unless approved by the project engineer. This issue was not fully developed, however, and, given the limited impact of the muskeg area on the issue of embankment that exceeds plan quantities, it will not be explored further here. The parties may address this issue in their accounting for damages.

wetland areas on the project were forested wetlands (which Mr. Kemp identified by the presence of skunk cabbage and trees—very common in the forests of Southeast Alaska).[532] In these areas, given the tree stumps, grubbing had to occur. Where poor quality material underlay the grubbed and stripped layer, it had to be removed. Given the abundance of forested wetlands, and water in general (as shown in part by the number of culverts), subcuts should have been anticipated and should be accounted for in the earthwork formula. Therefore, an engineer's reasonable estimate of subcuts, if backed by evidence such as truck hauls, blasting records, or daily work logs, may be considered in determining when plan quantities were reached.[533]

C. Subsidence

Turning to the issue of subsidence, Mr. Foster acknowledged that some subsidence would occur. In his view, however, the subsidence would be minimal.[534] For purposes of the final measure of earthwork for damages, he would allow 3,000 additional cubic yards for subsidence. He was critical of the Kemp and Moore reports' approach to subsidence, asserting that it was never documented or measured.[535]

When considering how to measure subsidence, Mr. Foster is correct that evidence of probes and data logs of the soils encountered would be superior to merely having an engineer's estimate. He is also correct that Mr. Kemp's approach likely understated the area where the road is built on rock, and thus not subject to subsidence.[536] Mr. Kemp testified, and stated in his report, that he relied on the designer's estimate of 4000 lineal feet of rock on the project—a number that everyone agreed significantly understated the rock.[537] To give an example of Mr. Kemp accounting for subsidence where none would occur, Mr. Foster identified a cross-section of

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532 Kemp testimony.

533 It bears repeating that this approach—relying on an engineer's estimate—will not suffice for calculating damages under a claim for additional quantities after having reached the plan estimate of quantity. To establish a claim, the contractor must keep accurate records of damages after the contractor becomes aware of the conditions that create the need for the claim. SCR 330 at 34-36 (§105-1.17). In contrast, the contract required no particular methodology to measure quantity for determining that plan estimates had been reached. SCR 2 at 14 (§207-4.01).

534 Foster testimony.

535 *Id.*

536 *Id*. The experts agree that subsidence will not occur when the road is built on rock. *Id.*; Kemp testimony; Moore testimony.

537 Foster testimony; Moore testimony; Toby Miller testimony; Terry Miller testimony. Indeed, in an October 27, 2017, Request for Information, Miller Construction stated that the rock on the project "is in excess of 16,900 [lineal feet]." SCR 162 at 2. Thus, any reliance by Mr. Kemp on the 4,000 lineal feet of rock estimated by the designer is unjustified. As explained below in footnote 542, however, it appears that Mr. Kemp may have estimated the extent of rock as much more than the 4,000 feet estimated in the design.

an area, section 570, that, in his opinion, was, "right in the middle of change order two, the hardest rock on the entire project." He noted, however, that Mr. Kemp had estimated that the road settled half a foot in this area, and throughout the Change Order No. 2 quarry.[538] Mr. Foster testified that subsidence would only occur in soft soil, and estimated that total subsidence volume was only 3,000 cubic yards.

Mr. Kemp's report includes an attachment, Exhibit H, that identifies his estimate of subsidence and where that subsidence will occur. I have closely examined the cross-sections in Exhibit H to Mr. Kemp's report, and the photographs and cross-sections attached to the Region's October Response to Miller Construction's July Request for Equitable Adjustment (Mr. Foster's August/September asbuilt survey).[539] Mr. Foster may be correct about the roadway at station 570—at that point, it may be in or approaching the knob of rock in the Change Order No. 2 area, and may be less susceptible to subsidence than estimated by Mr. Kemp. I note, however, that the photographs and cross-sections show that the heart of the quarrying was at sections 572 to 575.[540] Exhibit H shows that Mr. Kemp recorded no subsidence from stations 571 to 584.[541] Thus, Mr. Foster's testimony that Mr. Kemp estimated six inches of subsidence throughout the Change Order No. 2 area is not correct.

Moreover, Exhibit H to the Kemp report, if I understand it correctly, indicates that Mr. Kemp took care to not overestimate the effect of subsidence or grubbing/stripping, measuring them only in fill areas, not cuts.[542] Thus, even if it includes some stations as having more subsidence than actually occurred, Mr. Kemp's report that subsidence required an additional

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538 Foster testimony.

539 *Compare* MCC 16 Exhibit 4 at 151-95 *with* MCC 7354 at Exhibit 50.

540 MCC 7354 at Exhibit 50.

541 MCC 16 Exhibit 4 at 151-95.

542 *Id.* I am assuming that the absence of a cross-section for a station from Exhibit H to the Kemp Report means that no compensatory embankment (to account for grubbing, stripping, and subsidence) was calculated for the area 50 feet to either side of the station. If the omitted cross-sections are rock areas, this would be consistent with Mr. Kemp's testimony that grubbing replacement was not calculated in rock areas and that subsidence did not occur in rock areas. Although Mr. Kemp did not discuss Exhibit H or explain his process in sufficient detail for me to be sure that my interpretation is correct, I must use the available evidence to draw the most cogent conclusion. I find Exhibit H to be a useful document, and it gives me confidence that Mr. Kemp undertook a careful process to measure the effect of grubbing, stripping, and subsidence. Note, also, that the total number of omitted stations (not counting the very beginning of the project) is 95, which would total 9,500 lineal feet of rock—more than the 4,000 lineal feet assumed by the designer that Mr. Kemp referenced in his testimony (and known to be inaccurate) but less than the 12,900 lineal feet of rock that Mr. Foster identified in his testimony (which this decision accepts as accurate). Foster testimony. In short, although the Kemp report understates the lineal footage of rock, the actual subsidence estimate is based on a more reasonable estimate of rock footage. As stated, the Kemp report is most authoritative on the issue of subsidence.

30,874 cubic yards of embankment is by far the most authoritative and reliable measurement of subsidence in this record.[543] The testimony of Mr. Kemp and Mr. Moore, as well as commonsense experience in Southeast Alaska, are compelling evidence that Mr. Foster's views that subsidence would only occur in very soft soils, and was limited to 3,000 cubic yards, are not persuasive.

D. The Region's denial of the July Request for Equitable Adjustment was a breach of contract

In sum, Miller Construction has demonstrated two types of errors in the October Response. First, it showed some sort of methodological or computational error other than failure to account for the earthwork formula. Although Miller Construction's experts have come forth with several methodological criticisms, I have not been able to identify with certainty the source of this computational or methodological error. Yet, the Kemp report so clearly identifies that the October Response is in error (before taking the earthwork formula into account), I have no choice but to conclude that it is.[544] Having spent considerable time reviewing the Region's Response and the testimony of the experts for both parties, I am convinced that the Region's basic calculation of excavation and embankment in the October Response was flawed, based in part on the following evidence:

- The October Response was not dated, signed, or sealed by a professional engineer. The Kemp report, on the other hand, is sealed by a professional engineer. I can rely on its accuracy. I cannot rely on the October Response. Mr. Kemp's recalculation of the excavation and embankment volume using the CAD data from Mr. Foster's August/September survey proves that the October Response is in error.
- The Region's expert, Mr. Foster, abandoned the methodology used in the October Response. For his report regarding final quantities, which was sealed, and his

[543] Kemp testimony; MCC 7274 at 14. Note that Mr. Kemp's measurement of subsidence relates to the project at the time of termination, not at the time that the Region denied the Request for Equitable Adjustment. Here, in this section of this decision, the issue is the error in the Region's October response, which would be slightly less than measured by Mr. Kemp. That difference is not material.

[544] *See* MCC 7274 at 20-21 (showing a recalculation of "quantities of material excavated and embanked from the as-built survey" that demonstrates calculation or methodological error in the October response). Of course, it is not quite correct to say I have no choice—I could reject both the Kemp Report and the October Response. My point here is that the evidence that strongly undercuts the October Response gives me more confidence in the Kemp Report and its recalculation of quantities from the August/September survey.

testimony regarding actual quantities, he did not measure quantities using the methodology used in the October Response. This supports a conclusion that the methodology in the October Response contained fundamental errors.

In addition, Miller Construction has proved that the October Response was in error because it failed to adjust the earthwork formula to account for replacement of grubbed and stripped material, subcuts, and subsidence. On these issues, as explained above, the testimony of Miller Construction's experts, who have considerable experience in Southeast Alaska and with the practice of the Department with regard to estimating and measuring earthwork quantities, significantly outweighed the testimony of the Region's expert, Mr. Foster.[545] In addition, Mr. Foster's reasoning that the excavation of the grubbed layer compensated for any extra excavation is clearly incorrect.

Two factors should have alerted the Region that the October Response was inaccurate, whether from either a computation or methodological error or because of errors in the earthwork formula, or both:

- The design estimate on its face was 45,000 cubic yards low because it did not include excavation for borrow. Because the October Response indicated that actual earthwork would never reach even the underestimated volume, that should have been a red flag that the October Response was in error.
- The blasting and truck haul records presented by Miller Construction were tangible, albeit imperfect, evidence of actual work. For the October Response to calculate a volume so significantly less than that documented by Miller Construction should also have alerted the Region that the October Response was incorrect.

[545] With regard to the issue of credibility, none of the engineering experts who testified at the hearing were independent experts. Each served as an employee or consultant on the project for the party for whom he was testifying. This built-in bias was evident at the hearing. Therefore, although I respect their expertise and professionalism, I take each engineering expert's testimony with some skepticism and ask whether there were flaws in their logic. As described in this decision, I have rejected at least some of each expert's statements or reasoning. By far the single most important logical flaw, however, is Mr. Foster's assertion that actual quantities can be calculated by use of design quantities. To make this assertion when the cross sections clearly show even to my inexpert eye that the actual road was very different from the designed road, and when he had available to him a survey that could have been used to measure actual quantities, renders Mr. Foster's testimony on the subject of quantity not credible. Adding to that conclusion is his failure to address the issue of borrow, which is also obvious to a nonexpert. As noted in this decision, however, on some issues other than quantity, I have been able to rely on Mr. Foster's testimony, subject to the same skepticism that I applied to all engineering experts.

In sum, the Region erred in its denial of Miller Construction's July Request for Equitable Adjustment. As will be explained next, this error is significant in determining whether the Region wrongly withheld progress payments from Miller Construction and wrongly failed to give extra time for completion.

(vii) Quantifying the earned value versus the amount paid in progress payments

Returning now to the issue of progress payments, we have, through the above very lengthy discussion, determined that the Region was basing its progress payments on an erroneous estimate of the value of the project. This was allowable before Miller Construction submitted the July Request for Equitable Adjustment. After the Region had notice that plan quantities had been reached, however, its continued use of an inaccurate value to calculate progress payments was a breach of contract.

To determine whether this breach was material requires that we make some estimate of how large the progress payments should have been. Miller Construction's payment requests based on cost provide a convenient ceiling for this figure, as Miller Construction does not allege that the Region should have paid more than requested. We cannot assume, however, that the actual required progress payments would be the full amount of the pay request. Therefore, this decision must recalculate what the progress payments should have been, if they had been based on a correct measure of quantities.

To make this calculation, we can start with an approximate value of the contract at $14,060,240—roughly the value of the original contract plus the value of the additional quantities actually needed to complete the project.[546] We then multiply $14,060,240 times the percentage of total contract value the Region paid for the pay periods after July 27, 2017—the date that the Region had notice that Miller Construction had reached plan quantities for excavation and embankment. Because this percentage is based on the Region's own estimate of percent complete, the resulting number will be a fair estimate of earned value. Finally, the value that should have been paid will be capped at the amount that Miller Construction requested in its pay request. The numbers in the table below (based on the table found in Miller Construction's

[546] For how I arrived at $14,060,240 as the total value of the contract when the additional quantities are included, see Appendix A to this decision. In general, the value was taken from Miller Construction's Differing Site Condition Claim, with some adjustments. My calculation is very rough and not meant to be authoritative. The purpose here is to show that relying on Miller Construction's pay requests would not overstate earned value.

claim, and presented on page 126 of this decision) provide a fair representation of what Miller Construction should have been paid.

Pay #	Date	Accrued Amount Paid by the Region[547]	Percent of Original Contract[548]	Accrued amount that represents earned value (Region's percent x $14,060,240)	Amount of earned value not paid	Total accrued wrongfully withheld progress payments (lesser of earned value or requested payment)[549]
26	7/31/2017	$ 8,173,118.00	69%	$9,701,565.60	$1,528,447.60	$661,188.00
27	8/14/2017	$ 8,306,651.00	70%	$9,842,168.00	$1,535,517.00	$991,896.00
28	8/28/2017	$ 8,463,276.00	71%	$9,982,770.40	$1,519,494.40	$960,384.00
29	9/11/2017	$ 8,567,146.00	72%	$10,123,372.80	$1,556,226.80	$1,116,522.00
30	9/25/2017	$ 8,624,071.00	73%	$10,263,975.20	$1,639,904.20	$1,059,598.00
31	10/9/2017	$ 8,733,093.00	74%	$10,404,577.60	$1,671,484.60	$1,135,575.00
32	10/23/2017	$ 8,932,714.00	74%	$10,404,577.60	$1,471,863.60	$1,359,168.00
33	11/6/2017	$ 8,932,714.00	75%	$10,545,180.00	$1,612,466.00	$1,494,980.00

As this table shows, total earned value, calculated by multiplying the percentage of the total contract the Region paid times $14,060,240, always exceeds the amount requested by Miller Construction in its pay requests.[550] This quantification tells us that the Region significantly underpaid Miller Construction after it had notice that the plan quantities had been reached.

This evidence is relevant to Miller Construction's claim that it was wrongfully terminated because, had it been given the appropriate amount of money, it could have made additional progress on the road. As will be seen, this is not the end of the inquiry—Miller Construction still needs to prove that the Region's wrongful withholding of progress payments caused it to default. This quantification shows, however, that the wrongful withholding was significant. We now turn to a related question—whether the Region should have extended the completion date because of the extra time that it would take to install the additional quantities. This issue is analyzed as "excusable delay."

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547 MCC 7351 at Payment Claim Final Supplemental at 26. Note that Miller Construction bases this calculation on the revised contract—meaning the value of the contract after change orders.

548 *Id.*

549 The amount of Miller Construction's pay request is found at *id.*

550 Percentage of total contract value is a reasonable methodology for estimating how much the Region could reasonably withhold from progress payments because of the uncertainty regarding the alignment and the nonconforming embankment.

2. Has Miller Construction proven that its failure to complete the road on time was due in part to excusable delay?

As established above, and will be discussed further later, the Region breached its contract when it failed to grant the July Request for Equitable Adjustment. Once the Region had notice that Miller Construction had reached plan quantity, the Region was obligated to amend the contract to measure, pay for, and allow additional time for additional quantities. The additional questions to be asked here, then, are first, based on the additional quantities and wrongful deprivation of money, should additional time should have been given to Miller Construction to complete the project after the Region breached the contract? And second, if so, how much additional time? As will be seen, this calculation will be needed in order to determine whether Miller Construction could have completed the job on time if not for the Region's breach.

a. What is the critical path method for estimating time needed on a construction project?

The contract provides that "[t]he Department shall not pay additional compensation, but may extend Contract time only, if there are delays in the completion of controlling items of work from unforeseeable causes that are beyond the Contractor's control and are not the result of the Contractor's fault or negligence."[551] The contract then lists 11 examples of a cause for delay that would trigger the extra time provision, including "acts of God," "strikes," "quarantine restrictions," and "unusually severe weather" (but not "adverse weather that is not unusually severe").[552]

As many cases explain, this contract provision puts a considerable burden on a contractor claiming a default was justified by excusable delay. For example, if "other causes, attributable to said contractor, would have simultaneously suspended, delayed, or interrupted contract performance" then the contractor is not entitled to additional time.[553] This is often referred to as the problem of "concurrent delay."[554] Similarly, if the delay is only to one aspect of the project that could be done later without delaying the project as a whole, then the delay is not compensable. This issue is frequently referred to as a requirement that the delay be to a task that is on the "critical path."[555]

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551 SCR 330 at 58 (§108-1.06).
552 *Id.*
553 *Mega Const.,* 29 Fed. Cl. at 424 (quoting *Beauchamp Const. Co. v. United States,* 14 Cl. Ct. 430, 437 (1988).
554 Forrester testimony.
555 *Id.;* Siebold testimony; *Mega Const.,* 29 Fed. Cl. at 424.

An entire industry has evolved to deal with the problem of concurrent delay and critical path. As the Tenth Circuit Court of Appeals explained,

> "Critical Path Methodology" (CPM) is a term of art for a method of scheduling and administering construction contracts. The Court of Claims has explained that CPM enables contractors performing complex projects to identify a critical path of tasks that must each be completed before work on other tasks can proceed. A delay on the critical path will thus delay the entire project.[556]

In sum, for Miller Construction to be considered eligible for additional time, it must show that the underestimate of quantity was a government-caused delay and that installing the additional quantity was not a task that it could have been doing simultaneously with other tasks before December 30th.

b. Has Miller Construction proven that it was owed an additional 304 days?

To show that its claim for additional time meets these standards, Miller Construction's time-analysis and scheduling expert, Shannon Forrester, performed a time-impact analysis. This analysis attempted to determine the extra time that would be required due to the underestimate of quantities. Her methodology is described in her report as follows:

> The planned production rate for clearing and grubbing was .12 acres per day, and the planned production rate for embankment was 404.16 cubic yards per day. The attached Shelter Cove Quantities PDF will show the Original Planned Durations (based upon the quantities listed above at the planned production rate), the Design Error Increase in the quantities per set of stations, the number of Additional Days necessary to accomplish the work at the planned production rate, and the Revised Original Duration.[557]

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556 *Morrison Knudsen Corp. v. Fireman's Fund Ins. Co.*, 175 F.3d 1221, 1232 (10th Cir. 1999); *see also, e.g., Haney v. United States*, 230 Ct.Cl. 148, 676 F.2d 584, 595 (1982) (explaining that

> Essentially, the critical path method is an efficient way of organizing and scheduling a complex project which consists of numerous interrelated separate small projects. Each subproject is identified and classified as to the duration and precedence of the work. (E.g., one could not carpet an area until the flooring is down and the flooring cannot be completed until the underlying electrical and telephone conduits are installed.) The data is then analyzed, usually by computer, to determine the most efficient schedule for the entire project. Many subprojects may be performed at any time within a given period without any effect on the completion of the entire project. However, some items of work are given no leeway and must be performed on schedule; otherwise, the entire project will be delayed. These latter items of work are on the "critical path." A delay, or acceleration, of work along the critical path will affect the entire project.)

557 MCC 9-Ex. 1 at 4 (capitalization in original).

Based on this methodology, Ms. Forrester calculated that completion of the project would require "304 calendar days more than the originally provided Period of Performance" and that "the new projected completion date on the baseline schedule is 06-Oct-18."[558] Ms. Forrester explained that her approach was consistent with critical path methodology because she used a sophisticated computer analysis that took into account the critical path—that is, taking into account that some tasks would be completed concurrently, and determining time based on the longest path for one task and the tasks dependent on that task (or others in the critical path), not the cumulative path if the time for all tasks was added together.

The Region argues that Ms. Forrester's forward-looking approach is not allowed when attempting to ask how much additional time should have been allowed for a project that has been terminated. In the Region's view, only a forensic, retrospective analysis can answer this question. The Region backs its argument with the testimony of its expert, Mr. Siebold, and excerpts from an authoritative guidance manual on time-impact analysis.[559]

The Region is correct that Ms. Forrester's forward-looking analysis is not the appropriate approach to determining the additional time that should have been allowed. Here, the job has been completed, and data from the rate of production by Miller Construction, and possibly by K&E, would be available for the analysis. Ms. Forrester's use of pre-project "planned production rates" is not acceptable.[560] Those rates became obsolete once the project was underway and actual production rates became known. Therefore, Ms. Forrester's conclusion that the Region's underestimate of quantities meant that Miller Construction was due an additional 304 days after December 30, 2017, is rejected.

c. Has Miller Construction shown that the additional earthwork above plan quantities was work on the critical path that warrants an extension of time?

The Region also argues, however, that because Ms. Forrester's critical path report is not reliable, Miller Construction has failed to prove that it was eligible for additional time. To the Region, the mistaken report—the lack of a forensic analysis and the unjustified use of a planned

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558 *Id.*

559 Siebold testimony; SCR 444 (AACE International Recommended Practice No. 52R-06 (May 4, 2017) explaining that a time impact analysis is a "forward-looking, prospective schedule analysis" and that a retrospective forensic analysis (addressed in a different bulletin) should be done for projects that have been completed).

560 Miller Construction's own filings refute the 404.16 cubic yards per day that Ms. Forrester used as the production rate for embankment. In its Extra Work Claim, Miller Construction stated that its rate of embanking was 1545 cubic yards per day. MCC 7353 at Claim at 9.

rate instead of an actual rate of production—means that Miller Construction has failed to prove that the additional earthwork above plan estimate was work on the critical path. Without proof of critical path, no additional time can be awarded. Thus, in the Region's view, Miller Construction has not proved excusable delay, which, in turn, means that the fact that the road was not finished on December 30th fully justifies termination.

The Region's argument, however, is not persuasive. In rejecting Ms. Forrester's methodology, this decision rejects her conclusion that 304 days is the correct amount of time due. This does not mean that the underlying assumption that earthwork is time consuming is incorrect. Determining whether the additional earthwork is on the critical path requires asking the question of whether Miller Construction could have been doing the additional earthwork simultaneously with doing other required work. If so, additional earthwork would not delay the project. To answer that question, we will simply look at the entire body of evidence in this record, including the scheduling and testimony from witnesses from both parties. "Courts often do not use formal CPM terminology, but simply an informal, CPM-like analysis to determine whether a contractor has met its burden of proof on that general requirement."[561]

Applying the evidence to the facts of this case leads to a conclusion that the additional embankment was the critical path to completion. Additional clearing and grubbing above plan quantities, however, was not on the critical path.

The embankment was on the critical path because production of embankment was necessarily limited. This construction project was a narrow road that had to have a set depth of rock installed from one end to the other. Though Miller Construction could do other tasks while embanking, it could only accomplish a limited amount of embanking each day. Adding more embankment to the project necessarily meant adding more days to complete the embankment, and thus, more days to complete the project.

Some tasks, such as the final grading and the finish course, could only occur after embanking. And embankment, of course, could only be done after rock and soil was excavated, and the rock crushed. Thus, as will be seen these tasks (excavation and finish work) will have to be considered in calculating time to completion. Nevertheless, it was the rate of embankment that was the longest path to completion.

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561 *Morrison Knudsen*, 175 F.3d at 1233.

In contrast, although the additional clearing and grubbing would also be time-consuming, they were not on the critical path. None of the *additional* clearing and grubbing above plan quantities was in the roadway—the additional clearing and grubbing was above the rock slopes. Therefore, the additional clearing and grubbing did not delay the rate of embankment. Miller Construction could have been, and should have been, doing the clearing and grubbing required above the rock slopes concurrently with the excavation and embankment in 2016 and 2017.[562] Miller Construction's plan to wait to do the clearing and grubbing above the slopes until after the alignment was finalized, and to not finalize the alignment until after embankment, was within its discretion. It was not, however, a contractually-required plan, and does not entitle Miller Construction to additional time for clearing and grubbing above the slopes.

The fact that the Region was responsible for the underestimate of the quantity of clearing and grubbing above the rock slopes does not affect the conclusion that the additional clearing and grubbing was not in the critical path. Once Miller Construction reached planned quantities for clearing and grubbing, it then could have notified the Region, and, if the Region did not amend the contract, then, and only then, could Miller Construction have stopped work on clearing and grubbing. Because Miller Construction was not clearing and grubbing above the rock slopes in 2016 and 2017, and did not give notice to the Region that the plan quantities underestimated actual quantities for clearing and grubbing until November and December 2017, no additional analysis for time for clearing and grubbing is required.

In sum, by establishing that it had installed plan quantities, Miller Construction has established that it was owed additional time to install the additional quantities of excavation and embankment above plan estimates.[563] We turn next to the task of making a rough approximation of how much additional time was owed.

d. How much additional time should Miller Construction have been awarded?

Above, we have established that the need to install additional quantities means that Miller Construction should have been give some additional time. We have also established, however,

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[562] The fact that clearing and grubbing above the slopes was not on the critical path is an additional reason to reject Ms. Forrester's conclusion that 304 days were due. The calculation of 304 days was based in part on an assumption that the additional clearing and grubbing were in the critical path. MCC 9-Ex. 1 at 13.

[563] *Cf., e.g., Martin Const.*, 102 Fed. Cl. at 578 (holding that contractor's proof that it followed government's design establishes excusable delay unless government can show that actual delays were due to factors outside its control).

that it does not warrant an additional 304 days. To establish excusable delay, we must have at least an estimate of how much time was due. Otherwise, we cannot determine whether the failure to give additional time was material.

This exercise does not require the same precision as would be required for awarding actual time or comparing two different claims of how much time was due. Here, the Region did not award any additional time. We know that Miller Construction should have been given some additional time but for the Region's breach, but we do not know how much. Although the burden of proving that the additional time warranted is material is on Miller Construction, under *Martin Construction,* the burden of proving that something other than the additional quantities caused Miller Construction's delay would be on the Region.[564] Neither party has marshalled the evidence on the issue in a manner that is compelling. Miller Construction has not proved that 304 days were needed, and the Region has not proved that zero additional time was warranted. Accordingly, we will use the evidence in the record to calculate a conservative completion date.[565]

The task of determining how much extra time Miller Construction was due is complicated, however, by the underpayment of progress payments because this also caused delay. With more money, Miller Construction could have performed more work in the fall of 2017. To avoid the complication of estimating how much work Miller Construction could have accomplished if it had been given full progress payments, we will start with the embankment as of December 30th. We can then estimate how much time Miller Construction needed to finish the embankment and any tasks that could only be completed after the road was fully embanked. By focusing only on embankment, we are in effect doing a type of CPM analysis—ignoring all other tasks except those affected by the embankment and the excavation needed to make the embankment.

The record contains evidence that can be used to make a rough calculation of the additional time warranted by the extra quantities. In its December 2017 schedule (attached to its December 29, 2017, letter requesting additional time), Miller Construction prepared an estimate of additional time needed for tasks remaining.[566] This schedule stated that 78 additional days of

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564 *Id.*

565 *Cf. id.* at 589 ("[u]sing the most conservative estimates, the excusable delays along the critical path, coupled with winter weather delays, pushed the contract completion date beyond [the date set in contract]").

566 MCC 7352 at Exhibit 24 at 14.

excavation remained to finish the job. Embankment, which necessarily followed excavation, would be completed 28 days after excavation, for a total of 106 days, after which, Miller Construction would require some time for final sub-base and punch-list work. The schedule estimated that the job would be finished by May 21, 2018.[567]

This decision acknowledges that this estimate is very rough and inexact. Because the Region has not provided any estimate of the time needed to install the additional quantities, however, we must use the evidence available in the record to make a calculation. Moreover, this estimate is conservative—given that winter shutdown would delay the project, the record as a whole supports a conclusion that this estimates underestimates the actual time that would be awarded if we had a more precise measurement. Thus, for purposes of the inquiries necessary here, we can rely on the estimate that Miller Construction should have been given *at least* until May 21st to finish the project.

That is a significant additional period of time. Thus, the additional time needed based on additional quantity is material.

In sum, at this stage in the analysis, we have reasonable (albeit rough) calculations of how much additional money and how much additional time Miller Construction should have received. These rough calculations will allow us to ask the hypothetical questions that govern the issue of wrongful termination: if Miller Construction had been given the money and time owed to it, how much progress on the project would it have made? And, given that amount of progress, would the

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567 *Id.* Ms. Forrester did not testify about the December schedule, so we do not know how it was prepared. Most likely, this schedule would be subject to some of the same criticisms that were applied to her final report. An alternative approach to using the December schedule could be to use Miller Construction's actual production rate to estimate additional time needed as of December 30th for excavation and embankment. I cannot make this calculation, however, because I do not have the capability of accounting for "float"—the additional time and lag that must be included in a schedule to make it reasonable. Therefore, I will use an estimate made by a professional that is included the record. Because that estimate of additional time needed was made before the project was finished, it is more defensible than an estimate made after completion using prospective rather than retrospective analysis. In short, because of the Region's breach, I must use some estimate of time remaining to determine if the breach is material. I do not have access to a retrospective forensic analysis. Because the analysis of how much time should have been given is being used to address a hypothetical question, for which we must necessarily use speculation and reasoning to come to an answer, an authoritative and precise retrospective forensic analysis is not needed. Furthermore, additional analysis would almost certainly extend the time past May 21st because the December schedule does not allow for the winter shutdown, which, as Mr. Foster testified, had occurred. Based on my review of this record, I am satisfied that a completion date in June 2018 would be reasonable. For purposes of this analysis, however, we can accept the May 21st date. The parties will be given an opportunity to comment on this calculation before this decision becomes final.

Region's termination still be justifiable? Before addressing these questions, however, we must address one remaining issue—did the Region act in bad faith?

3. Bad faith

In closing argument, Miller Construction argued that the Region's conduct in administering this contract, and in terminating the contract for default, showed that the Region was motivated by a bad-faith intent to terminate Miller Construction without regard to merit. In Miller Construction's view, if it can prove a bad-faith motive that would mean that the Region's termination was *per se* wrongful.

As we have already discussed, the implied covenant of good faith and fair dealing applies to all contracts. Bad faith, however, is not necessarily a *per se* reason to find that the termination was wrongful. The contractor still must prove that the bad faith caused the termination.[568]

Here, for example, we have already found that the Region's action in issuing Directive No. 13 was a violation of its duty of good faith and fair dealing. That instance of bad faith, however, did not cause Miller Construction's failure to complete the project. Miller Construction did not incur any delay from Directive No. 13 because it did not, in fact, build to the Change Order No. 2 alignment. Although any instance of bad faith by either party is a concern, as explained below, Directive No. 13 appears to be an isolated instance of bad faith by the Region, outweighed many times by the good faith it frequently demonstrated.

Indeed, as the Region argued during prehearing motion practice, many cases have held that government employees are entitled to a presumption that they are implementing their official duties in good faith.[569] Miller Construction argued that the presumption of good faith does not apply when a government agency acts like private entity—such as, for example, in administering a contract. Under Alaska law, however, the presumption of good faith does apply to government officials administering contracts. "In the absence of any evidence of bias or prejudgment, procurement officials are presumed to act in good faith and to exercise honest and impartial judgment."[570]

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568 *See, e.g., Alutiiq Mfg. Contractors, LLC v. United States,* 143 Fed. Cl. 689,697-98 (2019) (undertaking causation analysis after finding bad faith was motivating factor in termination).

569 *Earth Resources v. State, Department of Revenue*, 665 P. 2d 960, 962 n. 1 (Alaska 1983).

570 *North Pacific Erectors, Inc. v. Division of Gen. Servs.*, OAH No. 11-0061-PRO at 14 (Dep't of Trans. and Pub. Dev. 2011) (citing *Bruner v. Petersen*, 944 P.2d 43, 49 (Alaska 1997). *See also J&S Servs., Inc. v. Dep't of Nat. Res.*, OAH No. 14-0472-PRO at 10 (Dep't of Admin. 2014) (rejecting allegation of bias because "J&S did not come forward with any evidence of bias.").

Miller Construction is partially correct, however, that the presumption of good faith has little applicability to the objective prong of the covenant. For example, as discussed above, it was objectively unreasonable for the Region to direct Miller Construction to build to the Change Order No. 2 alignment when Miller Construction had already excavated below the grade required in Change Order No. 2. That directive was unreasonable because it would require rebuilding a hill, resulting in a steeper, and thus less desirable, road. Even applying the presumption to assume that the Region staff had a good-faith belief that the directive would ultimately help bring the project to fruition, the directive was objectively unreasonable, and thus a violation of the covenant.

Here, however, the majority of Miller Construction's allegations of bad faith focus are on the subjective prong of the covenant. In general, Miller Construction has cited actions that show, in its view, that the Region had bad-faith intent to deprive Miller Construction of the benefit of the bargain. The presumption of good faith applies to that argument.

Accepting that the presumption of good faith applies, the next questions are, what type of and how much evidence is required to overcome the presumption? Under federal law, when a contractor alleges bad faith by the government in terminating a contract, the contractor must prove by "well nigh irrefragable proof" that it was the target of malice or conspiracy motived by a specific intent to harm.[571] "Irrefragable" means "impossible to gainsay, deny, or refute."[572] This is a very high standard indeed, even taking into account that "irrefragable" is modified by "well-nigh." Yet, the Region argues that this is the standard that should apply to this decision.

Although this standard may apply to judicial decisions, on the administrative level, the law does not require "well-nigh irrefragable" proof before bad faith will be found. In administrative law, the agency is in charge of its own practices, and, for most departments in the executive branch, the final agency decision on whether the evidence shows bad faith rests with the commissioner of the department or a delegee of the commissioner. In my experience, no State of Alaska commissioner would tolerate having staff treat the public with bad faith. No commissioner would turn a blind eye to bad faith in the absence of "well-nigh irrefragable proof."

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[571] *Kalvar Corp. v. United States*, 543 F.2d 1298, 1301–02 (Ct. Cl. 1976) ("analysis of a question of Governmental bad faith must begin with the presumption that public officials act 'conscientiously in the discharge of their duties.' The court has always been 'loath to find to the contrary,' and it requires 'well-nigh irrefragable proof' to induce the court to abandon the presumption of good faith dealing." (quoting *Librach v. United States*, 147 Ct.Cl. 605, 612 (1959) and Knotts v. United States, 121 F.Supp. 630, 631, 128 Ct.Cl. 489, 492 (1954))).

[572] *Webster's Third New Int'l Dict.* 1196 (unabridged) (1986).

When bad faith among staff is alleged, the administrative adjudication is the executive branch's last opportunity to do the right thing before the judicial branch performs its oversight function. A commissioner will not wait for "well-nigh irrefragable" proof of bad faith before taking steps to address the problem. Indeed, the very purpose of the high burden of proof in a court action is so the judicial branch can defer to the internal agency process for rooting out bad faith. If that internal process itself imposes a daunting burden of proof, then no rooting out will occur. Ordinary proof is sufficient.

The presumption of good faith, on the other hand, serves an important purpose for administrative dispute resolution. It allows government to function and move on without having to conduct an in-depth and disruptive investigation for every allegation of bad faith based on innuendo and unjustified inferences. Unsubstantiated allegations of bad faith occur in many cases, with particular frequency in procurement and contract claims. The presumption allows the decisionmaker to treat staff with respect and deference to their professionalism—unless the evidence dictates otherwise. Unlike the near-insurmountable burden of proof found in the federal cases, however, the presumption does not insulate bad faith from detection because the presumption can be overcome.

With regard to the burden of proof required to overcome the presumption, the presumption creates a gulf between presuming good faith and finding bad faith. That gulf is not easy to cross. Rather than designating an elevated burden of proof, however, the state cases speak of the need for actual evidence. "To overcome the presumption, a protestor must provide direct evidence of actual bias or prejudgment, rather than speculation."[573] Merely making an error or being imprecise does not establish bad faith or ill motive.[574]

With that understanding, Miller Construction's allegations of subjective bad faith are not well-taken. In general, Miller Construction has pointed to facts to bolster its argument that the

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573 *North Pacific Erectors,* OAH No. 11-0061-PRO at 14. *See also, e.g. AT & T Alascom v. Orchitt,* 161 P.3d 1232, 1246 (Alaska 2007) ("Administrative agency personnel are presumed to be honest and impartial until a party shows actual bias or prejudgment. To show hearing officer bias, a party must show that the hearing officer had a predisposition to find against a party or that the hearing officer interfered with the orderly presentation of the evidence." (citation omitted)); *Amerada Hess Pipeline Corp. v. Regulatory Comm'n of Alaska,* 176 P.3d 667, 677 (Alaska 2008) (finding no bias or bad faith in absence of evidence of bad acts; distinguishing case in which "law clerk forfeited her presumption of honesty and fair dealing" by taking wrongful action (citing *Vaska v. State,* 955 P.2d 943, 946–47 (Alaska App.1998)).

574 *Bachner, Co. v. Weed,* 315 P.3d 1184, 1192-94 (Alaska 2013) (finding no bad faith even though defendant "appears to have made a mistake" because "there is nothing in the record that indicates that this mistake was made in bad faith.").

Region was hyper-vigilant in policing this contract. Yet, the facts also show that the project was in danger of failing. As stated many times in this decision, the Region had a duty to take steps to protect its interests and ensure that the project was successful.

For example, Miller Construction has alleged that Mr. Foster's very involvement in the project was motivated by bad faith. In Miller Construction's view Mr. Foster was the "hatchet man," hired for the specific preconceived bad-faith purpose of terminating the contract, without regard to proper process or merit. To support this conclusion, Miller Construction cites the following:

- In an earlier case involving a different contractor, Mr. Foster had been given a contract by the Department of Law as an expert witness in the termination proceedings.[575]
- Mr. Foster was originally given a contract to consult on this project by the Department of Law.[576]
- When the Department of Transportation and Public Facilities gave Mr. Foster's firm a contract to provide engineering services to the department, it used a sole-source process that violated AS 36.30, the procurement code.[577]
- Mr. Foster's firm has made a significant amount of money on its contracts on this project and on other subsequent department projects.[578]

These facts do not overcome the presumption of good faith afforded the governmental officials who administered the Shelter Cove project. Involving the Department of Law early in the game when a contractor has threatened or made claims is completely consistent with good faith. Similarly, the Department of Law's decision to engage Mr. Foster does not imply bad faith. Mr. Foster is a competent, knowledgeable engineer with good communication skills, with whom the Department of Law had previous experience. His knowledge of the claims and termination processes makes him a logical choice to advise and assist the attorneys, in both settlement discussions and the claims/termination process. It does not suggest that the officials involved had already decided to terminate Miller Construction. With regard to the sole-source contract, the Department of Transportation and Public Facilities did violate the Procurement Code. Although

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575 Foster testimony.
576 *Id.*; MCC 2280.
577 SCR 230. -CHECK]
578 Foster testimony.

violations of the law are serious matters, many officials make mistakes when procuring or administering contracts. No evidence supports an inference that this violation was motivated by an intent to subvert Miller Construction's rights or otherwise deprive it of the benefits of the contract. Finally, the fact that Mr. Foster's firm has made money tells us nothing. No one expects him to work for free.

A more elaborate argument regarding alleged bad faith involves the conversation heard by Mr. Van Leuven in 2014, coupled with the decision that Miller Construction was a nonresponsible bidder in the 2017 Kake procurement.

To Miller Construction, the Region's decision that Miller Construction was not a responsible bidder in the Kake matter was *per se* evidence of bad faith. That argument, however, is refuted in full by the Commissioner's decision in *Miller Construction Co., Ltd. v. DOT&PF Southcoast Region*, OAH No. 17-0891-PRO (Dep't of Trans. and Pub. Fac. 2018).[579] That decision catalogs all of the reasonable concerns held by Region staff at the time of the decision, including concerns that Miller Construction was undercapitalized, overextended, and not making sufficient progress on the Shelter Cove project.[580] Based on the evidence at hearing, this current decision affirms that those concerns were reasonable and reached in good faith.

A more nuanced argument raised by Miller Construction was based on its concern that someone at the Region—likely Mr. Winters—"leaked" information about Miller Construction to Miller Construction's competitor, SECON, in the Kake matter. SECON then used this information to file a bid protest. If Miller Construction had evidence that this "leak" occurred, that would be a serious concern.

To explain Miller Construction's accusation, recall that in the Kake matter, the Region had initially determined that Miller Construction was a responsible bidder. The evidence at the hearing showed that Mr. Winters opposed this decision.[581] Further, he was aware of evidence, including Miller Construction's overdue bills at its suppliers (Tyler Rental and Austin Powder), and the status of the Shelter Cove project, that was later relied upon by SECON in its protest. In Miller Construction's view, the only way that SECON could have obtained this information was from a leak by someone in the Region. Miller Construction bolstered this argument by presenting the testimony of the accounts manager at Tyler Rental, Ms. Kikendall. Ms. Kikendall explained

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579 SCR 84.
580 *Id.*
581 Winters testimony.

that she had informed Mr. Winters of Miller Construction's debt, that she had not disclosed the debt to SECON, and that Tyler Rental had a strict policy against divulging information about a contractor to a competitor.[582] Ms. Kikendall admitted, however, that she did not know whether someone else at Tyler Rental, including the Vice President who was in the Ketchikan branch, had spoken to SECON about Miller Construction's debt.[583]

Miller Construction has not proved bad behavior by Mr. Winters or another member of the Region's staff. No evidence established that Mr. Winters was the source of any information learned by SECON. Miller Construction asks the question, well, if SECON did not get the information from the Region, where did it get it? The answer, however, is that we do not know because Miller Construction never presented any witness from SECON. The information regarding Miller Construction's struggles on the Shelter Cove project could have come from numerous sources—it was no secret, and Miller Construction's crew and former crew knew of the problems. The information regarding Miller Construction's debts could have come from many sources—it would not be that unusual for information regarding overdue debts to be circulating among members of the industry, even if suppliers had a nondisclosure policy. In short, Miller Construction's evidence is not sufficient to rebut the presumption of good faith.

With regard to the 2014 conversation reported by Mr. Van Leuven, his report of that conversation involved four upper-management department officials, including Mr. Noziska, Mr. Winters, and Mr. Landeis.[584] According to Mr. Van Leuven, they were discussing Miller Construction and a theory that Miller Construction stays in business by always having more than one contract so that money from one contract can be used to "bail out" the other.[585] The officials reportedly discussed how withholding payment at a time when Miller Construction had only one contract could be used to "cripple" Miller Construction.[586] In Miller Construction's view, this plan was implemented here, when Miller Construction was denied a second contract (the Kake project) and the Region withheld progress payments on the Shelter Cove project. Miller Construction concludes that the conversation proves subjective bad faith on the part of the Region.

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582 Kikendall testimony.
583 *Id.*
584 Van Leuven testimony; SCR 308.
585 Van Leuven testimony; SCR 308.
586 Van Leuven testimony; SCR 308.

No participant to the conversation corroborated Mr. Van Leuven's account.[587] Even accepting, however, that a conversation similar to that reported by Mr. Van Leuven did occur, it does not prove subjective bad faith or overcome the presumption of good faith.[588] That Region officials may have been annoyed with a contractor in 2014, and even speculated about circumstances that could harm the contractor's finances, is not enough to sustain an inference that the officials administered a 2016 contract in bad faith. For Miller Construction to establish a bad-faith breach of the 2016 Shelter Cove contract based on animus against Miller Construction, it must come forward with evidence of animus and bad acts directly related to the Shelter Cove project.

To Miller Construction, the Van Leuven affidavit explains everything—it explains why the Region was so keen on slope stakes, why it rejected the Request for Equitable Adjustment, why it rejected the Kake bid, why it made errors in calculating quantities, and so on. That reasoning, however, completely misses the point of the presumption of good faith—we are not going to accept animus as an explanation for an act taken by Region staff unless animus is proved to be the most likely explanation. Here, as Mr. Fleming put it, "[t]his is a difficult Contract with a sometimes unorganized and potentially difficult Contractor."[589] A much more likely explanation for the Region's disagreements with Miller Construction than animus is that the Region was trying to keep the project on schedule and on budget in difficult circumstances.

Indeed, this record is replete with actions taken by the Region that show more than good faith—they show a willingness of the Region to extend, and to take action to help the project beyond what was required.[590] Comparing this evidence to the Van Leuven affidavit, and the

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587 Noziska deposition; Winters testimony. Mr. Noziska confirmed that he might well have commented on a contractor's need for cash flow, but denied that he ever would have engaged in conspiratorial speculation about putting Miller Construction out of business. Noziska deposition at 13-16.

588 The Region argued that because the "conspiracy" reported by Mr. Van Leuven was inherently implausible (no official could ever orchestrate such an elaborate scheme because no official had authority to award or withhold contracts except through proper process), it means the conversation did not occur. That is not persuasive—people frequently muse about outlandish schemes. That Region officials were grumbling about a contractor who had just obtained a settlement of a claim is not far-fetched. Such a conversation might well touch on the subject of how that contractor could end up in bankruptcy. I conclude that some conversation likely occurred and that the subject matter likely had some similarity to that reported by Mr. Van Leuven. Because Mr. Van Leuven did not make a contemporaneous record of the conversation, and because no one corroborates his testimony, however, we cannot be sure of what was actually said or the level of animus regarding Miller Construction, if any.

589 MCC 7351 at Exhibit Q. This statement was in an internal email to Region and department staff. Mr. Fleming went on to say that "I'm doing the best I can to get the project constructed and avoid a claim situation." *Id.* Mr. Fleming's statement is an accurate summation of the situation and shows good faith.

590 Examples of the Region's good-faith actions to move the project forward include:

evidence regarding the Kake matter, the evidence of good faith dwarfs the evidence of possible bad faith. Even without the presumption, Miller Construction would not prevail here.

Finally, Miller Construction's argument regarding bad faith is closely related to its argument that the termination was an abuse of discretion because "a termination for default that is unrelated to contract performance is arbitrary and capricious, and thus an abuse of the contracting officer's discretion."[591] Miller Construction would ask us to consider the Region's anti-Miller conduct as evidence that the Region abused its discretion in terminating Miller Construction. Balanced against this argument, however, is the consideration that "under the proper circumstances [the contracting officer] is obligated to exercise his discretion to [terminate for default]."[592] In general, the arguments and evidence regarding conduct do not inform this decision one way or another.

• Allowing Miller Construction to amend its schedule of values so that more money per lane station on the BOP side of the project than the EOP side. Fleming testimony.

• Agreeing to give extra time for the suspension of work following the second landslide. The Region had arguments that the landslide was caused by Miller Construction. Trousil testimony. It could have continued to contest the issue. That it did not is evidence of good faith.

• Mr. Mearig's agreement to meet with Miller Construction in October 2017 to hear its side of the matter before reaching a conclusion on default and termination. Mearig testimony; Toby Miller testimony.

• Mr. Mearig's willingness to entertain alternative approaches to finishing the project, including conversations with a contractor who was considering stepping in on behalf of Miller Construction. Mearig testimony.

• Mr. Foster's agreement in the April meeting that Miller Construction could meet its obligation for staking by installing reference points. (This issue is confusing because the Region and Mr. Foster later insisted on slope stakes, asserting both that the slope stake requirement was never waived and that reference points were never installed. The point I am making here, however, is that in April the Region, as advised by Mr. Foster, took a good-faith action that was calculated to get the project back on track and smooth relations between Miller Construction and the Region. That the Region later decided to play hardball on the issue of staking is not evidence of bad faith—it is simply evidence that the project was deteriorating.)

• The Region's decision to remove from the contract the three fishpipes that Miller Construction was not likely to install in time, replace them with bridges, and not hold Miller Construction in breach for the failure.

• The Region's agreement that hammering the bedrock under certain fishpipes was compensable extra work not contemplated by the contract. Foster testimony. The Region could have taken the position that the contractor was responsible for knowing in advance of the bid that the streams flowed over bedrock. That it did not is evidence that it was taking steps to assist Miller Construction to complete the project.

• Mr. Foster's agreement in August 2017 that the survey data provided by Miller Construction would likely be sufficient to process progress payments. SCR 111.

• Mr. Moore testified to an instance where Toby Miller, Mr. Foster, and he were conferring on the work site regarding an area where the road as designed would be under a dangerous rock slab. Mr. Foster proposed "why don't you build the road right here," pointing to the same track that Mr. Moore proposed. Within an hour, the road construction was proceeding on the line as suggested by Mr. Foster. Moore testimony.

591 *McDonnel Douglas v. United States*, 182 F.3d 1319, 1326 (Fed. Cir. 1999)).

592 *Mega Const.*, 29 Fed. Cl. at 414.

D. Which party was assigned the risk that quantity overruns might occur?

Above, we have established that the Region erred in denying Miller Construction's July Request for Equitable Adjustment because Miller Construction had, in fact, already installed plan quantities of excavation and embankment. From that conclusion, we determined that the Region erred in limiting progress payments after receiving the July Request, and in not granting additional time for completion. We have also arrived at a rough calculation of how much extra money and time should have been awarded.

We now ask, was the Region's action a simple quantity error, within its discretion, that could be trued up later in the claims process? Or was it a material breach of contract? As will be seen, this question depends in part on which party bears the risks of this type of error.[593]

Miller Construction argues that the contract assigned 100 percent of the risk that quantities in the bid were wrong to the Region. In its view, the Region was in breach from the onset of the project, when it denied Miller Construction's request for additional compensation to perform a topographical survey. Further, Miller Construction interprets the underestimated quantities in the bid estimate to be implied amendments to the contracts.

The Region, on the other hand, argues that all of the risk of error is borne by the contractor. It asserts that the contract anticipates errors. The contractor's remedy for an error by the Region, whether a measurement error, differing site condition, or other error, is to make a contemporaneous record of the extra cost caused by the error, and then file a claim.[594] In the Region's view, the wrongful termination inquiry is not about whether the Region made an error. To the Region, because it has discretion to find a contractor in default, the inquiry is about whether it acted reasonably in denying the July Request. It asserts that because its actions were reasonable, Miller Construction was properly terminated notwithstanding a measurement error.

Neither approach is correct. As stated many times in this decision, the problem here is that the contract was fundamentally flawed. Both parties signed the flawed contract, so both parties bore some risk that the contract flaw would surface, leading to a need for an amendment.

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593 *Cf., e.g., Stormont v. Astoria Ltd.*, 889 P.2d 1059, 1063 (Alaska 1995) (noting importance of allocation of risks in contract interpretation and holding that "as-is" clause indicated that risk of property being in poor condition was assigned to buyer).

594 SCR 330 at 34-35 (§105-1.17). *Cf. also, e.g., In re Boston Shipyard Corp*, 886 F.2d 451, 457-58 (1st Cir. 1989) (noting that for government contracting to be workable, government must be able to dispute claim made by contractor); *Appeal of DWS, Inc.*, 87-3 B.C.A. (CCH) ¶ 19960 (holding that "appellant was required to continue performance while its claim was pending").

To explain the analysis of risk, we will begin with a review of the fundamental problems of the contract.

1. What are the fundamental problems with the contract?

a. The first problem with the contract: the unit for payment was the lane station, and it had no provision for measurement of earthwork

Recall that under this contract, embankment and excavation were included in the composite road construction pay item. The unit for payment was to be the lane station, without regard to how much excavation or embankment was needed for that lane station. There was no unit pay item for earthwork.

Yet, the contract also specified the total quantity of earthwork that the contractor was required to perform: 270,000 cubic yards of excavation, 243,700 cubic yards of embankment, 27 acres of clearing, and 34 acres of clearing and grubbing.[595] These numbers, although based on estimates, were made binding on the Region when the contract documents advised bidders that they could rely on those estimates.[596] As Mr. Landeis had noted early on, this promise created a dilemma for the Region.[597] Once the contractor had reached bid quantities, the Region would be unable to deny a request for equitable adjustment and a conversion of the contract to a unit price for earthwork. In addition, because the contract had specified that no unit of measure was required, Mr. Landeis noted that the Region would not be able to reject any reasonable approach to measuring earthwork quantities used by Miller Construction in requesting the equitable adjustment.[598]

What this means is this: Once Miller Construction had completed the contractual amount of earthwork, Miller Construction was entitled to request that the contract be converted to a unit-price contract, and that it be paid for all additional earthwork at a reasonable unit price. If the Region refused, then the Region would be in breach, and Miller Construction was entitled to stop

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595 SCR 3 at 8.

596 Summary adjudication was granted regarding the fact that Miller was entitled to rely on the Region's estimates of quantities provided in the bid documents. *Order Denying in Part, and Granting in Part, Miller Construction's Motion for Summary Adjudication on the Existence of Errors in SCR's Basis of Bid Quantities* at 3 (Dec. 30, 2019). This decision was based on the Region's admission that bidders were entitled to rely on the basis of estimate in the plan sheets, and on the advice given to bidders that the estimated quantities in the basis of estimate in the plan sheet provided baseline quantities for the project as a whole. MCC 7352 at Exhibit 8.

597 SCR 17.

598 *Id.* The contract had a variance provision to deal with the situation where a fixed-price for quantity had to be renegotiated when quantity varied by more than 25 percent from bid quantity. SCR 330 at 74 (§109-1.04). That provision does not apply here.

work and not do additional earthwork, unless the refusal was because Miller Construction had either not installed the contract quantity, or that the excess quantities were due to negligence or a change in alignment by Miller Construction.

b. The second problem: the omission of borrow

In addition to the fundamental problem of the contract being based on the lane station while at the same time making firm the estimates of the earthwork quantities, the contract plans contained a second problem that would inevitably come back to vex the parties: the failure to account for borrow.

The reason that borrow is a problem here is that the Region's plan sheet estimates did not include borrow in the estimate of firm quantities. As explained above, the basis for estimate told bidders there would be 270,000 cubic yards of excavation. This number, however, represented only the excavation needed for making the cuts necessary to build the road. It did not include any borrow.

This does not mean that the estimated amount of borrow was unknowable. As the Region made clear through many witnesses, borrow was easily calculable based on backup material that was later provided to bidders.[599] The backup material told bidders that the total excavation of 270,000 cubic yards was estimated to consist of 138,000 cubic yards of rock and 132,00 cubic yards of muck and common excavation.[600] It also stated that the rock amount would increase (or "swell") after it was excavated by 15 percent, yielding 159,000 of useable embankment, and that only 39,600 cubic yards (30 percent) of the common would be useable, yielding a total of 198,600 cubic yards of excavation available for embankment. Because the total embankment needed for the project was estimated to be 243,700 cubic yards, the bidder would know that an estimated 45,100 cubic yards of borrow would be needed to complete the project.

What this does mean, however, is that even though the estimated amount of borrow was knowable, it was not within the plan quantity number on which the parties were told they could rely. As Mr. Foster's analysis makes clear, "plan quantities" meant 270,000 cubic yards of

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599 Johnson testimony; Foster testimony; SCR 7 at 6. Mr. Foster testified that not all borrow was excavated. Some of the borrow could be debris, as long as it was covered by four feet of embankment. Foster testimony. This testimony, however, was not backed up with a calculation of how much of the borrow *could* be debris. Given that this was only true where the embankment was more than four feet, that the debris could only be two feet, and that the debris mat would be compressed and subside in soft soil, this testimony, while accurate in theory, does not mean that it was practical to substitute significant quantities of debris for rock borrow.

600 SCR 7 at 6.

excavation.[601] Because borrow was needed, but not included, the plan quantity was almost certain to be exceeded.

c. The third problem: the underestimate of clearing and grubbing

The same problem was built in for clearing and grubbing. To explain the underestimates at issue here, clearing was underestimated because the plans called for trees to be cleared for 30 feet from the top of the cut in rock areas, but the basis of estimate was based on applying to rock cuts only the 10 foot clearing limit that was set for soil cuts. The estimate did not account for the extra 20 feet where trees had to be cut, and therefore underestimated actual quantity of clearing. Further, the plans called for grubbing above rock cuts to extend five feet past the end of the cut, but the estimate was based on grubbing ending at the top of the cut. In addition, the plan underestimated the lineal feet of rock, so even if it had used the correct clearing and grubbing limits, the plan quantity would still underestimate the total actual clearing and grubbing acreage required.[602]

A further problem with the clearing and grubbing estimates is that they included a geometric error. Clearing and grubbing is paid by the acre, and the original design estimated acreage to be grubbed based on a flat horizontal plane, measured in space as the distance between the ditch line and catch point as if the ground was flat. In fact, however, the grubbing occurred on the sloped irregular plane of the ground on the hillside, which, like the hypotenuse of a triangle, is considerably longer more than the horizonal plane, and thus, when multiplied by the length of the station, would yield more area to be grubbed. In the COD, the Region agreed that this was a mistake, and recalculated the grubbing area.[603]

The important takeaway here is that from the very start of this project, both sides were on notice that a quantity overrun was expected. The very design of the contract told them that 45,000 cubic yards of additional excavation would be needed. An expected quantity overrun was

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601 *See, e.g.,* SCR 227 at 7 (Mr. Foster's "Quantities Report" explaining that "Pay Item 2017(1) – Composite Road Construction" included "Excavation (Rock, Common, and Muck) at 270,000 cubic yards."). Thus, this report did not consider borrow as included compensable excavation for the purpose of calculating whether bid quantities were reached. *See also* SCR 129 at 4 (Region's Response to Miller Construction's July Request for Equitable Adjustment stating that "quantities estimated" included "270,000 cubic yards" of excavation). The record contains evidence that Miller Construction was able to factor borrow into its bid and that the Region knew this and considered it in determining how to compensate Miller Construction in Change Order No. 2. *See, e.g.,* SCR 28, 29. In spite of this knowledge, however, the Region has not treated borrow as part of the design estimate, which contributes to the inevitability that the contract would need to be amended. It also did not factor borrow into its October Response, which, if it had done so, might have alerted it that something was amiss.

602 Foster testimony; SCR 164 at 2.

603 SCR 00 at 46.

also built into the estimates for clearing and clearing and grubbing. In addition, Miller Construction was advised that it was not required to measure quantities. These issues inform us with regard to how the risk was assigned by the contract.

2. Which party was assigned the duty under the contract to determine whether the estimated quantities were in error?

Miller Construction argues that all responsibility for measurement lay with the Region, and that the Region's inspectors should have been measuring quantities from the start. Miller Construction bases this argument on the Alaska Construction Manual, which does place responsibility for documenting measurements on the inspector or engineer.[604]

The manual, however, is inapposite because the cited section of the manual applies to administering a unit-price contract where the unit is quantity of earthwork, the contractor has the initial duty to measure the quantity, and the Region has the duty to document the accuracy of the measure. Here, the unit of work under the contract is the lane station, so the manual's assignment of duty would go only to the documenting the percent of the lane station that was complete, not quantity of earthwork.[605]

Under this contract, neither party was assigned the duty to measure quantities. Therefore, the duty to keep track of quantities so that the parties would know when the estimated plan quantities had been reached, and know that an amendment was needed, was a shared duty. Both parties signed the contract. Both knew of its provisions and what they meant. Both knew that if it failed to keep track of quantities, it would have to bear the consequences.

For Miller Construction, if it failed to keep track of quantities, it had to accept the progress payments being made by the Region being based on lane station (or, if the Region had measured quantities (and Miller Construction did not), accept the Region's measurement).

For the Region, if it failed to keep track of quantities, then it had to accept any reasonable measurement of quantities made by Miller Construction.

With this understanding of how the contract assigned the risks and duties relating to measurement, we can address the parties' arguments regarding the effect of the Region's denial of the July Request.

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604 *See* MCC 8392 at 10-4.

605 Miller Construction's point that the Region would have been well-advised to follow the manual and keep track of quantities is well taken, but, then, the same would be true for it. Here, both parties seemed to assume that Miller Construction could beat the estimate so that final quantity would never be an issue.

3. Is Miller Construction correct that the Region was in breach for a design error based on the underestimated quantities?

Although the initial errors in underestimating quantities were the Region's, this decision does not accept Miller Construction's argument that the errors in estimating quantities were a design error, allocable to the Region at the beginning of the contract. As explained above, Miller Construction signed the contract as is, and it could have made its own estimate to check the Region's estimates (which are only estimates, not guarantees of accuracy) for error. As the discussion at the prehearing conference shows, both parties were very attuned to the possibility that the design quantities could be in error.[606] Given that the duty to measure was a shared duty, no breach occurred until the Region wrongly refused to amend the contract when it had reasonable evidence that plan quantities had been reached.

As for Miller Construction's argument that the inadvertent omissions of tasks (clearing and grubbing above the rock slopes) from the calculations of the estimates meant that those tasks were eliminated from the contract, that argument has no support. An estimate is nothing more than an estimate. It is not an amendment to the scope of work, and does not override the clear instructions in the plans. If Miller Construction was confused by the basis of the estimate, it could have asked the Region at any stage for clarification, including before the bids were submitted. Thus, the responsibility for planning and performing clearing and grubbing above the rock cuts was a duty assigned to Miller Construction without regard to the basis of the estimate. It cannot escape liability for failing to perform this duty unless it had reached plan quantities, informed the Region that plan quantities were reached, and the Region refused to amend the contract to pay for additional quantities. (As explained elsewhere in this decision, although that occurred with excavation and embankment, it did not occur with clearing and grubbing.)

4. Is the Region correct that its decision to terminate should be upheld if it acted reasonably in denying the July Request?

Even accepting that the October Response rejecting Miller Construction's July Request for Equitable Adjustment was in error, the Region does not see that error as fatal. To the Region, the contract clearly gives it discretion to terminate a contract when it has a reasonable basis to conclude that the contractor is not performing. Thus, in its view, the only question is whether it had a reasonable basis to limit the progress payments, deny the July Request, and not grant

606 SCR 18.

additional time. Given that Mr. Foster's August/September survey was an authoritative approach to measurement, even if it was in error, the Region asserts that relying on that measurement was reasonable. Based on the contract's requirement that a contractor file a claim for a dispute over measurements, it follows, to the Region, that all of its decisions, including the limited progress payments, the denial of the July Request, and the termination, were reasonable. It bolsters this argument by showing that its conduct indicated its willingness to amend the contract when it had evidence that the plan quantities had been reached.

As explained below, however, in this case, it does not work that way. This contract assigned the risk of measurement disputes going awry to the Region, not the contractor.

a. Does the requirement that a contractor must file a claim and prove costs when it disagrees with the Region's denial of a Request for Equitable Adjustment apply here?

A difficult issue in this case is the Region's argument that, even if its October Response was in error, the error merely gives rise to a right for Miller Construction to file a claim. In the Region's view, the issue here is simply a disagreement regarding a measurement. Mistakes happen all the time, which is why we have the claims process. Thus, to the Region, Miller Construction was obligated to continue work, substantially complete the job on time, and file a claim.

In many cases, the Region would be correct. A simple dispute about quantities would be a matter for which the contractor would be required to file a claim. The problem for the Region, however, as already discussed, is the issue foreshadowed by Mr. Landeis. Here, if the Region failed to keep track of quantities, then it had to accept any reasonable measurement of quantities made by Miller Construction. The Region's duty to amend the contract once it had notice of the quantity overrun was absolute, and could not be avoided by a reasonable, but erroneous, alternative method of measurement.

The reason the duty to accurately measure quantities after plan quantity was reached is assigned 100 percent to the Region (instead of being another shared duty) is that the Region took the risk that quantities were underestimated.[607] Not only did it prepare the estimates, it told the

[607] The point here is that the duty to measure did not arise until plan quantities were reached. Once plan quantities were reached, the duty to measure fell to the Region in that the Region would either have to do the measurement itself or pay Miller Construction to do the measuring. Here, the email conversation between Mr. Landeis and Mr. Winters at the time of project onset shows that the Region was aware of the risk of quantity overrun

bidders they could rely on the estimates.[608] If the bid documents had shared this risk, or assigned this risk to the contractor, bidders would have increased their bids by adding a contingency to allow for a possible quantity overrun.[609] By taking 100 percent of the quantity overrun risk, the Region received lower bids—precisely what the Region wanted. It now must bear the consequences of this bargain.[610]

The assignment of risk to the Region makes this contract very different from the standard contract. To use the differing site condition claim as an example, the standard specifications recognize the risk that a differing site condition might occur. A differing site condition is a latent or unknown physical condition that differs materially from the conditions described in the contract or normally encountered.[611] If the contactor alleges a differing site condition, the owner will make a reasonable attempt to verify that the situation is a differing site condition and resolve it to the mutual satisfaction of the parties. If the owner is unable to reasonably verify the condition, however, the risk is on the contractor to keep detailed records of its costs related to the differing site condition, and prove its claim to the contracting officer.[612]

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and aware of its duty to accurately measure quantities once plan quantities were reached. SCR 17 at 1-2. Yet, if plan quantity was never reached, the Region's failure to measure would not be a breach of contract. Thus, although it may be splitting hairs, this decision does not find that the Region's failure to measure before plan quantity was reached was a breach. Its failure to be accurate regarding whether the plan quantities were reached, was, however, a breach.

608 SCR 17 at 4-5.

609 *Cf., e.g., Short Bros., PLC v. United States*, 65 Fed. Cl. 695, 776 (2005) ("plaintiff was aware that it was taking risks—as well as the nature of the risks—when it entered into a fixed-price contract that allocated to the contractor the risk that it could incur substantial loss."); *Agility Def. & Gov't Servs., Inc. v. United States*, 115 Fed. Cl. 247, 249 (2014) ("in a fixed-price contract, the contractor bears the risk that its actual cost of performance might exceed the contract price"); *see also* Moore testimony; Mason testimony.

610 A "basic tenet" of contract law is "that competent parties are free to make contracts and that they should be bound by their agreements." *Inman v. Clyde Hall Drilling Co.*, 369 P.2d 498, 500 (Alaska 1962). *Inman* further advised that "the court should maintain and enforce contracts, rather than enable parties to escape from the obligations they have chosen to incur." *Id. See also North Pacific Erectors, Inc., v. State, Dep't of Admin.*, 337 P.3d 495, 507 (2013) (holding that contractor "is bound by the express provisions of the contract"); *Chilkoot Lumber Co., Inc. v. Rainbow Glacier Seafoods, Inc.*, 252 P.3d 1011, 1014-1016 (Alaska 2011) (holding that settlement agreement was contract and "Chilkoot was entitled to the benefit of its bargain" under the contract); 17A Am Jur 2d Contracts §334 ("Parties may make their own bargains, and they should be held to the terms of their agreement.").

611 SCR 330 at 22 (§104-103). The contract defines "equitable adjustment," however, as "[a]n increase or decrease in Contract price or time calculated according to the terms of this Contract." *Id.* at 4 (§101-1.03). The engineer may order additions to the quantity of materials that had been ordered in the original contract. *Id.* at 21 (§104-1.02). When the engineer orders additions to quantities, and the order "is materially different in character or unit cost from that specified in the Contract, a new Contract item will be established, and an equitable adjustment to Contract price and Contract time shall be calculated." *Id.* Here, because Miller Construction could have stopped work once it reached plan quantities, an amendment of the contract was needed to keep the job going. Miller Construction was not subject to the usual requirement that it keep working and file a claim.

612 SCR 330 at 22 (§104-1.03).

Here, however, the issue is not a differing site condition. The excess quantities were precisely the same excavation and embankment as expected under the contract. The only difference is the quantity, which was an expected, not latent, difference. Because the contractor did not have any duty to measure quantities, the risk of an inaccurate measure fell entirely on the Region. Therefore, it had no discretion to make errors and deny a request for equitable adjustment based on a reasonable, but erroneous, calculation of quantities.

In sum, the risk that quantity overruns would occur, and the risk that the measurement of quantities would be problematic, are risks that are assigned by the contract wholly to the Region. Once the Region had notice that Miller Construction reached estimated quantities, the Region was obligated under section 104-1.02 to amend the contract and give an equitable adjustment or shut down the job.[613] Put another way, Miller Construction was under contract to do 513,700 cubic yards of earthwork. When that work was done, it was not obligated to do additional earthwork. If the Region refused to amend the contract to compensate Miller Construction for additional work, then Miller Construction could declare the Region in breach, and walk away from the project.

b. Has the Region demonstrated by its conduct that it was acting reasonably to amend the contract and pay for excess quantities?

The Region argues that it acted reasonably on two occasions to amend the contract with regard to additional clearing and grubbing, and provide for payment on a per-acre basis, rather than by the lane station. First, in Change Order No.2, issued in February 2017, the Region provided for payment by the acre "for costs associated with additional clearing needs which include but are not limited to new alignments and waste areas outside the original contract as identified by the Engineer." Second, in November 2017, the Region issued Directive 31, stating that payment would be made for required clearing work that "exceeds the design quantities identified in the Basis of Estimate on Plan Sheet C1."[614]

In the Region's view, these agreements to pay show that it was not in breach or repudiating the contract to build a road when it turned down the July Request for Equitable Adjustment.[615] It asserts that it has shown by its conduct that it was always willing to pay for

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613 Because no form of measurement was required, the fact that Miller Construction's measures of excavation and embankment in the July Request were imperfect does not make the notice inadequate.

614 SCR 164 at 2.

615 SCR 00 at 45 n.32 ("The demonstrates DOTPF's recognition, during the course of the Project, that MCC could be eligible for equitable adjustment to the Contract price in the event quantities needed for performance of the work exceeded quantities represented in the Contract documents.").

extra quantities—the problem was that Miller Construction never proved it was eligible for extra quantities of excavation and embankment. From that premise, it concludes that the only question on review is whether it acted reasonably in denying the July Request, and, by extension, reasonably in terminating Miller Construction.

The Region's argument that its conduct shows that it was willing to amend the contract, however, does not mean that it can change this dispute into a simple matter resolvable by ordering the contractor to "file a claim." The quantity issue in both Change Order No. 2 and Directive No. 31 was limited to clearing. Only Directive 31 (which was issued after the October denial of the Request for Equitable Adjustment) addressed the issue of quantities that exceeded plan estimates. A directive is not an amendment to the contract—it is a unilateral communication from the Region to the contractor regarding a single matter.[616] It did not commit the Region to a process for making payments on the basis of quantity once design quantity was reached or establish a contractual mechanism regarding how quantities were to be measured.

As stated above, this is not a simple quantity dispute because the contract that governed the parties' relationship did not provide for payment by quantity. The change from payment by lane station to payment by quantity is a change that is materially different in character and unit cost from the original contract. Under section 104-1.02(1)(b) of the standard specifications, this change requires that a new contract item be established, which required a change order, not a directive.[617] Even accepting that an amendment of this sort could be implied by conduct of the parties, here, neither Change Order No. 2 nor Directive No. 31 commit the Region to a systematic approach to payment based on quantity.[618] Therefore, the Region's conduct here does not transform its duty to accurately measure quantities and amend the contract into a duty to merely act reasonably.

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616 SCR 330 at 4 (§101-1.03 defining "directive" to mean "[a] written communication to the Contractor from the Engineer enforcing or interpreting a Contract requirement or ordering commencement or suspension of an item of work already established in the Contract.").

617 *Id.* at 21.

618 As for the issue of calculating the grubbing acreage on the horizontal plane instead of the actual diagonal plane, the Region did not agree to this equitable adjustment until it issued the COD. This is not entirely the Region's fault, because Miller Construction did not bring that issue to the Region's attention until December 18, 2017. SCR 174.

5. In the alternative, did the Region abuse its discretion by failing to grant the July Request for Equitable Adjustment?

In addition to rejecting the Region's argument that it had discretion to deny the July Request for Equitable Adjustment as long as it had a reasonable basis for doing so, this decision must briefly address Miller Construction's alternative argument that, even if the Region had discretion to err, in this case, the Region's failure to grant the July Request for Equitable Adjustment was an abuse of discretion. As the cases acknowledge, the Region has considerable discretion, but it cannot use that discretion to ignore some facts while focusing on others. "The contracting officer has discretion, but it is not unbridled and it must be exercised in a fair and reasonable manner, never arbitrary and capricious, and always in the best interest of the government."[619]

Given the obvious flaws in the contract, the Region's knowledge that quantities would almost certainly exceed design estimates, the Region's errors in the estimates, and the very large amount of money at issue in the July Request for Equitable Adjustment, this decision finds that even if the Region is correct that its action should be reviewed only for reasonableness, it abused its discretion and acted unreasonably when it denied the July Request. Faced with its failure to include borrow in the original estimate of excavation quantity, and the strength of the truck count and blast record evidence presented in the July Request, the Region should not have outright denied the request for an amendment to the contract that would provide compensation for additional earthwork. Further, because this decision accepts the Kemp report showing that the October Response was clearly in error (easily confirmed, as Mr. Kemp demonstrated, by recalculating the quantity using a different methodology), the Region had no reasonable basis to deny the July Request and require Miller Construction to file a claim.

Although the Region did not have a reasonable basis to *deny* the July Request for Equitable Adjustment, it would have had a reasonable basis to request additional information

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619 *Mega Const.*, 29 Fed. Cl. at 414. The Alaska Supreme Court has advised that "[w]e review discretionary actions that do not require formal procedures under the arbitrary and capricious or abuse of discretion standard." *Olson v. State, Dep't of Nat. Res.*, 799 P.2d 289, 293 (Alaska 1990). This standard of review requires deference to the agency. "The deferential abuse of discretion standard of review is proper in appeals of discretionary acts not requiring formal procedures because it allows agencies latitude to act that is commensurate with their discretion." *Id.* It has also made clear that when a decision is "within the agency's discretion," the decision is "subject, on judicial review, to an ascertainment that there was a reasonable basis for the agency's action." *Chris Berg, Inc. v. State, Dep't of Transp. & Pub. Facilities*, 680 P.2d 93, 94 (Alaska 1984).

before *granting* the request. The July Request did not compel a conclusion that plan quantities were reached. It documents 233,000 cubic yards of completed excavation based on Miller Construction haul records (an imperfect record of quantity). It estimates 50,000 additional cubic yards of completed excavation by P&T Construction, for which it had no records at that time.[620] This estimate is vague, and the Region reasonably could have asked for additional documentation. On the other hand, although not compelling, Miller Construction's evidence would have been sufficient for the Region to act upon. Thus, the Region had many choices. It could have used the information in the July Request to amend the contract, or requested additional documentation, or done both. Instead, the Region undertook its own measure of quantities—which was fine, but because the duty to determine whether plan quantity had been reached was shared, and the duty to accurately measure quantity (or accept a reasonable calculation of quantity) was a duty that contract assigned to the Region, the Region was on the hook for any damage caused by its delay or error after it received the July Request.

E. What are the legal consequences of the Region's breach?

To take stock of where we are now, Miller Construction has proved that the Region's denial of the July Request for Equitable Adjustment, underpayments of progress payments, and failure to grant additional time, were breaches of contract. In addition, because the contract assigned the risk of quantity overruns solely to the Region, the Region cannot argue that it acted reasonably in making its decisions. It cannot justify the termination based solely on a reasonableness inquiry.

To Miller Construction, these findings are case closed because, in its view, these findings necessarily mean that the Region abused its discretion when it terminated the contract. As the United States Court of Federal Claims explained, "[a] decision to terminate for default that is based upon 'materially erroneous information as to the labor and time required to complete the work, cannot be said to be a reasonable exercise of discretion.'"[621] Furthermore, with regard to wrongfully withheld payments, the court has explained that "if the Government unjustifiably fails

620 SCR 97.

621 *CJP Contractors, Inc. v. U.S.*, 45 Fed. Cl. 343, 371 (1999) (quoting *L&H Constr. Co.*, ASBCA No. 43833 (1997))).

to pay amounts indisputably due and owing under the contract, the contractor may declare the Government to be in breach of contract and stop its performance."[622]

We cannot, however, proceed to this conclusion so quickly. We must remember where we left the road on December 30, 2017—not only was it unfinished, it still had deleterious material in the embankment, stations where there was insufficient embankment over the debris mat, rock slopes that were vertical or forward-leaning, and no clearing and grubbing on the tops of the rock slopes. Further, suppliers and subcontractors on the project had not been paid. Thus, the possibility remains that Miller Construction could be in default notwithstanding the Region's breach.

Under contract law, the non-breaching party has the burden to show that the breach caused the damage.[623] The burden is no different in cases where a contractor is arguing that the default conditions were excusable. "A contractor can demonstrate that default was excusable 'by showing that improper government actions were the primary or controlling *cause* of the default.'"[624] It is not sufficient for a contractor to show improper government actions. The contractor must show that the improper actions caused the contractor to default.

The burden on Miller Construction is not, however, the burden that the Region has posited—the burden of showing that the Region's actions were unreasonable. Indeed, the issue of "reasonableness" cuts the other way. What Miller Construction must show is that there is a "reasonable likelihood" that it "could perform the entire contract within the time remaining for contract performance" if the Region's error were rectified.[625] The "reasonable likelihood" standard is not exacting and does not require proof that the contractor was on-time or on-budget.[626]

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622 *DWS,* ASBCA No. 33245; *see also National Eastern Corp. v. United States*, 477 F.2d 1347, 1356 (Ct. Cl. 1973) ("financial incapacity can be excusable when it was precipitated by causes beyond the control and without the fault or negligence of the contractor. This is *a fortiori* true when the precipitating causes are acts or omissions of the Government.").

623 *See, e.g., Arctic Contractors,* 564 P.2d at 564 P.2d at 45 (remanding case for more evidence on contractor's argument "that its inability to perform according to the terms of the contract in 1964 was in fact the result of the State's breach in 1962.").

624 *Martin Const.,* 102 Fed. Cl. at 573 (quoting *Keefer Trading Co. v. United States,* 79 Fed. Cl. 243, 253 (2007) (emphasis added)).

625 *Lisbon Contractors, Inc. v. United States,* 828 F.2d 759, 765 (Fed. Cir. 1987).

626 *See, e.g., Alutiiq Mfg. Contractors, LLC v. United States,* 143 Fed. Cl. 689, 697 (2019) ("the government cannot 'satisfy its burden by merely showing that the contractor was behind schedule.'" (quoting *McDonnell Douglas,* 323 F.3d at 1016)).

The Region disputes that the "reasonable likelihood" standard is applicable. The Region argues that it applies only where the contractor was terminated before the completion date. Here, because Miller Construction was terminated after the completion date, the Region wants to require Miller Construction to prove that it *would have* substantially completed the project on time but for the Region's action. For its part, Miller Construction disputes that it has any burden at this stage because once it has shown breach by the Region, it believes that the burden shifts back to the Region to show that termination was justified.

Neither party is correct. The Region's breach in not allowing for additional quantities and time takes us back to the initial question of whether there was any reasonable likelihood of a timely completion. This makes sense because *Lisbon Contractors, Inc.*, tells us that no justifiable termination can occur unless the contracting officer has a reasonable belief that there was no reasonable likelihood of timely completion.[627] Here, given the Region breached, and that Miller Construction should have given additional payment and time, the Region's only path to prevailing would be to show that even if additional payment and time had been provided, there was no reasonable likelihood of timely completion.[628]

As for Miller Construction's argument over who has the burden, Miller Construction could have declared that its obligations were discharged at the time of the Region's breach. It chose instead to continue to work and pursue the claim process, which resulted in default. The claims process puts the burden on the contractor to show that it has a valid claim for additional time or damages.[629]

In sum, the question here is whether there is a reasonable likelihood that Miller Construction could have completed the road by May 21, 2018, if the Region had granted the July Request for Equitable Judgment, paid the proper progress payments, and allowed the additional time due to install additional embankment. We turn next, then to an evaluation of the evidence

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627 *Lisbon Contractors*, 828 F.2d at 765

628 *Cf., e.g., McDonnell-Douglas*, 323 F.3d at 1018 ("on remand, once the Court of Federal Claims determines the performance required by the contract and the contract completion date, it can then decide, in light of the information upon which the contracting officer relied in deciding to terminate for default, whether the government has met its burden of proving that the contracting officer had a reasonable belief that there was no reasonable likelihood that the contractor could perform the entire contract effort within the time remaining for performance."); *Martin*, 102 Fed. Cl. at 578 (holding that once contractor proved excusable delay because it had complied with faulty design, "the burden shifts to the Government to show that the result was due to another cause").

629 SCR 330 at 34-35 (§105-1.17); *cf. also, e.g., Barron Bancshares, Inc. v. United States*, 366 F.3d 1360, 1381-83 (Fed. Cir. 2004) (discussing effect of prior material breach of contract that was not pursued on subsequent claim).

that supports or weakens the reasonable likelihood that Miller Construction could have completed the job by May 21, 2018.

1. What evidence supports a conclusion that Miller Construction would not have completed the road by May 21st?

The evidence goes both ways on the issue of whether Miller Construction would have substantially completed a conforming road if the Region had granted the July Request for Equitable Adjustment. With regard to the evidence that tends to support a conclusion that Miller Construction would not have substantially completed the road by May 21st, first, Miller Construction's expert witness testified that Miller Construction required at least 304 calendars days after December 30, 2017, to finish the road. If accurate, this means the job would not have been finished until October 6, 2018.[630] Even acknowledging that this schedule was not prepared for the purpose of determining the likelihood that Miller Construction could finish this job by May 21, 2018, and that it does not consider the additional progress Miller Construction would have made with larger progress payments, this schedule is concerning. It tends to make timely completion less likely.

Second, Miller Construction's own evidence also tends to provide some support for a conclusion that Miller Construction underbid this project. Mr. Moore testified that if Miller Construction had been aware of all conditions it encountered, it would have bid millions more for the project—maybe twice as much as bid.[631] For the earthwork quantities, which were guaranteed, this decision agrees that the extra work means that Miller Construction should receive additional money. That error, however, accounts for only about $2 million of the extra $11 million that Mr. Moore thinks should have been included in the bid. Mr. Moore's premise is that all of the issues he identified were matters that should have been identified by the Region, for which Miller Construction should have, therefore, received additional money. Yet, as Mr. Moore acknowledged, Miller Construction ended up absorbing these apparently unanticipated costs.[632] Thus, the extra costs identified by Mr. Moore tend to support a conclusion that Miller Construction underbid the project. If the project was significantly underbid, Miller Construction

630 MCC 9-Ex. 1 at 4.

631 Moore testimony.

632 For the errors listed by Mr. Moore, see Moore testimony; MCC 24 at Exhibit 1. Although Mr. Moore assumes that the risk that the conditions he identified would occur is allocable to the Region, he may not be correct. This decision does not address the issue of who had the risk under the contract. The point is that Mr. Moore testified that Miller Construction apparently absorbed significant unanticipated costs, which is an indication that Miller Construction may have underbid the project.

might well have run out of money before it finished the project, even with the additional money generated by the additional quantity of earthwork. Although the evidence of a possible underbid is not conclusive, Mr. Moore's testimony tends to make the Region's case somewhat stronger.

Third, the record contains some evidence that Miller Construction may have been undercapitalized. For example, the record documents an IRS levy, shortages of payments to unions, and various loan agreements.[633] Miller Construction disputes that this evidence is significant—in its view, all companies have debts of this nature.[634] Without getting into detail, however, this evidence is some support for the undercapitalization argument. Most telling on this issue, however, is an exhibit that shows that the surety had to settle over $1.4 million in unpaid claims against Miller Construction after the termination.[635] This is evidence that the extra money that Miller Construction would have received in the form of increased progress payments in the fall of 2017 may not have been fully available to use to further construction—some of the money may have been needed to pay overdue debts. Of course, this is not conclusive evidence that the progress payments would not have been used for additional work—for one thing, once Miller Construction paid its debts it could likely leverage additional money, especially if the July Request had been granted. Nevertheless, some evidence suggests that Miller Construction was somewhat undercapitalized, which contributes to doubt about whether it could have completed the road by July 2018.

Fourth, the general evidence in this record confirms the Region's view that Miller Construction was not a particularly efficient contractor and was experiencing significant equipment breakdowns as the job progressed. In particular, Directive 17 identifies substantial work remaining to be done.[636] This work would take time and resources to address issues that Miller Construction has been struggling with. This also increases the doubt regarding its ability to complete a road.

Fifth, and most import, is the Region's evidence regarding what the replacement contractor found, and what the replacement contractor was unable to do. The replacement contractor found deleterious material and oversize rock under insufficient embankment. But for the activity of the replacement contractor, at least some of this material likely would have been

633 *See generally*, SCR 238-48 (exhibits to deposition of Beaton); *see also* Winters testimony.
634 Beaton testimony.
635 SCR 220.
636 SCR 119.

under insufficient embankment whenever Miller Construction completed the job. Because this decision can rely on later-discovered evidence, this evidence can justify the default, even if it would have been unknown at the time of termination. In addition, Mr. Foster testified that some tasks were so expensive to perform after Miller Construction had mismanaged the project that the tasks never were completed by the replacement contractor.[637] Foremost among these tasks is the failure to grub on the top of the rock slopes. Mr. Foster testified that the proper time to do the grubbing had passed because once the rock slope was shot in the steep slope areas, there was no reasonable way to get the excavator to the top of the slope to grub. If this task was not reasonably doable for the replacement contractor, then it might not be reasonably doable for Miller Construction. If so, Miller Construction could not have completed the job by May 21st, even with the extra money from the increased progress payments. A similar concern exists for Miller Construction's failure to properly shape the rock slopes. To properly lay the slope back, the rock should have been shot from above in lifts. Now, however, this cannot be done.[638] This evidence supports the Region's view that Miller Construction could not have completed the road on time and would be in default without regard to its breach.

Taking a big picture look at the evidence, the Region has, indeed, raised doubt about whether Miller Construction could have completed a compliant road, even if the Region had granted the July Request for Equitable Adjustment. Doubt, however, is not the standard. As described above, all that Miller Construction must show is a reasonable likelihood that it could have completed a compliant road on time.

2. What evidence supports a conclusion that there was reasonable likelihood that Miller Construction could have substantially completed the road on time if the Region had granted the July Request?

Thus, we must address the Region's arguments under the reasonable-likelihood standard. With regard to the lack of grubbing above the rock slopes, Miller Construction did not testify about this issue at the hearing. Further, Miller Construction did not describe a plan for how it would address the access problem described by Mr. Foster.

637 Foster testimony.
638 *Id.*

The record does contain, however, an exhibit that addresses this point. This is an exhibit that sets out a version of Miller Construction's revised schedule for September 2017.[639] This exhibit is dated November 13, 2017, and indicates that it was based on data as of September 30, 2017.[640]

The importance of this version of the schedule is that it directly addresses the issues of the time needed to accomplish the additional work required because of the additional embankment, clearing, and grubbing over plan quantities.[641] The date of the exhibit is significant, because it shows the estimated time required after the July Request for Equitable Adjustment, but before the request was denied. Thus, it shows that Miller Construction had considered the time needed for these tasks at a time when it still expected to be given money and time for additional quantities.

The schedule identifies nine different entries under the heading "Additional Work/Modifications."[642] The first of these is "Additional Rock Ex-BOP to EOP (~100,000 CY)."[643] The schedule shows the original duration for this task as 120 days, the remaining duration as 46 days, and the projected finish date as November 28, 2017.[644]

The schedule has five different entries for "Extra Clearing Over Planned Quantity," with each entry corresponding to the number of stations that would take 10 days to complete the clearing.[645] It has one entry for "Additional Grubbing Due to Additional Rock Ex (~4 Acres)."[646] The schedule allots six days for this task.[647] The schedule provides that the clearing and grubbing would occur after the embankment was completed. The final day for the last set of stations to be cleared was predicted to be December 30th.

Notably, the exhibit contains a section for "Project Manager's Comments." In this section, the project manager explained that the entries in this section of the schedule are to address the issues identified in Directive No. 17:

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639 MCC 7354 at Exhibit 28 at "September 2017." There are also exhibits that update the schedule for August and September found at Exhibit 28 at "August 2017 CPM Update" and "September 30 2016 Schedule." I was unable to determine, however, whether these two schedules incorporated the extra work described in the exhibit "September 2017."

640 *Id.*

641 *Id.*

642 MCC 7354 at Exhibit 28 at "September 2017" at "Shelter Cove Network Diagram" at 1.

643 *Id.*

644 *Id.*

645 *Id.*

646 *Id.* at "Shelter Cove Network Diagram" at 1.

647 *Id.*

> Project Manager's Comments:
>
> The removal of debris in the toe of the slopes, raised in Directive 17 is included in the time detailed in CON 5040 – CON 5080
>
> CON 5010 corresponds to the grubbing (overburden on rock faces) raised in Directive 17
>
> The overrun in clearing includes any clearing raised in Directive 17
>
> Rock face cleanup work raised in Directive 17 is included in the overrun rock excavation activity CON 5000[648]

Because we do not know the provenance of this schedule, or whether it was presented to the Region, this exhibit has no value as an evidentiary matter if we are looking for evidence of a reliable schedule. Here, however, we are not looking for something authoritative on when the tasks would be done. Here, we are looking for evidence that Miller Construction has given thought to how it would do the tasks identified in the July Request and Directive 17 (in particular, the grubbing above the slopes and the reshaping of the slopes), and how long they would take. This exhibit provides that evidence.

First, the schedule shows thought being given by Miller Construction to addressing the issues in Directive 17. The schedule shows that Miller Construction considered all of these issues doable. This is consistent with its view that Directive 17 described a "punch-list" of end-of-job tasks necessary to bring the project to substantial completion.

Second, the schedule shows the clearing and grubbing occurring *after* the embankment was final. Again, that is consistent with Miller Construction's approach to this project—it was leaving the final clearing and grubbing until after the alignment had been finalized. This makes sense from at least one standpoint, because the clearing limits would not be known until the alignment is final. Although this decision is critical of Miller Construction's delay in finalizing the alignment, the point here is not whether this is the best plan. The point is that Miller Construction had a plan for doing these tasks—they were not simply matters that it was ignoring and planning to leave undone at the end of the job.[649]

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[648] *Id.* at "Shelter Cove Improvements Narrative Report 170930 Update" at 2.

[649] As explained earlier, this decision would not award extra time for the clearing and grubbing because it could occur concurrently with the embankment. Miller Construction's decision to wait to finalize the alignment until after embankment may be within its methods and means discretion, but it does not mean that Miller Construction is entitled to additional time. That issue, however, is an entirely different issue than what is being discussed here. Here, we just want to know whether the work could have been done. That Miller Construction had a plan goes a long way to answering that question, even if we are critical of its choice of sequencing.

Third, as stated above, the most worrisome issues here are the grubbing on the top of the rock slopes, and the reshaping of the rock faces that were vertical or overhanging—the issues that Mr. Foster considered near insurmountable without considerable expense, and the issues that he credits for the extremely high bid on the Surety's first invitations to bid on a replacement contract. This evidence shows, however, that Toby Miller, the project manager, did not consider these issues to be an insurmountable problem.

If the question here were whether Miller Construction *would* have completed the road by May 21, 2018, if not for the Region's wrongful denial of the July Request for Equitable Adjustment, answering that question would be difficult. But, as made clear above, the question is only whether there was a reasonable likelihood that Miller Construction could have completed the road.

Taking into account all of the evidence in the record, that question is answerable. As the pictorial evidence of the progress on this project shows, although Toby Miller's managerial skills do not prioritize efficiency, he is a resourceful and skilled builder. He testified that his approach to construction work is that "construction work is problem solving."[650] This approach to the job clearly would be needed here, but his testimony supports a conclusion that, in reasonable likelihood, the problems could be solved. For solving some of the problems that remained, Mr. Miller had reliable assistance, such as Mr. Shull, a highly-skilled excavator operator who could assist in finding a safe way to complete the grubbing on the top of the rock slopes.[651] For reshaping the rock slopes, to the extent that it would require blasting, Miller Construction would have struggled. Nevertheless, with the additional money, and additional time that would have been provided with the granting of the July Request, the evidence supports a conclusion that a timely completion, including reshaping of slopes and grubbing on top of slopes, was reasonably likely.

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650 Toby Miller testimony. Mr. Miller also testified that "We had a good road. Could've finished that thing pretty fast." *Id.* For a contrasting view, see testimony of Williams (describing road as goat trail that wandered between piles of rocks and nothing but six inches of finish material over mud and trees). Although Mr. Miller's optimism overstates the speed with which the road could have been completed, it supports a reasonable likelihood of timely completion by May 21st if the Region had granted the July Request.

651 With regard to whether access to the tops of slopes could be obtained, Mr. Williams did testify that K&E was able to pioneer up to the top of some slopes to do some clearing and grubbing. Williams testimony. This testimony is confusing because Mr. Foster testified that none of the undone grubbing on the top of slopes had been completed. Regardless of how much grubbing was completed, however, Mr. Williams' testimony does add support to the inference drawn from MCC 7354 at Exhibit 28 at "September 2017" that the grubbing on the top of the slopes was doable.

With regard to the discovery of the buried organic debris that was not covered by at least four feet of embankment, whether that defect in the road would have remained after Miller Construction (hypothetically) completed the road on May 21, 2018, is a difficult hypothetical question to address. As discussed earlier, some of the insufficiency alleged by the Region may have been the result of the replacement contractor digging too deeply or into ungrubbed areas outside Miller Construction's alignment. Some might be addressed in our hypothetical inquiry when Miller Construction (hypothetically) added additional embankment. Notably, Mr. Foster testified that at the time of termination, he knew there were soft spots in the road due to faulty embankment being capped with Type B material.[652] We can assume, then, that if Miller Construction had not been terminated, Mr. Foster would have required Miller Construction to remedy that defect before agreeing that the road was substantially complete. Further, given that the total cost to K&E to remediate the problem soft spots was $154,021, the effort to address the problem would have been easily within the capability of Miller Construction, particularly when given additional money and time. Finally, for any remaining debris with insufficient embankment after the date of substantial completion, if the Region discovered soft spots within one year, it could require Miller Construction to come back and repair them.[653] If it did not discover soft spots, then, perhaps, the embankment over the debris mat was, as Mr. Moore testified, sufficient, even if not four-feet deep. In sum, this issue, although troubling, is not a reason to terminate for default.

For the issues of whether Miller Construction was undercapitalized or underbid this job, the problem for the Region is that even with some undercapitalization and some degree of underbidding, the evidence does not support a conclusion that Miller Construction could not have finished the job. Indeed, the evidence shows that although Miller Construction was significantly underpaid by the Region, it made considerable progress on the project. Even if Miller Construction were to have eventually lost money on this bid, the evidence supports a conclusion that it would have found a way to substantially complete the project. Thus, these issues do not support a conclusion that there would have been no reasonable likelihood of a timely completion.

As for the testimony of Ms. Forrester relating to the time it would take Miller Construction to complete the additional quantities of work, for the most part, I have rejected that

652 Foster testimony.
653 Toby Miller testimony.

testimony as unreliable. Therefore, her testimony that Miller Construction needed until October 6, 2018, is not proof that Miller Construction could not have finished the project by May 21st if the Region had granted the July Request.

Moreover, in determining whether a default termination was appropriate, we must consider whether Miller Construction would have completed the project "at least as soon as and probably much sooner than a successor contractor could have performed the unfinished work."[654] For the hypothetical road as it would have existed on May 21, 2018, even if the road was not finished, the Region would have been in a strong position to require Miller Construction to complete all remaining tasks at no or little cost to the Region. Delay would be costly to Miller Construction because liquidated damages could run. In contrast, as the evidence in this record demonstrates, hiring a replacement contractor is expensive and time-consuming. Inevitably it would take much longer, with the bidding process and mobilization requirements. This inquiry confirms that if the Region had granted the July Request, and established a reasonable schedule for completion, a termination for default would not have been justified, notwithstanding the fact that on December 30, 2017, the road contained defects not related to the Region's breach.

It follows that the Region's December 30th termination for default was not justified. The termination is converted to a termination for convenience.[655]

F. Has Miller Construction proven its damages for its extra work claims?

The analysis above shows that the Region breached its contract when it failed to grant Miller Construction's July Request for Equitable Adjustment. This discussion necessarily considered Miller Construction's claim that it had completed additional quantities of earthwork above the quantities estimated in the contract. That is the major issue in this case.

Miller Construction has raised several additional issues regarding extra work, including some amendments to its claim for extra work regarding the quantity of excavation and embankment. We will address those issues here.

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654 *Alutiiq,* 143 Fed. Cl. at 698 (quoting *Darwin Constr. Co. v. United States,* 811 F.2d 593, 599 (Fed. Cir. 1987).

655 SCR 330 at 63 (§108-1.08 "If, after notice of termination of the Contractor's right to proceed under this clause, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties will be determined under Subsection 108-1.09, Termination for Convenience."). *Cf., also, e.g., Alutiiq,* 143 Fed. Cl. at 699 (converting termination for default to termination for convenience because "the government did not possess adequate grounds to terminate the plaintiff for default").

1. The realignment at station 617

Miller Construction requested an additional $86,326.31 for survey and earthwork performed on the realignment at stations 606-617.[656] This realignment was to avoid an archeologically sensitive area and to address a fish stream.[657] The first IWA issued by the Region to address this matter, IWA D, stated that survey work for an asbuilt of the stream would be paid on a time and materials basis.[658] The second IWA, IWA F, stated that the realignment was a no-cost item.[659] Miller Construction's survey costs for this matter was $5,176.31. Miller Construction kept contemporaneous records and documented these costs.[660] The work was completed in May and billed on June 23rd.[661] Miller Construction filed its Notice of Intent to Claim for this work on August 22, 2017.[662]

The Region denied Miller Construction's request for compensation of $1,200 under IWA D because Miller Construction never completed the asbuilt survey.[663] That denial is reversed because but for the wrongful termination, Miller Construction would have completed an asbuilt survey. The downloading of information into the computer preparatory to the survey was a compensable cost under IWA D.

The Region denied Miller Construction's claim for $3,976.31 because IWA F was designated a no-cost change. The COD notes that Miller Construction did not file a timely notice of intent to claim or claim regarding the compensable survey work that should have been paid under IWA F. Miller Construction has not proved that the August 22nd Notice of Claim was a timely response to the Region's denial of the June billing. The denial is affirmed as untimely under section 105-1.17 of the standard specifications.[664]

As for Miller Construction's excavation and embankment costs related to this alignment change, these costs are not extra work. The earthwork is included within contract quantities. It

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656 MCC 7353 at claim at 2-3.
657 *Id.;* MCC 7353 at Exhibit B; SCR 00 at 93-94; SCR 184.
658 MCC 7353 at Exhibit B.
659 SCR 184.
660 MCC 7353 at Exhibit B.
661 *Id.*
662 SCR 183.
663 SCR 205 at 28.
664 SCR 330 at 34-35 (§105-1.17, requiring notice to Engineer as soon as contractor becomes aware of claim with intent to claim to follow 14 days after Engineer's denial and formal claim 90 days after contractor knows of need to claim); SCR 183 (Notice of Intent to Claim for IWA F and IWA G dated August 22, 2017). *See also State, Dep't of Trans. and Pub. Fac., v. Osborne Constr. Co.,* 462 P.3d 991, 999 (2020).

counts toward total earthwork, but is not compensable on a per-cubic-yard basis until plan quantities are exceeded.[665]

2. The realignment at stations 790-812

Miller Construction submitted a similar claim for survey and earthwork needed regarding the fish stream discovered at stations 790-812. IWA G, dated May 24, 2017, allowed for $1,000 in survey work on this matter. IWA K, dated June 28, 2017, only required adding new plan sheets that had been prepared by the Region, which was, obviously, a no-cost item.

These IWAs do not describe all the work required because of the changes at stations 790-812.[666] Extra work, if properly documented and billed, and then timely claimed, would be compensable. On the other hand, given that no additional fish pipe was ever installed, and that what the IWAs ordered was simply a change in alignment, the only work compensable as extra work would be work that had to be done a second time due to the Region's change in plans. Work on building a road to a new alignment is simply composite road construction. Miller Construction's exhibits document $5,068.65 in survey work that was duplicative of earlier work.[667] The work was ongoing into July. A bill was sent to the Region on August 8th, and denied on August 14th.[668] The August 22nd Notice of Intent to Claim was, therefore, timely. This claim is compensable.

As for the additional earthwork associated with this claim, like all earthwork, it is compensable as composite road construction until plan quantities are reached. The original earthwork and the additional compensable earthwork caused by the realignment are all includable in total earthwork on this project.

3. The additional earthwork quantities at Change Order No. 2.

Miller Construction also claims uncompensated quantities of earthwork done at Change Order No.2. Again, all compensable earthwork is includable in total quantities. Total estimated plan quantities must be adjusted to include any additional estimated quantities that are compensated in a change order.

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665 As discussed below, the parties will be required to perform an accounting before damages will be determined. That accounting must include a clear presentation of how the change orders affected plan quantities.

666 *Cf.* Hamilton testimony.

667 MCC 7353 at Exhibit F.

668 *Id.* at F.1.

4. The log bridge work

After deleting the fish pipes, the Region still needed a way for the road to cross the fish streams. Eventually, the Region resolved that it would accept the existing temporary bridges on three of the streams, and require and pay for a fourth temporary bridge.[669] Mr. Hamilton built the fourth bridge and submitted bills to Miller Construction for $67,868.34.[670] Miller Construction submitted a bill to the Region for $72,308.95, which included some markup and $739.41 for time that Miller Construction staff spent working on the bridge assignment.

The Region asserts that the bridge was not built to specifications.[671] It also asserts that Miller Construction was billing for work never done because the Miller Construction staff who billed on the project were never at the EOP end where the bridge was built.[672]

Mr. Hamilton testified that his firm conducted the work he billed for on the bridge.[673] Mr. Moore testified that he spent time on engineering regarding the original directives and change orders, and that Toby Miller spent time searching for suitable logs for the bridges.[674] No evidence has been presented that details how the bridge was deficient or that Miller Construction was informed of what it could do to cure the deficiency. Thus, the evidence supports a conclusion that the Region should have paid Miller Construction the full $72,308.95.

The Region asserts that it has paid $37,566.28 toward this item.[675] Miller Construction asserts that the Region paid only $17,026.70. The Region is allowed a set-off for the amount already paid. This decision accepts the Region's representation of how much it paid, subject to confirmation or refutation during the damages phase of this case (based on evidence already in the record).

5. The culvert swap-out

Miller Construction billed $16,749.69 for two days of work on installation of a culvert that the Region later scrapped and replaced with a different size pipe.[676] The Region has paid only

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669 Foster testimony; see MCC 7353 at claim at 6-7; SCR 00 at 48; 94-95; SCR 177; SCR 95. The Region apparently estimated that four log stringer bridges built to Forest Service specifications for a three-year bridge would cost $50,000. SCR 95.

670 MCC 7353 at Exhibit M, Exhibit N.

671 SCR 00 at 94-95; SCR 205 at 28-29.

672 SCR 00 at 94-95; SCR 205 at 28-29.

673 Hamilton testimony.

674 Moore testimony.

675 SCR 00 at 94-95; SCR 205 at 28-29.

676 MCC 7353 at claim at 8; *Id.* at Exhibit P.

$10,285.47 for this work, asserting that Miller Construction's bill included costs not related to the change in pipe diameter.[677]

Miller Construction backed its claim with hand-written time sheets describing the work performed.[678] Although my review of this evidence suggests that the Region might have a point, the Region has not presented any analysis or evidence to back its claim. Without more, under AS 36.90.200, the Region must pay the difference between what was billed and what was paid.

6. The log stringer bridge SWPPP work

The Region agreed that Miller Construction was due an additional $8,919.45 for extra work relating to the SWPPP for the log stringer bridges.[679] The Region requested a copy of the certified payroll before making the payment.[680] According to Mr. Foster's Payment History Report, Miller Construction never provided the certified payroll.[681]

No testimony on this dispute was received. If Miller Construction did not provide the certified payroll, then it cannot be paid for the $2,673.09 in payroll expenses it included in its billing for this extra work.[682] The remainder of the bill is, however, compensable.

7. Clearing and clearing and grubbing

The Region has paid for some additional clearing and clearing and grubbing based on the acknowledged error in the formula for calculating the acreage required. The COD agreed that Miller Construction was entitled to compensation for eight additional acres of clearing and grubbing, based on the error in the plans (which used the horizontal plane for calculating area to be cleared and grubbed, instead of the larger sloped plane).[683] The COD also agreed that the plan further underestimated the acreage required because it did not account for the additional clearing and grubbing above rock slopes.[684] According to the COD, however, the Region has already compensated Miller Construction for all of the additional clearing above the rock slopes. The COD takes the position that no additional compensation for grubbing is due, however, because no additional grubbing was performed above the rock slopes.[685]

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677 SCR 205 at 29.
678 MCC 7353 at Exhibit P.
679 SCR 205 at 26.
680 *Id.*
681 *Id.*
682 MCC 7353 at Exhibit Q.
683 SCR 00 at 92.
684 *Id.*
685 *Id.*

According to Mr. Foster's report, the area above the rock slopes that was not grubbed as required in the contract was seven acres.[686] Miller Construction has not come forward with any evidence to dispute the Region's claim that seven acres were not grubbed. Miller Construction is not entitled to damages for work that was not performed. Therefore, Miller Construction's total damages for unpaid grubbing acreage will be the total acreage required less seven acres.

As for computing the total acreage required to be grubbed under the contract, that is a difficult question. According to the Region, the plans underestimated grubbing by only 15 acres.[687] Mr. Kemp's report explained that this calculation was in error because it did not account for the area between the ditch line and the top of cut.[688] In some rock slope areas, where rock is exposed with no plant life, it might be appropriate to exclude the area between ditch line and top of cut because it would not need to be grubbed. Often, however, in Southeast Alaska, plants and trees will tenaciously grow even on steep rock slopes. Therefore, in most areas the space between the ditch line and the top of the slope should be included in grubbing.

Miller Construction, on the other hand, takes at least three different positions regarding the total required acreage for grubbing under the plans. The Kemp report calculates that 63.5 acres were to be grubbed.[689] Miller Construction's Differing Site Condition claim calculates that that 83.6 acres of grubbing were required.[690] Its Extra Work claim calculates that 72 acres were required.[691]

As stated above, Miller Construction is entitled to compensation for all work performed, but not for work that was not performed. For purposes of determining how much grubbing compensation is due, this decision will adopt the lowest total measurement of acres to be grubbed advocated by Miller Construction, 63.5.[692] Thirty-two acres were included in the bid, and seven

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686 SCR 227 at 16.
687 *Id.*
688 MCC 7274 at 14.
689 *Id.* at 13.
690 MCC 7352 at claim at 20.
691 MCC 7353 at 8.
692 The Kemp report implies that Miller Construction's calculation might have been deliberately erroneous because it relied on the underestimate of lineal footage of rock contained in the original contract estimates, which was known to be in error. MCC 7274 at 14. I can think of no logical reason for reporting a number known to be in error, so I am not sure that I am interpreting the Kemp report correctly. I will allow the parties an opportunity to address this issue during or before the damages phase of this case. Although I will correct a manifest error (which would include wrongful reliance by this decision on a calculation that was known to be erroneous), no relitigation of quantities will be permitted.

acres were not grubbed, leaving 24.5 to be compensated at $7,000 per acre (the $12,000 per acre in the original bid for clearing and grubbing, less the $5,000 per acre already paid for clearing).

With regard to acres actually cleared, in its Extra Work Claim, Miller Construction claims that it cleared 82 acres, but was compensated for only 21.93 acres above the plan estimate of 37 acres, leaving 23.07 acres to be compensated as damages.[693] In its Differing Site Condition Claim, which duplicates the quantities claim in the Extra Work Claim, Miller Construction does not claim separately for excess clearing—it claims only for clearing and grubbing as one item.[694] Because the Differing Site Condition Claim was updated, I assume that the claim for additional clearing no longer exists because it has been paid. Even if not fully paid, however, an additional problem with this claim is that it does not explain how actual clearing was measured or confirm that none of the clearing claimed was outside of the clearing limits for the final alignment. Here, Miller Construction has not documented its claim and no additional damages will be allowed.

G. Has Miller Construction proven its claim for damages regarding the credit for the fish stream bedding?

Turning now to Miller Construction's claim that was not addressed in any fashion by the analysis of the wrongful termination, on July 25, 2017, the Region issued Change Order No.4, formalizing the elimination of three of the seven fish pipes from the contract.[695] For the three deleted fish pipes, the Region took a credit of $51,429. This amount represents 1/7 of the cost for the streambed material that the Region determined was included in Miller Construction's schedule of values.[696]

Miller Construction disputes that credit. It argues that the bid here was for completed lane stations, not cubic yards of streambed material. In its view, the Region cannot take a credit unless it deleted a lane station from the contract. A deletion of an element that makes up a lane station does not result in a credit.[697]

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693 MCC 7353 at claim at 8.
694 MCC 7352 at claim at 20
695 MCC 7350 at Exhibit B.
696 The streambed material was rock of a certain type that was to be placed inside the pipe to simulate natural stream conditions. Terry Miller testimony; Trousil testimony.
697 MCC 7350 at claim.

Under section 109-1.04 of the standard specifications, payment for altered quantities of unit price items will be made at the contract price.[698] Here, however, there was no contract price for streambed material.

The Region cites to notes on an informal pad as evidence that Terry Miller had estimated a total of 4000 cubic yards at $30 per cubic yards for the streambed material.[699] It also cites to an informal agreement with Toby Miller that it would be entitled to a credit based on 1/7 of the total bid.[700] Neither Mr. Foster nor Mr. Fleming, however, testified to the particulars of that agreement or otherwise established that there was such an agreement.

The Region certainly could have negotiated a credit for eliminating the three fish pipes, or, indeed, required Miller Construction to agree to a credit as a condition for deleting the pipes. An agreement would be enforceable. Here, however, the Region has not proved that the agreement exists. In addition, under the contract, the Region is not entitled to an automatic credit under section 109-1.04 because the fish stream material was not a unit price item. Therefore, the credit must be denied, and Miller Construction's claim granted.

H. Can Miller Construction's damages for composite road construction be set without further guidance from the parties?

The parties agreed that damages for the wrongful termination claim would not be considered in this phase of this litigation. They anticipated that if the termination was found to be wrongful, there would be further proceedings. Although we have heard some evidence of Miller Construction's claim for business devastation, I will defer any decision on liability and damages based on business devastation to the damages phase of this proceeding.

To sum up what has been accomplished in this phase, the Region has been found liable for breach of contract, and wrongful termination. In addition, both parties have agreed that the issue of the balance owed for extra quantities of earthwork above contract quantity for bid item 207(1) will be paid at the prices relied on by Miller Construction in its bid. This is consistent with section 109-1.04 of the Standard Specifications, which provides that the unit price of item will continue to apply after plan estimates have been reached.[701] Although section 109-1.04 does not

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698 SCR 330 at 73 (§109-1.04). The parties can negotiate a new price per item when the variance reaches 25 percent from bid quantity. *Id.*

699 MCC 7350 at Exhibit E at 8. As Miller Construction points out, Terry Miller's estimate is not binding.

700 *Id.* at 5; SCR 205 at 10.

701 SCR 330 at 73. Nothing in this discussion affects the calculation of damages or choice of approaches to damages under a termination for convenience. *See id.* at 63-67 (§108-1.09); *cf. also, e.g., Quality Asphalt Paving,*

apply here because the contract was not a unit price contract, and Miller Construction did not actually include a unit price in its bid, both parties have adopted this position by their conduct, including their presentations of claims and defenses.[702]

The precise calculation of quantity of work, however, remains a problem even after four weeks of hearing and hours combing this record. With that in mind, I will summarize the holdings of this decision so that the parties can prepare a precise accounting of damages for quantities.

- Miller Construction is entitled to payment for all work actually performed under bid item 207(1) if that work conforms to the requirements of the contract. Work done outside the alignment proposed by Miller Construction is not compensable. Determination of compensable work shall be made by using the alignment depicted in exhibit MCC 8364.
- To be compensable, the computation of actual quantities of work done by Miller Construction must have been presented to the Region in a report in advance of the hearing. Thus, for example, although Mr. Moore testified at hearing that his expert report neglected to include quantities for embankment needed to connect to the forest service road at the EOP, and although this appears to be real work that should be compensable, for purposes of this decision, it is not.
- The burden of proof of quantities is on Miller Construction. The burden to show that plan quantities were reached is satisfied by any reasonable measure, including a survey supplemented by a reliable engineer's estimate for quantities not measured by the survey. The burden to measure additional compensable quantities for purposes of a claim, however, is governed by the claims and measurement provisions of the contract. After Miller Construction became aware that it had reached plan quantities, that burden is satisfied only by a *measurement* of

Inc. v. State, Dep't of Transp. & Pub. Facilities, 71 P.3d 865, 870 (Alaska 2003) (finding no error in termination for convenience case in "basing the award on costs incurred rather than Quality's bid price").

[702] As discussed earlier, Miller Construction agreed in its July Request for Equitable Adjustment and its Differing Site Condition and Extra Work claims that the issue of damages for bid item 207(1), composite road construction, would be governed by a simple adjustment of quantity times the prices that were the basis for bid. MCC 7353 at claim at 5; MCC 7352 at claim at 22; MCC 7351 at claim at 29; SCR 97 at 3. (The exception to this is that this decision did not accept the $15 per cubic yard price for borrow because it was not included in the July Request for Equitable Adjustment, and never conceded by the Region.) The Region agreed to this position in the COD and at closing arguments. SCR 00 at 90; Region's closing argument.

quantities. An estimate of quantity is not sufficient. Blasting records are not recognized as a reliable measurement technique under section 109-1.02, and can only be used to verify other measures.

No new evidence on the issue of quantities will be taken during the next phase of this hearing. The parties will need to brief their theory and accounting for damages accrued under this decision, as explained in the order below.

I. Has the Region proven its counterclaim for damages?

The Region documented a series of costs it accrued as a result of having to terminate Miller Construction because of what it considered to be Miller Construction's breach of contract.[703] Because the termination was wrongful, however, many of these costs, including having to coordinate with the surety, conduct a survey, and assume all SWPPP duties, are not compensable.

Other costs documented by Mr. Foster, however, may be compensable, or available as an offset against damages. The Region is entitled to offset its costs for recreating the SWPPP notebooks.[704] The work actually done on the SWPPP by the Region can be offset against Miller Construction's claim (but not, as stated above, the cost of the SWPPP survey that was necessitated by the termination). The Region will not be required to pay Miller Construction for nonconforming embankment or culverts.

An additional problem is that this decision has not yet tackled the issue of how to measure nonconformities left by Miller Construction. For example, the parties vigorously dispute the extent to which Miller Construction had nonconforming culverts. Miller Construction argues that it had not left any damaged culverts, asserting that any crushed culvert was crushed by K&E's over-heavy equipment.[705] In addition, any culvert replacement that was made necessary by the Region's change in alignment is not compensable. Mr. Warren testified, however, that some culverts (about 23) were damaged because of inadequate compacting underneath the culvert.[706]

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703 Foster testimony; SCR 209 at 16.

704 Mr. Foster testified that the SWPPP notebooks were not produced upon termination. Foster testimony. Even though the termination was wrongful, the notebooks should have been produced. Therefore, the cost to recreate them is compensable.

705 Toby Miller testimony.

706 Warren testimony.

Appendix 4 to Mr. Foster's Post-Termination Report (a spreadsheet showing all alleged nonconforming culverts), identifies 14 culverts that needed to be removed and replaced.[707] The most common reasons for the replacement is that the pipe was at an incorrect angle or was leaking at the joints. Only one of the pipes needing replacement is noted as "out of round" and even it also needs a "deeper skew."[708] The report also identified dozens of culverts that needed "punch-list" work, such as additional armoring, ditch shaping, or reshaping of inlets or outlets.[709] In contrast, a spreadsheet prepared in November 2017 identifies only one culvert that needs to be removed and replaced.[710] Nevertheless, the comprehensive spreadsheet at Appendix 4 is the best evidence of nonconforming culverts. I have not attempted to determine whether the spreadsheet demonstrates that the nonconformity was caused by a shift in alignment. Nor I have attempted to determine what Miller Construction's cost to remedy the nonconformity would have been if it had not been terminated.

Because we are heading into a damages phase, these tasks are best left for the parties. No new evidence will be taken on the extent of the nonconformities, but the Region is entitled to an offset for all proven nonconforming work for which it has already paid. The offset, however, must be measured by the cost to Miller Construction to remedy the nonconformity, not the cost to the Region to hire a replacement contractor to do the repair. Relying solely on evidence in the record, each party shall prepare an accounting to address the cost to remedy nonconforming embankment and culverts that had been paid in full as of December 30, 2017.

IV. Procedural Orders

ORDER ON FURTHER PROCEEDING REGARDING DAMAGES

This matter is returned to the parties to prepare an accounting of damages for Miller Construction's claims and the Region's counterclaims in conformity with this decision and order. The parties may also file briefs explaining how the evidence in the record comports with their understanding of damages due under this decision. A video status conference will be held by

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707 SCR 209 at 144-48 (Appendix 4).

708 *Id* at 144 (pipe P-13). At least one other pipe is noted as being out of round, but that pipe is not slated to be replaced. *Id.* at 146 (pipe P-103). I conclude that "crushing" of culverts by K&E's equipment is not the issue.

709 *Id.* at 144-48.

710 MCC 7354 at 127.

Zoom on August 17, 2020 at 9:00 a.m., to prepare a schedule for the accounting and briefing.[711] Invitations to the status conference will be sent out by OAH.

The parties have stated that they will need to submit additional evidence regarding the full extent of damages due under a termination for convenience. The parties will identify the further proceedings that they view as needed to prepare the damages issue on this claim. This topic will also be discussed at the August 17th status conference. If the parties do not agree on how to proceed, this issue may require briefing.

ORDER ALLOWING MOTIONS FOR RECONSIDERATION

The parties may, if they wish, file a motion for reconsideration. The motion may address any error of fact or law that the party has identified in this decision. The motion cannot be more than 10 pages, double spaced. It must state succinctly what remedy the motion is seeking (which could include the opportunity to present additional indepth briefing on the identified error). No response to a motion for reconsideration will be allowed unless requested.

A party may also file a notice of manifest errors in the decision. This could include typographical errors or misstatements of fact or law, such as an incorrect citation to a case or exhibit, that are indisputably errors. This notice must be in bullet form, identifying the error and providing a corrected statement to be inserted. No argument or discussion may be included in the notice. A schedule for the due date for motions and notices under this order will be discussed at the August 17th status conference.

ORDER ON ALTERNATIVE DISPUTE RESOLUTION

The parties must come to the August 17th status conference prepared to discuss alternative dispute resolution. The discussion will include whether the parties can agree to attempt to negotiate a final resolution of the dispute, or, if not, stipulate to damages in conformity with this decision (without affecting a party's right to appeal this decision and order to the superior court).

DATED: July 27, 2020.

By: _____
Stephen C. Slotnick
Administrative Law Judge

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711 Given the length of this decision, and the turmoil caused by Covid-19, the parties may well need additional time to prepare for a meaningful status conference. If so, the parties should confer, and then call or email this office to find a time on my calendar in September to hold the conference.

Appendix A
Explanation of the estimate that $14,060,240 represents the value of the contract when the additional quantities are included

$14,060,240 represents the original contract bid, without reference to the changes due to change orders, $11,473,390, plus the value of the quantities required to complete the road that exceeded plan quantities, $2,586,850. (The value after change orders should be used here, but is not because I am not certain that I have an agreed number to represent this value. For purposes of this calculation, that inconsistency is not significant.) The $2,586,850 was derived from Miller Construction's Differing Site Condition Claim, MCC 7352 at 22, modified as follows:

1. Embankment was reduced by 4700 cubic yards because the Kemp report stated that the claim overstated the additional embankment required by subsidence by 4700 cubic yards. MCC 7274 at 14. (Note that subsidence is based on an engineer's estimate, not measurement.)
2. Clearing and Grubbing additional acreage was reduced from 49.6 to 39.1 based on the Kemp report. *Id.* at 13. The measurement of this acreage used the original survey not the asbuilt.
3. The dollar value for borrow was reduced from the $15 per cubic yard in the claim to the $10 per cubic yard allowed by the Region. There are several reasons for this. First, the $10 cost for excavation and embankment was the cost proposed by Miller Construction in its cost proposal for the July Request for Equitable Adjustment. SCR 97 at 3. This is consistent with Miller Construction's proposal for the cost due to the change in alignment in the Change Order No.2 area. SCR 28 at 1. Neither proposal by Miller Construction requested $15 for borrow. Second, the Region (apparently in reliance on Miller Construction's proposals) has agreed that it will compensate Miller Construction for extra quantities of excavation at the bid price of $10. SCR 00 at 90; Region's closing argument. Adopting the $15 per cubic yard for borrow might be contested and might require additional proceedings to determine if it is reasonable. Third, the source of the borrow was all in the roadway. No offsite quarries were developed. Thus, even though Miller Construction's backup materials for the bid did include $15 as the cost for borrow, *see* SCR 28 at 3, the $10 per cubic yard charged for excavation of rock in the road prism is a reasonable price for rock excavated immediately adjacent to the road prism.

4. The 6,900 cubic yards of excavation other than borrow are eliminated from the claim. Mr. Moore's testimony was clear: the actual excavation in the road prism was significantly less than the estimated excavation in the road prism: 190,132 cubic yards instead of 270,000. Moore testimony; MCC 8333. Therefore, all additional excavation above plan quantities had to be borrow (albeit borrow from widening the roadway, not from an offsite quarry). In addition, he testified that common excavation was much less than estimated because there was more rock on the project than anticipated. *Id.* It follows that no additional common excavation above plan quantities was needed, so it must be removed from the claim.

These changes can be shown by substituting them into the table on page 22 of Miller Construction's Differing Site Condition claim (MCC 7352) as follows:

Major Work Item	Quantity Error	Bid Value	Total
Clearing & Grubbing	39.1	$12,000	$469,200
Embankment	99,900	$10	$999,000
Rock excavation (borrow)	118,650	$10	$1,118,650
			$2,586,850

This calculation is made solely for the purposes of determining whether the Region's termination of Miller Construction was wrongful. This rough calculation is not intended to be a measure of damages for a claim.