

ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of --)
)
NDG Constructors) ASBCA No. 57328
)
Under Contract No. W9128F-06-D-0012)

APPEARANCE FOR THE APPELLANT: Ryan J. Klein, Esq.
Sherman & Howard L.L.C.
Colorado Springs, CO

APPEARANCES FOR THE GOVERNMENT: Thomas H. Gourlay, Jr., Esq.
Engineer Chief Trial Attorney
Melissa M. Head, Esq.
Assistant District Counsel
U.S. Army Engineer District,
Omaha

OPINION BY ADMINISTRATIVE JUDGE TING

While tunneling under Interstate 90 (I-90) near Rapid City, South Dakota, to replace a waterline to service Ellsworth Air Force Base, NDG Constructors¹ (NDG) encountered what it considered to be Type I differing site conditions. The Corps of Engineers' (the Corps or government) contracting officer (CO) denied NDG's claim. NDG appealed. Entitlement and quantum were heard. Because we conclude there is no entitlement, we need not address the quantum issues presented.²

FINDINGS OF FACT

1. On 17 April 2006, the Corps awarded Multiple Award Task Order Contract (MATOC) No. W9128F-06-D-0012 to NDG (R4, tab 4). Among the FAR clauses incorporated by reference was FAR 52.236-2, DIFFERING SITE CONDITIONS (APR 1984).³ On 9 July 2009, the Corps awarded Task Order No. 0006 under the MATOC to NDG. The task order required NDG to construct a new 16-inch waterline under I-90 to service Ellsworth Air Force Base by boring and jacking roughly 560 linear feet of 54-inch

¹ NDG is a joint venture of Newstrom Davis Construction Co. and Gracon Corporation (R4, tab 3; tr. 1/104).

² The record consists of (1) the Corps' Rule 4 file (R4), tabs 1-19; (2) Appellant's Supplemental Rule 4 (app. supp. R4), tabs 20-34; (3) Appellant's hearing exhibits A-35, A-46, A-52, A-53, A-64; (4) the Corps' hearing exhibits G-1, G-25 to -28 (duplicate of G-1); and (5) two volumes of hearing transcripts (tr.).

diameter steel casing. The work included removing existing waterlines, installing isolation valves, connecting to existing waterlines, testing, seeding, surface restoration and other incidental work. (App. supp. R4, tab 20, § 01010 at 01010-1) The task order, as awarded, was in the amount of \$959,300.00. NDG was required to complete the project in 180 calendar days after Notice to Proceed (NTP). NDG acknowledged receipt of the NTP on 30 July 2009 (R4, tab 6), thus establishing 26 January 2010 as the contract completion date.

2. As a part of the Request for Proposals (RFP), the Corps included two geotechnical reports from American Engineering Testing, Inc. (AET) of Rapid City, South Dakota. The first report, dated 25 August 2008, was based on four borings AET drilled on 1 August 2008. (R4, tab 17) After the report was issued, the alignment of the waterline shifted to the east by roughly 200 feet. As a result, the Corps had AET conduct a second geotechnical analysis. (R4, tab 18) AET's 10 March 2009 report showed three borings were drilled on 27 February 2009 (*id.*). As stated in both reports, soil samples were obtained in accordance with ASTM: D 3550 procedures, and as samples were obtained in the field, they were visually and manually classified in accordance with ASTM: D 2488 procedures (R4, tab 17 at 1-2, tab 18 at 2). Laboratory tests were also conducted (R4, tab 17 at 10, tab 18 at 10).

3. Parts of the parties' dispute center on the characteristics and the moisture contents of the soils encountered during performance. Attached to each of the AET reports was a reference entitled "UNIFIED SOIL CLASSIFICATION SYSTEM ASTM Designations: D 2487, D 2488" (USCS). This reference deciphers the symbols used in the boring logs attached to the AET reports. According to the USCS, "Silts and Clays" with a "Liquid limit" (LL) less than 50 are classified as "Lean clay" and "Silts and Clays" with an LL value exceeding 50 are classified as "Fat clay." Also, soil classified as "Lean clay" carries the "Group Symbol" "CL"; and soil classified as "Fat clay" the "Group Symbol" "CH." (R4, tab 17 at 10, tab 18 at 10) The boring logs also contained other soil information. For example, "WC" means "moisture content." Moisture content is expressed by weight. Thus, a WC of 40.1 means 40.1% of the weight of the soil is water. (Tr. 1/95)

The 25 August 2008 Geotechnical Report

4. AET's 25 August 2008 report shows Boring B-1, on the north side of I-90 was drilled down to nearly 12 feet. Moving south, Borings B-2, B-3 and B-4 were all drilled

³ See government counsel's 21 June 2012 letter forwarding section 00700 of the MATOC.

down to over 21 feet. Boring B-3 indicated the presence of "WEATHERED SHALE,"⁴ described as "Fat to Lean Clay Shale, dark gray and white, very moist, stiff (CL-CH)" 17 feet down. Water content (WC) at B-1, B-2, B-3 and B-4 was recorded to fall within a range of "23-25," "19-26," "17-21," and "16-21," respectively. Boring B-2 indicated a LL reading of 40; Boring B-4 indicated a LL reading of 34. (R4, tab 17 at 6-9)

5. The narrative section of AET's 25 August 2008 report noted "the subsurface conditions at other times and locations at the site may differ from those found at our test boring location" (R4, tab 17 at 2). The report also said that "[t]he soils between the boring locations may differ significantly from those encountered at the boring locations," and "changes in climatic conditions between the time of exploration and the time of construction may also affect soil conditions, particularly groundwater levels and the moisture content of the soils" (*id.* at 3). As for groundwater, the report said that at the time of drilling, "groundwater was not encountered in any of the four borings" (*id.* at 2). It went on to say "Based on the results of Boring B-1 we do not anticipate groundwater will be an issue at the north tie-in to the existing line" but at the south tie-in, "soft wet soils and possible groundwater should be anticipated" (*id.* at 3). The report opined that "excavation in the existing fill and soils should be possible with conventional excavation equipment" (*id.*).

The 10 March 2009 Geotechnical Report

6. AET's 10 March 2009 report showed it made three borings: B-1, B-2 and B-3. Boring B-1 was located to the north of I-90; Boring B-2 to its south in the middle; and Boring B-3 to the south of I-90 (R4, tab 18 at 6). NDG's geotechnical expert, Kim I. Stoecker, acknowledged that the borings AET picked were appropriate for the project (tr. 1/65). He explained that the depths to which borings were drilled were based on the depth at which the tunnel would be bored.

7. The locations where borings were drilled were designated by Station Numbers. Each Station (Sta.) is 100 feet apart. Boring B-3 was located at Sta. 1+68 at the south end of the project. Boring B-2 was located at Sta. 4+20. Boring B-1 was located at Sta. 7+32. Thus, the distance between Borings B-3 and B-2 was 252 feet (32+100+100+20), and the distance between Borings B-2 and B-1 was 312 feet. (*See ex. A-45 at 3 and 4, Figure 1*)

8. The boring log attached to AET's 10 March 2009 report showed Boring B-1 was drilled down 17 feet. "TOP SOIL," described as "Lean Clay with sand, with organics, brown, moist (CL)" was encountered to about 1 foot deep. Below that, to about

⁴ "Weathered Shale" is shale that has been exposed to the sun, the weather and to routes of surface water. Weathered shale tends to be a lot more "fractured," "friable," and "may be of little different color." (Tr. 2/136)

4 feet, "FILL," described as "Lean Clay with sand with organics, brown, moist (CL)" was encountered. From about 4 feet to the bottom of the boring, "SHALE," described as "*Fat to Lean Clay*, gray, moist, hard (CH-CL)" was encountered. (R4, tab 18 at 7) (Emphasis added)

9. Boring B-2 was drilled down 21.5 feet. "TOP SOIL," described as "Lean Clay with sand, with organics, brown, moist (CL)" was encountered to a depth of 1 foot. "FILL," described as "Lean Clay with trace sand, with organics, brown, moist (CL)" was encountered from 1 foot to 5.5 feet. Below that, "LEAN CLAY," with "sand, brown, moist, stiff (CL)" of "Fine Alluvium" geologic classification was encountered to a depth of 12 feet. From 12 to 15 feet, "WEATHERED SHALE," described as "*Fat to Lean Clay*, gray to brown, *moist to very moist*, very stiff (CH-CL)" of "Carlile Shale" geologic classification was encountered. From 15 feet down to the bottom of Boring B-2, "SHALE," described as "*Fat to Lean Clay*, dark gray, moist, hard (CH-CL)" was encountered. (R4, tab 18 at 8) (Emphasis added)

10. Boring B-3 was drilled down 31.5 feet. "FILL," described as "Base course gravel" was encountered 2 feet deep. "FILL," described as "Mixture of Lean to Fat Clay with sand and trace gravel, dark gray to brown, moist (CL-CH)" was encountered from two 2 to 21.5 feet. Below that, "SANDY LEAN CLAY," with "organics, dark gray to brown, moist, very stiff (CL)" of "Fine Alluvium" classification was encountered to the bottom of the boring. (R4, tab 18 at 9)

11. The 10 March 2009 AET boring logs indicate "WC" or moisture content at Boring B-1 ranges from 14 to 16%; at Boring B-2 ranges from 21 to 25%; and at Boring B-3 ranges from 19 to 26% (R4, tab 18 at 7-9). At Boring B-2, there is an indication of "GW" or groundwater 13 feet deep, at the level where "LEAN CLAY...(CL)" is transitioned to "WEATHERED SHALE," or where "Fine Alluvium" is transitioned to "Carlile Shale." (R4, tab 18 at 8)

12. As in the 25 August 2008 AET report, the 10 March 2009 AET report stated that "the subsurface conditions at other times and locations at the site may differ from those found at our test boring location," and that "[t]he soils between the boring locations may differ significantly from those encountered at the boring locations" (R4, tab 18 at 2-3). Unlike the previous report, the 10 March 2009 report noted "At the time of drilling, groundwater was encountered in Boring B-2 only, at a depth of 13.0 feet. Groundwater levels should be expected to fluctuate seasonally and yearly." (*Id.* at 2) The report went on to say:

To complete the bore below the Interstate highway and ramps, pits will likely be required on both the north and south ends of the alignment. We anticipate the depths of the required excavations for the boring pits will be on the order of

10 to 15 feet. Based on the boring log information it appears the bottom of the south pit will likely be within the lean clay fill/soils. The north pit will likely be excavated within the Carlile Shale Formation. We anticipate these same soils will be the material through which the new casing will be bored/jacked below the interstate highway.

The groundwater, encountered in Boring B-2, is likely perched water trapped on top the shale bedrock. *It is our opinion the chance of encountering a static water level within the jacking pits is likely on the south side of the alignment and soft wet soils, along with groundwater, should be anticipated.* Based on the results at Boring B-1, we do not anticipate groundwater will be an issue at the north tie-in to the existing line. Where groundwater is encountered, we anticipate conventional dewatering equipment and means can be used to maintain a workable area....

....

It is our opinion that excavation in the existing fill and soils should be possible with conventional excavation equipment....

(R4, tab 18 at 3) (Emphasis added)

13. A pit or “jacking pit” is “where they dig down and begin...[the] tunnel[ing] process” (tr. 2/111). The jacking pit on the south side was at Sta. 1+60 (tr. 2/112) eight feet from Sta. 1+68 where AET drilled Boring B-3 (of the 10 March 2009 report).

BTC's Pre-Bid Evaluation

14. NDG asked BT Construction Inc. (BTC), a pipeline excavation contractor, if it was interested in the tunneling portion of the project (tr. 1/16, 18). David Emm (Emm) BTC's senior estimator, prepared a proposal with the help of Donald L. Meyer (Meyer). Meyer was BTC's general site superintendent with 15 years of tunneling experience. (Tr. 1/133) He was BTC's “constructability expert” (tr. 1/38).

15. Emm testified that in preparing BTC's proposal to NDC he relied on the specifications, drawings, and the AET geotechnical reports (tr. 1/18, 19-20). He testified that, based on the contract documents, he expected to encounter two types of soils: clay fill material and shale rock material. He testified “We would tunnel from a clay fill material and at some point come into a shale rock material.” (Tr. 1/20) He testified that when he looked at the borings he had no idea where the transition from clay fill material

to shale material would take place between Boring B-3 and Boring B-2 (tr. 1/33-34). Meyer testified that his “biggest concern” in tunneling was “split face” where “you’re going from one material to another” because it would be difficult to “rig a machine to go through two different types of material” (tr. 1/134). For tunneling equipment, Emm with Meyer’s input, decided on an open-faced tunnel boring machine (TBM) with standard conveyors and mine cars to remove the soil (tr. 1/22, 140). To address the “split face” issue, BTC decided to use a “quad” bar cutter capable of cutting through hard as well as soft materials (tr. 1/134-35). There is no testimony how BTC would address the groundwater problem bidders were told to anticipate. There is also no evidence that BTC’s bidding team understood or consulted the soil symbols such as LL, CH and CL even though the USCS was attached to the AET reports. At the hearing, Meyer testified he knew what fat clay looked and felt like. He testified “a fat clay is real sticky clay. You could roll it into a ball and throw it against something and it’ll stick.” (Tr. 1/149-50)

16. BTC initially estimated it could tunnel an average of 35 feet a day using field-welded casing (tr. 1/26). Field-welded casing involved welding 20-foot beveled pipe joints (*id.*). At some point NDG and BTC asked and the Corps approved a switch to Permalock casing (tr. 1/27). Permalock casing has locking joints and requires no welding. Even though more expensive, use of Permalock casing saves labor costs due to faster installation. According to BTC, using Permalock casing, it could tunnel 50 feet a day. (*Id.*)

17. NDG awarded Subcontract No. N906-01 to BTC on 20 July 2009. The subcontract was in the amount of \$706,000.00. (App. supp. R4, tab 21)

18. NDG’s preliminary schedule (run date 23 July 2009) showed that Activity 1080, “Bore Casing Under Road” would take 20 work days from 28 September to 23 October 2009. The schedule also showed that Activity 1160, “Site Restoration” would take 5 work days from 27 November to 3 December 2009 with construction completed on the same day. (Ex. G-25) BTC’s 11 August 2009 schedule showed that tunneling would take 15 work days from 24 September to 14 October 2009, and it would take 5 work days from 11 to 17 November 2009 to perform site restoration work and complete its subcontract on the same day (app. supp. R4, tab 22). According to BTC, its schedule was based on the use of Permalock casing (tr. 2/8). BTC’s witness testified that BTC actually expected to finish tunneling in 11 days, and it added “a couple of extra days for weather and other possible unforeseen conditions” (tr. 2/9).

Encountering Wet and Very Wet Soils During Tunneling

19. Over the course of the 560-foot waterline, the ground sloped upwards from the south (tr. 1/31). BTC chose to tunnel from the south near Boring B-3 for two reasons. First, if it ran into running water, it would “pool up at the base of the tunnel” rather than

having to pump the water out. Second, it was easier to control grade working uphill.
(Tr. 1/29-30)

20. The record included three sets of daily reports: NDG prepared Contractors Quality Control Reports or QCRs (app. supp. R4, tab 25); BTC prepared its own Notice and Daily Reports (BTC reports) (app. supp. R4, tab 23); the Corps prepared Inspectors Quality Assurance Reports (QARs) (R4, tab 15). We use all three reports and other documents to reconstruct what occurred when tunneling under I-90 took place.

21. On 8 September 2009, BTC mobilized to the south side of I-90 and North Lacrosse Street. During its first week of work, BTC completed work on the access road and completed erosion control in preparation for the bore crew. During the week of 15 September 2009, the bore crew put together the trench boxes and excavated the bore pit. BTC set up the TBM on 21 September 2009 and began tunneling on 23 September 2009. (App. supp. R4, tab 29 at 2)

22. On 24 September 2009, NDG reported that progress in tunneling was slow because the soil conditions were "much more wet than anticipated" (app. supp. R4, tab 25 at QCR No. 56). BTC's report stated "tunneled 20 [feet] going pretty slow. The dirt is wet clay." (App. supp. R4, tab 23 at Report dated 24 Sept. 2009 (9-24)). On 25 September 2009, BTC tunneled 40 feet (*id.* at 9-25).

23. On 26 September 2009, while tunneling near Sta. 2+40, BTC encountered a substantial increase in groundwater. The increase was caused by a test bore hole that was not properly backfilled. Due to the excess groundwater, BTC had to remove the conveyor and clean out the drum of the TBM. After tunneling several more feet, the groundwater decreased. (App. supp. R4, tab 29 at 2-3) No tunneling was accomplished on 27 September 2009. BTC's 27 September 2009 report stated "started to tunnel[,] dirt is to[o] wet so we stopped." (App. supp. R4, tab 23 at 9-27)

24. On 28 September 2009, BTC began tunneling near Sta. 2+68. It tunneled one foot when the TBM head became clogged. By pulling out the conveyor and cleaning the head, BTC was able to tunnel another foot when the TBM head was clogged again. BTC again pulled out the conveyor and cleaned the TBM head. (App. supp. R4, tab 29 at 3) NDG's report stated "Extreme delays encountered today. The soils are very very wet. Much more than anticipated. The soils keep plugging up the head of the TBM. No progress completed on the critical path." (App. supp. R4, tab 25 at QCR No. 60) The Corps' QAR No. 60 for the same day reported "Progress is still extremely slow. Approximately, 80 feet of casing has been installed." (R4, tab 15 at QAR No. 60)

25. BTC continued tunneling on 29 September 2009. Due to soil conditions, only 5 feet of tunneling was completed. (App. supp. R4, tab 25 at QCR No. 61) BTC's report for the same day stated 4 feet of tunneling was done by hand, and the conveyor had to be

pulled out twice (app. supp. R4, tab 23 at 9-29). On 30 September 2009, BTC completed 5 feet of tunneling (app. supp. R4, tab 25 at QCR No. 62). BTC's report stated the TBM kept getting stuck in the drum and the teeth, and it tunneled 3 feet by hand and 2 feet by machine (app. supp. R4, tab 23 at 9-30). The Corps' report for the same day stated "BTC is using soap to lubricate the soil and hopefully cause less clumping/plugging" (R4, tab 15 at QAR No. 62).

26. BTC consulted with Akkerman, Inc., the manufacturer of the TBM, on the most effective way to proceed in light of the wet soil encountered. Akkerman recommended using an auger (or screw) conveyor for sticky or sloppy soil conditions. Based on this recommendation, BTC ordered an auger conveyor. (App. supp. R4, tab 29 at 3) On 1 October 2009, BTC installed the auger conveyor for the TMB. It tunneled one foot that day. (*Id.*)

27. On 2 October 2009, BTC tunneled 27 feet. NDG reported "We had to add...piping inside the casing to carry more water to spray the head of the TBM to keep it moving," and "[t]oday[']s adjustments seem to be working the best so far." (App. supp. R4, tab 25 at QCR No. 64). BTC reported "going good but going slow" (app. supp. R4, tab 23 at 10-2). On 3 October 2009, NDG reported "Continuing to tunnel with the TBM. We got 40' Inft completed today tunneling. The pace is getting much better but we have made some changes to the system and are taking a different approach to address the wet soil conditions." (App. supp. R4, tab 25 at QCR No. 65) BTC's report for the same day noted that it tunneled 40 feet that day and 160 feet to date (app. supp. R4, tab 23 at 10-3). In 10 days, from 24 September to 3 October 2009, BTC tunneled 160 feet, or 29% of the 560 feet plus stretch. On 4 October 2009, BTC completed 20 feet of tunneling. NDG reported "Total progress of the tunnel[ing] at this point...is approximately 180' Inft of casing...with a total linea[r] footage of 200'...inclu[d]ing the TBM head." (App. supp. R4, tab 25 at QCR No. 66)

28. Meyer, BTC's site superintendent, testified that on 5 October 2009 he and a laborer "took a five-gallon bucket and scooped [soil] out of the face of the machine and put it onto the end of the bucket, covered the bucket, and took it down and had it tested" (tr. 1/153). The record shows that BTC took the sample to FMG, Inc. (FMG), a materials testing laboratory in Rapid City, South Dakota (app. supp. R4, tab 26). NDG's report stated that BTC wanted to confirm that the materials it was tunneling through were what were described in the RFP (app. supp. R4, tab 25 at QCR No. 67).

29. NDG's report for 6 October 2009 stated that "The site is a mess today. Previous high amounts of rainfall impacted us negatively today. There was no work completed on the critical path because of weather conditions. The site is still a muddy mess. No productivity completed today." (App. supp. R4, at QCR No. 68) The Corps' report confirmed "The site is extremely muddy and practically immobile. Contractor is trying to clean up mud and provide access to site." (R4, tab 15 at QAR No. 68)

30. On 7 October 2009, BTC tunneled 20 feet (app. supp. R4, tab 25 at QCR No. 69) for a total of 200 feet to date (app. supp. R4, tab 23 at 10-7). The Corps' report noted that BTC took a soil sample for testing and commented "They will possibly claim a differing site condition" (R4, tab 15 at QAR No. 69). On 8 October 2009, BTC completed 40 feet of tunneling with "No issues." The TBM head was 260 feet into the tunnel with 240 feet of casing installed. (App. supp. R4, tab 25 at QCR No. 70) On 9 October 2009, BTC tunneled 25 feet with the TBM head at 285 feet and 265 feet of casing installed. BTC had to shut down early because steam caused by temperature differences inside and outside the tunnel was preventing it from using the laser to continue work. (*Id.* at QCR No. 71)

31. Also on 9 October 2009, BTC notified NDG it had encountered a differing site condition. BTC's e-mail said that based on Boring B-3:

[W]e anticipated encountering a mixture of lean & fat clay, with some sand and gravel mixed in.... We anticipated these conditions to continue until we were near the area of bore log #2, and for the most part did encounter these conditions initially. However, starting around 80' into the bore, we began to encounter a very wet, fat clay without any sand or gravel. As is evident on site, these are extremely difficult conditions to tunnel in—a fat clay with this much water in it is extremely adhesive, and constantly causes the conveyor and drum to clog up. This has greatly reduced our productivity—far below the rate at which we bid the project, based on the bore logs.

(App. supp. R4, tab 29, ex. 7)

32. On 10 October 2009, BTC switched back to the belt drive conveyor because the "soils got drier." It completed 15 feet of tunneling with the TBM head progressed to 300 feet and with 280 feet of casing installed. (App. supp. R4, tab 25 at QCR No. 72) On 11 October 2009, BTC switched out the over cutter bar to the original setup because the soil was getting drier. It experienced delay because it had to pull the conveyor for access and reinstall it. BTC tunneled 5 feet with the TBM head progressed to 305 feet and with 285 feet of casing installed. (*Id.* at QCR No. 73) With no delay and drier soil, BTC tunneled 35 feet on 12 October 2009. The TBM head progressed to 340 feet with 320 feet of casing installed. (*Id.* at QCR No. 74)

33. BTC lost time on 13 October 2009 because claystone was getting harder and it had to add more bars to the cutter and had to pull the conveyor and reinstall it. BTC tunneled 30 feet with the TBM head progressed to 370 feet and with 350 feet of casing installed. (App. supp. R4, tab 25 at QCR No. 75) On 14 October 2009, BTC lost time because it had to pull the conveyor and reinstall it to add more bars to the cutter when the

claystone was getting harder. BTC tunneled 5 feet with the TBM head progressed to 375 feet and with 355 feet of casing installed. (App. supp. R4, tab 23 at 10-14, tab 25 at QCR No. 76) The Corps' QAR for 14 October 2009 noted that NDG's project manager called to say that a letter was being prepared for "a differing site condition because of the moisture content of the existing soil and...because of an existing bore hole that was not backfilled properly" (R4, tab 15 at QAR No. 76). BTC completed 45 feet of tunneling on 15 October 2009 with the TBM head progressed to 420 feet and with 400 feet of casing installed. NDG reported "This is the best day of production so far." (App. supp. R4, tab 25 at QCR No. 77)

34. NDG's 15 October 2009 letter notified the Corps that based on Boring B-3, it expected to encounter "a mixture of lean & fat clay, with some sand and gravel mixed in" until "we were near the area of bore log #2." The letter said, instead, "starting around 80' into the bore, we began to encounter a very wet, fat clay without any sand or gravel." NDG forwarded FMG's 7 October 2009 test results. The letter went on to say "We are tracking the time lost due to this change, and will formally submit the cost impact once it is fully known." (R4, tab 8)

35. On 16 October 2009, BTC tunneled 40 feet with the TBM head progressed to 460 feet and with 440 feet of casing installed (app. supp. R4, tab 25 at QCR No. 78). On 17 October 2009, at approximately Sta. 6+43, BTC ran into a large rock which broke the rollers on one of the TBM motors. Repairs took most of the afternoon. It ended the day tunneling 14 feet with the TBM head progressed to 474 feet and with 454 feet of casing installed. (*Id.* at QCR No. 79, tab 29 at 4) No work was done on 18 (Sunday), 19 (Monday) and 20 (Tuesday) 2009 (app. supp. R4, tab 25 at QCR Nos. 80-82).

36. NDG's 20 October 2009 letter notified Mark Mailander (Mailander), the CO's authorized representative, of "a differing site condition and of NDG Constructor[']s intention to submit a request for an equitable adjustment in contract price and/or time extension as a result of encountering a large rock at approximately STA 6+40" (R4, tab 10). Sta. 6+40 was 92 feet from Boring B-1, the waterline's north tie-in. No progress was made tunneling on 21 October 2009 (app. supp. R4, tab 25 at QCR No. 83).

37. Mailander's 21 October 2009 reply asserted that NDG's call on 14 October 2009 was the first notification of differing site condition the Corps received. The letter said "By that time, the conditions had been disturbed and the [tunnel] boring is believed to have advanced beyond the point of these materials," and the late notice precluded the CO from verifying the problem. The letter contended that BTC "sampled the material in question and took it to the testing lab, without providing the Government an opportunity to witness the sampling methods." Mailander contended that AET's 10 March 2009 geotechnical report indicated the material most likely to be encountered at Boring B-3 was "FILL Mixture of Lean to Fat Clay with Sand and Trace Gravel, dark gray to brown, moist (CL-CH)," and this indicated "there were both lean clays and fat clays present without specifically identifying

what areas of the fill was one or the other.” Addressing FMG’s findings, Mailander contended that “fat clay with an LL of 58 does not fall outside these parameters.... Lean clay with a LL on the high end would be sticky and difficult to work with and should have been anticipated.” He asserted that the increase in moisture content was not a differing site condition because the AET report warned that the soils between boring locations may differ significantly, and because changes in climatic conditions may also affect soil conditions, groundwater levels and moisture content of the soil. (R4, tab 9)

38. Steven E. Hasner (Hasner) was the Corps’ project engineer (tr. 2/46-47). After NDG provided the Corps notice on 14 October 2009 that it intended to submit a differing site condition claim, Hasner asked AET to sample the soil (tr. 2/73). Hasner selected the method of taking soil samples through the grout holes in the casing because he believed at the time “that would be more cost-effective than doing it any other way.” He acknowledged that it did not occur to him “to bore another bore hole at that point.” (Tr. 2/78) The grout holes through which soil samples would be taken were located at 125 feet (B-1), 235 feet (B-2) and 275 feet (B-3) from the south entrance of the casing (R4, tab 19 at 3). These locations were picked “one shortly after the beginning of the alleged differ[ing] site conditions, one in the middle and one shortly before the end” (tr. 2/78).

39. Each casing had four grout plugs. When the casing was installed, grout was injected around the casing to ensure the soil around it did not settle. (Tr. 2/43) On 21 October 2009, representatives from NDG (Lucas Nelson), BTC (Meyer), and the Corps (Jennifer Aldridge) all went into the tunnel to witness the collection of samples by AET (ex. A-38). AET explained the sampling process:

The contractor removed the grout plug at each location to access the substrate. In each hole the area outside the casing consisted of approximately one inch of the drilling slurry consisting of bentonite and water. The material was cleared out and a hand sample probe was hammered in several times to obtain the sample. The slurry material would push out through the grout hole constantly. Each time the probe was inserted the slurry was cleared and when the probe was extracted the slurry was wiped off and the sample was placed in a sample bag. A residue of the slurry material was likely present on the sample in spite of efforts to clear it....

(R4, tab 19 at 3)

40. Bentonite is a lubricant for reducing jacking pressure. It is “basically a soil mixed with water” that “turns into a slurry.” (Tr. 1/155) Bentonite has a LL level well over 50. Thus, adding Bentonite could raise the overall LL level to a higher number.

(Tr. 1/103) Bentonite slurry when mixed with soil increases its moisture content. About ¾-inch of Bentonite was placed on the outside of the casing. (Tr. 1/155) Bentonite was gray in color and thus distinguishable from soil which was “very dark” in color (tr. 2/66). According to Aldridge, when the soil samples were put in the Ziploc bag, she could see that “they were Bentonite” (*id.*). Aldridge testified that Bentonite was on all three samples AET collected. She testified she did not know if Bentonite was “throughout the sample[s], but it definitely was on the outside of the sample[s].” (Tr. 2/67) After AET tested the samples, the Corps realized the samples “more than likely w[ere] contaminated with Bentonite” (tr. 2/65).

41. Encountering rock slowed down BTC’s tunneling on 22 October 2009. It “got through the rock at about 3 pm.” BTC tunneled 26 feet with the TBM head progressed to 500 feet and with 480 feet of casing installed. (App. supp. R4, tab 25 at QCR No. 84) On 23 October 2009, BTC tunneled 40 feet with the TBM head progressed to 540 feet and with 520 feet of casing installed (*id.* at QCR No. 85). Also on 23 October 2009, representatives from the Corps, NDG and BTC met to discuss the outstanding differing site condition issues. According to the QAR for that day, the Corps believed the “Bore Hole Backfill” and the rock BTC encountered on 17 October 2009 could be considered differing site conditions. On the moisture content of the soils encountered, the Corps acknowledged that “the soils in the field are currently wetter than indicated on the borings,” but took the position that the geotechnical reports specifically warned the groundwater levels could fluctuate seasonally, that climatic conditions could affect groundwater levels and moisture content of the soils, that the chance of encountering a static water level within the jacking pit was likely on the south side, and that soft wet soils should be anticipated. (R4, tab 15 at QAR No. 85)

42. BTC tunneled 26 feet on 24 October 2009 with the TBM head progressed to 566 feet and with 546 feet of casing installed. It encountered a “Large amount of water in [the] tunnel.” NDG believed the water came from “bore hole #1” because the drawing showed “we are right under bore hole #1.” (App. supp. R4, tab 25 at QCR No. 86) BTC completed tunneling on 26 October 2009 (app. supp. R4, tab 25 at QCR No. 87). The Corps’ QAR for 27 October 2009 reported “A receiving pit was excavated on the north side of the [I]nterstate. The boring head was pulled out and the remaining 14’ of steel casing was pushed into place.” (R4, tab 15 at QAR No. 89)

43. NDG’s 2 November 2009 response to Mailander’s letter pointed out that AET’s 10 March 2009 report showed Boring B-3 at 10-16 feet with a moisture content of 20% but AET’s 23 October 2009 report at B-1, 125 feet inside the casing, showed a moisture content of 40.1%, a 200% increase; and AET’s 10 March 2009 report showed Boring B-2 at 15-21 feet with a moisture content of 21% but AET’s 23 October 2009 report at B-2, 235 feet inside the casing, showed a moisture content of 33.3%, a 150% increase. NDG also pointed out that the Corps’ soil test at Sta. 4+72 showed a moisture content of 27.1%, “higher than could have been reasonably anticipated with the

information provided in the RFP, but not to the degree of the above two locations.” NDG concluded its letter stating “From the additional information provided by the Government’s October 2[3], 2009 soils report a conclusion can be drawn that the soils moisture content far exceeded what could have been reasonably anticipated. Therefore the delays and costs incurred from the extremely high soil moisture content encountered is a change in condition.” (R4, tab 12)

44. Modification No. 1A documentation shows NDG requested \$135,783 for three differing site conditions: (1) encountering water at Sta. 2+40 due to a test hole; (2) encountering soils with moisture content between 30 to 40% as opposed to 21%; and (3) encountering rock at in the vicinity of Sta. 6+40 (R4, tabs 8, 10, 12). The Corps agreed (1) and (3) were differing site conditions; but it did not agree that (2) was a differing site condition. The parties entered into bilateral Modification No. 1A on 23 December 2009 for (1) and (3) (R4, tab 7 at 11, 22). The modification increased the net contract amount by \$15,752⁵ and added four days to the contract (*id.* at 2).

45. The evidence shows BTC actually began tunneling on 23 September 2009 and completed tunneling on 26 October 2009, three days later than NDG had scheduled, but 12 days later than BTC had scheduled. After tunneling, seeding and site restoration work remained. According to BTC, it expected to complete the project by the end of 2009. (Tr. 1/158) Because the ground froze and “[t]here was nothing we could do up there,” BTC demobilized. BTC did not bring its people back to the site until April or May in 2010. By then it had to rent equipment to finish the seeding and site restoration work which took “a couple of weeks.” (Tr. 1/127, 159)

46. NDG submitted a certified claim in the amount of \$146,278.94 and 9 calendar days for encountering a differing site condition described in (2) by letter dated 8 March 2010 (R4, tab 3). The CO’s 7 July 2010 decision denied NDG’s claim:

NDG has not substantiated that a material other than that which is described in the RFP was encountered. Further, there is substantial evidence in the March 10, 2009 report to warn NDG that wet subsurface conditions would probably be encountered. Therefore, it was foreseeable that the material encountered would be wet. NDG has not met the elements necessary to establish a Type I differing site condition.

(R4, tab 2 at 5) NDG appealed the decision by notice dated 18 August 2010.

⁵ Total increase of \$36,572.00 for (1) and (3) was offset by \$21,000 in reduction for Pay Item 2 payable for access delays that did not occur (R4, tab 7 at 2).

BTC's and AET's Soil Test Results

47. FMG ran a standard sieve analysis, an Atterberg Limits⁶ test and moisture content analysis on the soil sample BTC gathered on 5 October 2009. FMG's 7 October 2009 report found Atterberg Limits with PL at 22, LL at 58 and PI at 36. The report described the samples provided as "(CH) Fat Clay, Dark Brown." The report also found the samples "as received" initially to have a moisture content of 29.9%. (App. supp. R4, tab 26) NDG understandably did not rely on this report in its briefs. Scooping a sample from the face of its machine was not how subsurface soil sample should be collected. The fact that there were "Previous high amounts of rainfall" rendering the site unworkable further diminishes the credibility of the test results (finding 29).

48. AET's 23 October 2009 test results are summarized in the table below:

Specimen Identification	LL	PL	PI	Fines	Classification
B-1 125 ft	49	24	25		Lean Clay (CL)-Moisture Content = 40.1%
B-2 235 ft	44	22	22		Lean Clay (CL)-Moisture Content = 33.3%
B-3 275 ft	41	21	20		Lean Clay (CL)-Moisture Content = 27.1%

The results showed LL values ranging from 41 to 49; even though on the high side, none exceeded 50 to classify the soils tested as fat clay (finding 3). The results showed moisture contents ranging from 27.1% to 40.1%, higher than the values listed in AET's August 2008 and March 2009 boring logs. (R4, tab 19 at 4)

49. AET's 23 October 2009 report provided the following findings and conclusions:

The three soil samples were tested in our laboratory for determination of moisture content and Atterberg Limits. The test results indicate current moisture contents of the clay soils range from 27.1% to 40.1%. Atterberg Limits indicate the Liquid Limits of the clays range from 41 to 49. A summary of the test results are indicated on the attached Atterberg Limits Results.

Review of the laboratory testing conducted as part [of] our initial report (August 25, 2008) indicated moisture contents of

⁶ An Atterberg limits test consists of two tests: (1) a liquid limit (LL) test and (2) a plastic limit (PL) test. A liquid limit test determines "when the soil is actually moving from a plastic state to a liquid state." A plastic limit test determines "when it is moving from a non-plastic to a plastic state." (Tr. 1/59) The symbol "PI" indicates the difference between LL and PL (tr. 1/95).

the area clay soils ranged from approximately 17% to 26%. Atterberg Limit tests classified the clays as lean clay with Liquid Limits ranging from 34 to 40. At the time of the second study (March 10, 2009) moisture contents ranged from 14% to 26%. Atterberg Limit tests were not run during the second study due to its close proximity to the initial work.

Based on the results of the three soil samples collected on October 21, 2009, it is our opinion the soils being encountered within the bore are consistent to those reported in the geotechnical reports. *It is also our opinion one would anticipate an increase in the moisture content of the three samples due to the wet slurry conditions around the exterior of the casing. Also an increase in the Liquid Limit values could also be anticipated if bentonite was used within the slurry.*

(R4, tab 19) (Emphasis added) In another words, the high LL and moisture content values could be attributed to the presence of Bentonite slurry when the samples were collected.

NDG Expert Analysis

50. As a part of its pre-hearing submission, NDG provided an expert report from Stoecker (ex. A-45). Stoecker was received as a soils/geotechnical expert at the hearing (tr. 1/46). His report found different (1) "Soil Profile," (2) "Soil Characteristics" and (3) "Moisture Contents of the Soil" from the AET boring logs were encountered during tunneling. On "Soil Profile," Stoecker's report stated "Based on the AET's boring logs and the profile of the transmission line elevations, the Carlile Shale would have reasonably been expected to be encountered at about station 3+70, approximately 200 feet from...the south starting point." He said, actually, "the Carlile Shale (hard wet soils) was encountered approximately 100 feet sooner than would have been expected [at Sta. 2+68]." He opined that "this change in the soil profile combined with the perched water conditions resulted in at least 100 feet of unexpected and difficult tunneling operations that further slowed tunneling operations." (*Id.* at 3-4) On "Soil Characteristics," Stoecker's report said while AET's 10 March 2009 boring logs indicated shale as "Shale Fat to Lean Clay," without an Atterberg test, it was difficult to "judge the amount of fat clay or lean clay in these deposits" especially for "an earthwork contractor like BTC" (*id.* at 5-6). In his view, BTC "would not have expected to encounter the soil conditions that slowed the tunneling operations" (*id.* at 6). On "Moisture Conditions," Stoecker's report noted that AET's boring logs showed mid-range water content of 14% to 26%, an average of 19%. He noted that the test results from FMG and AET obtained during tunneling operations showed "the moisture contents were well above the normal

mid-range and were at 29.9%⁷, 27.1%, 33.3% and 40.1%, an average of 32.6%.” (*Id.* at 7) According to Stoecker, “the large increase in soil moisture conditions encountered at the level of the tunneling...resulted in unexpected and difficult tunneling operations...from Sta. 2+68 to Sta. 4+72” (*id.*).

51. As indicated in Figure 1 of his report, Stoecker located Sta. 2+68 as where BTC allegedly ran into Carlile Shale prematurely by projecting a straight line from Boring B-2 at Sta. 4+20 down to the bottom of Boring B-3 at Sta. 1+68 (*see ex. A-45* at 4). At the hearing, he acknowledged that soil normally transitions from lean to fat or from fat to lean gradually (tr. 1/57). He testified that where a dual symbol such as CH CL is used, a high LL or liquid limit value, say close to 50, would indicate soil is going to act more like a fat clay than a lean clay (tr. 1/62).

The Government’s Expert Analysis

52. Robert Temme (Temme) was received as an expert in geotechnical engineering at the hearing (tr. 2/117). He testified for the Corps. Temme testified “there are ribbons of different geologic features or layers...towards Ellsworth Air Force Base,” and “each of those bands of shale can...have different characteristics” (tr. 2/126). He explained that Carlile Shale is different in color and texture from blue or pure shale, and the soil samples were “consistent in...color and...texture” with Carlile Shale (tr. 2/142). According to Temme, the USCS permits the use of dual symbol such as “CL-CH” (tr. 2/127-28) which indicates a “borderline” case of lean clay and fat clay that “can shift either way,” and “[t]he fatter the clay the more they will absorb [water],” and “[t]he Carlile shale will absorb water” (tr. 2/127). He testified that since Carlile Shale could include both lean and fat clay, running 10 Atterberg Limits tests, 6 or 7 would indicate lean clay and 3 or 4 would indicate fat clay (tr. 2/126). He also testified that a “40 percent moisture sample would ooze through your hand,” and while the sample [collected on 21 October 2009] through the grout plug was wet, it “wasn’t oozing through your hand” (tr. 2/142).

DECISION

NDG contends that in constructing the waterline under I-90 from Sta. 2+68 to 4+72, it encountered a different soil profile, soil with different characteristics, and increased soil moisture conditions from what were shown in the contract documents (app. br. at 1). Type I differing site conditions consist of “subsurface or latent physical conditions at the site which differ materially from those indicated in th[e] contract.” FAR 52.236-2(a)(1). To establish entitlement to an equitable adjustment due to a Type I

⁷ The moisture content of 29.9% was derived from FMG’s 7 October 2009 report (app. supp. R4, tab 26 at 2).

differing site condition, a contractor must prove, by a preponderance of the evidence, that:

[T]he conditions indicated in the contract differ materially from those actually encountered during performance; the conditions actually encountered were reasonably unforeseeable based on all information available to the contractor at the time of bidding; the contractor reasonably relied upon its interpretation of the contract and contract-related documents; and the contractor was damaged as a result of the material variation between expected and encountered conditions.

Comtrol, Inc. v. United States, 294 F.3d 1357, 1362 (Fed. Cir. 2002) (citing *H.B. Mac Inc. v. United States*, 153 F.3d 1338, 1345 (Fed. Cir. 1998)).

The Soil Profile Encountered Was Not a Differing Site Condition

According to NDG's expert, Sta. 3+70, approximately 202 feet (32+100+70) from Boring B-3 at the south starting point, was "where Carlile Shale was expected to be encountered based on AET's boring logs," but Sta. 2+68, approximately 100 feet (32+68) from Boring B-3, was "where Carlile Shale was actually encountered by BTC during tunneling...approximately 100 feet sooner than expected" (ex. A-45 at 3-4). As indicated in Figure 1 of Stoecker's expert report, he reached this conclusion by drawing a straight line connecting the point at Boring B-2 where "Carlile Shale" was indicated (12 feet down) with the bottom of Boring B-3 at 31.5 feet. Thus, Stoecker and NDG assumed that the soil would transition from "Fine Alluvium" to "Carlile Shale" at Sta. 3+70 along a straight line. (See ex. G-45 at 4, Figure 1)

NDG has not argued that the three borings AET drilled were inadequate. Its expert acknowledged that the boring locations AET picked, as shown in its 10 March 2009 report, were appropriate for the project (finding 6). AET's 10 March 2009 Boring B-3 indicated the contractor would encounter "Fine Alluvium" from 21.5 down to 31.5 feet near the south entrance of tunneling, and indicated at Boring B-2, the contractor would encounter "Fine Alluvium" from 5.5 to 12 feet deep changing to "Carlile Shale" from 12 down to 21.5 feet deep (findings 9, 10). Although BTC correctly assumed that the soil would transition from "Fine Alluvium" into "Carlile Shale" at some point between Boring B-3 and B-2, the contract documents, including the boring logs made no indication or representation as to where that transition would take place. Importantly, the narrative portion of AET's 10 March 2009 report specifically warned what was obvious: "the subsurface conditions at other...locations at the site may differ from those found at our test boring location," and that "[t]he soils between the boring locations may differ significantly from those encountered at the boring locations." (Finding 12) It is highly

improbable that subsurface soil of one type would transition into another type along a straight line projection. We do not accept NDG expert's opinion in this regard because it is intrinsically unpersuasive. *Sternberger v. United States*, 401 F.2d 1012, 1016 (Ct. Cl. 1968).

A Type I differing site condition claim is dependent on what is "indicated" in the contract. *Foster Constr. C.A. and Williams Bros. Co. v. United States*, 435 F.2d 873, 881 (Ct. Cl. 1970) ("On the one hand, a contract silent on subsurface conditions cannot support a changed conditions claim.... On the other hand, nothing beyond contract indications need be proven."). A contractor cannot be eligible for an equitable adjustment for Type 1 changed conditions unless the contract indicated what those conditions would supposedly be. *P.J. Maffei Bldg. Wrecking Corp. v. United States*, 732 F.2d 913, 916 (Fed. Cir. 1984); *S.T.G. Construction Co. v. United States*, 157 Ct. Cl. 409, 414 (1962). Here, the contract documents did not indicate where precisely the contractor would encounter Carlile Shale. In bidding the project, BTC did not expect to transition from "Fine Alluvium" to "Carlile Shale" or, to use its terminologies, from "clay fill material" to "shale rock material" at any specific point but only "at some point." (Finding 15) And, as BTC predicted, the soil profile indeed changed from clay fill material to shale rock material "at some point."

We conclude that NDG has failed to prove that the soil profile encountered was a Type I differing site condition because the AET's geotechnical reports and the boring logs did not indicate where the transition from "Fine Alluvium" to "Carlile Shale" would occur, and because in estimating the work, BTC recognized that the transition from "clay fill material" to "shale rock material" would take place "at some point" rather than at any specific point.

The Soil Characteristics Encountered Were Not a Differing Site Condition

NDG contends "A reasonable contractor would have anticipated encountering mostly lean clay, with some 'fat to lean clay' or 'lean to fat clay.'...Instead, NDG and BTC actually encountered mostly fat clay from Stations 2+68 to 3+70." (App. br. at 19) NDG contends it encountered "purely fat clay" in its reply brief (app. reply br. at 8).

We start with what AET's 10 March 2009 boring logs indicate. *P.J. Maffei*, 732 F.2d at 916. Boring B-3, near the south entrance of the tunnel, shows "FILL," described as "Mixture of Lean to Fat Clay" with the USCS symbol "CL-CH" was encountered from 2 to 21.5 feet (finding 10). Boring B-2, roughly 50 feet from Sta. 3+70 where NDG contends the differing site conditions ended shows "WEATHERED SHALE," described as "Fat to lean Clay" with the USCS symbol "CH-CL" was encountered from 12 to 15 feet, and "SHALE," described as "Fat to Lean Clay" with the USCS symbol "CH-CL" was encountered from 15 feet down to the bottom of the bore (finding 9).

Whether the soil is “mostly fat clay” or “mostly lean clay” or something in between depends upon its LL level. As the USCS attached to the AET reports explained, a liquid limit (LL) reading less than 50 is classified as “Lean Clay,” and a LL reading exceeding 50 is classified as “Fat clay.” (Finding 3) Testimony from the Corps’ expert indicated that the USCS permits the use of a dual symbol such as “CL-CH” or “CH-CL” which indicates a “borderline” case of lean and fat clay that “can shift either way,” and “[t]he fatter the clay the more they will absorb [water],” and “[t]he Carlile Shale will absorb water” (finding 52).

Even without knowing what the symbols “CL” or “CH” meant, or what “LL” indicated, terms like “Fat to Lean Clay” in Boring B-2 and “Lean to Fat Clay” in Boring B-3 should have alerted BTC’s bidding team that there was a likelihood of encountering a range of soil characteristics all the way from “fat clay” to “lean clay” including “mostly fat clay” and “mostly lean clay.” Knowing what Meyer knew about fat clay – “you could roll it into a ball and throw it against something and it’ll stick” (finding 15) – BTC’s bidding team should not have ignored what was stated in plain English that the soil characteristics in the vicinity of Boring B-3 and B-2 could vary all the way from “fat clay” to “lean clay.” The boring logs did not say “mostly lean clay,” nor did they preclude “mostly fat clay.” Given the wide range of soil characteristics indicated in Borings B-2 and B-3 of AET’s 10 March 2009 geotechnical report, NDG’s argument that it could reasonably anticipate “mostly lean clay” but not “mostly fat clay” makes no logical sense.

While it is true AET’s 10 March 2009 report did not include an Atterberg liquid limits test, its 25 August 2008 boring log showed a relatively high LL reading of 40 at Boring B-2 and a LL reading 34 at Boring B-4 (finding 4). FMG’s 7 October 2009 report showed a LL reading of 58. We have found, however, scooping a sample from the face of its machine was not how subsurface soil sample should be collected. And, the fact that there were “previous high amounts of rain” rendering the site unworkable the next day further diminishes the credibility of the FMG test results. (Finding 29) NDG understandably did not rely on that report in briefs (finding 47). Despite Bentonite slurry contamination, AET’s 23 October 2009 report showed a LL reading ranging from 41 to 49. While on the high side and approaching the USCS Classification of fat clay or “mostly fat clay,” all three soil samples still technically came within the USCS classification of lean clay. (Findings 48, 49) Thus, if NDG encountered “purely fat clay” it has not proved that to be the case.

Because the “mostly fat clay” encountered between Sta. 2+68 to Sta. 3+70 did not differ materially from the possible range of “Fat to Lean Clay” and “Lean to Fat Clay” the boring logs indicated the contractor should anticipate, we conclude that NDG has failed to prove that it encountered a Type I differing site condition in this respect.

The Moisture Content of the Soil Encountered Was Not a Differing Site Condition

NDG contends that it reasonably anticipated encountering “soil moisture conditions ranging from 14-26%.” It contends that based on the field observations by NDG and BTC representatives, as recorded in the QCR reports between 28 September and 7 October 2009, the soils actually encountered were described as “very wet,” and “extremely wet,” “much more than anticipated.” (App. br. at 22) NDG argues the 23 October 2009 AET report, finding moisture contents of 40.1% (B-1), 33.3% (B-2) and 27.1% (B-3) “confirms the field observations of NDG, BTC, and the Government about the wetter moisture conditions” (*id.* at 24).

On water content of the soil encountered, we once again start with the contract documents. *Control*, 294 F.3d at 1362; *P.J. Maffei*, 732 F.2d at 914. While Boring B-2 of AET’s 10 March 2009 boring log showed a moisture content within a range from 21 and 25% (finding 11), the Boring indicated that groundwater (GW) was encountered at 13 feet. In addition, the boring log told the contractor that it could expect to encounter soil that is “moist to very moist” at about the same level where groundwater was encountered (finding 9). Significantly, the narrative portion of the AET report further alerted the contractor that “[t]he groundwater, encountered in Boring B-2, is likely perched water trapped on top the shale bedrock. It is our opinion the chance of encountering a static water level within the jacking pits is likely on the south side of the alignment and soft wet soils, along with groundwater, should be anticipated.” (Finding 12)

The soils NDG reported it encountered between 28 September and 7 October 2009 were described as “very wet” and “extremely wet” (app. br. at 22). BTC’s report on 28 September 2009 when it was tunneling in the vicinity of Sta. 2+68 described the soil it encountered as “very very wet” (finding 24). We frankly don’t see the difference between what NDG and BTC described and what the contract documents described as “moist to very moist” soil (finding 9), or what the AET report described as “soft wet soils, along with groundwater” that NDG and BTC were told “should be anticipated” (finding 12). We conclude when the subsurface was disturbed during the tunneling process, all of the conditions described in the AET report such as groundwater, “soft wet soils,” and “moist to very moist” soil and the fact that BTC was tunneling uphill from the south (finding 19) acted together to create the conditions BTC actually encountered. To address these indicated conditions, BTC should have provided for the necessary tunneling equipment. It did not. (Findings 15, 26)

Finally, we do not believe AET’s 23 October 2009 test results showing soil water content ranging from 27.1% to 40.01% help NDG’s case. First, the sampling technique was unconventional. Second, the soil samples collected through the casing grout plugs were contaminated with Bentonite slurry. (Finding 40) As AET acknowledged in its report, “an increase in the moisture content of the three samples due to the wet slurry conditions around the exterior of the casing” should be anticipated (finding 49). Even

with the contamination, AET opined that “the soils being encountered within the bore are consistent to those reported in the geotechnical reports” (*id.*).

Because the soil moisture content NDG actually encountered was what the boring logs together with AET’s 10 March 2009 geotechnical report indicated “should be anticipated,” and because the way the soil samples AET collected on 21 October 2009 and upon which NDG relied in supporting its claim were not reliable, we conclude that it has failed to prove that the soil moisture contents it encountered constituted a Type I differing site condition.

CONCLUSION

For reasons stated, this appeal is denied.

Dated: 21 August 2012



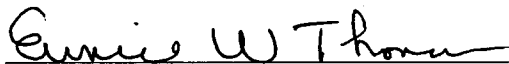
PETER D. TING
Administrative Judge
Armed Services Board
of Contract Appeals

I concur



MARK N. STEMLER
Administrative Judge
Acting Chairman
Armed Services Board
of Contract Appeals

I concur



EUNICE W. THOMAS
Administrative Judge
Vice Chairman
Armed Services Board
of Contract Appeals

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeals in ASBCA No. 57328, Appeal of NDG Constructors, rendered in conformance with the Board's Charter.

Dated:

CATHERINE A. STANTON
Recorder, Armed Services
Board of Contract Appeals