ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of --	)	
	)	
Nova Group, Inc.	)	ASBCA No. 55408
	)	
Under Contract No. N68711-02-C-2004	)	

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OPINION BY ADMINISTRATIVE JUDGE PARK-CONROY

At issue in this appeal is a claim for differing site conditions and delay arising from a contract awarded to appellant Nova Group, Inc. (Nova) by the United States Navy (Navy) for the design and construction of the San Nicolas Island Supply Pier. Also at issue are two post-hearing motions filed by the Navy. We deny the Navy's Motion to Strike Section III of Appellant's Reply Brief and grant its Motion to Strike Portions of Appellant's Reply Brief Based on New Documents in the Record. We deny the appeal.

FINDINGS OF FACT

The Southwest Division, Naval Facilities Engineering Command (NAVFAC), awarded Contract No. N68711-02-C-2004 to Nova on 12 September 2002 in the amount of $11,500,000 for the design and construction of a new open-ocean permanent supply pier, 500 to 700 feet long, with mooring dolphins on San Nicolas Island, CA (supp. R4, tab 1 at 3, 8). A dolphin is a concrete structure, separate from the pier, used in the

* Effective 1 May 2008, Smith Pachter McWhorter PLC was substituted as counsel for appellant subsequent to the hearing, the closing of record and the filing of the initial post-hearing brief.

mooring of barges (tr. 1/74-75). The original completion date, 4 March 2004, was extended to 13 September 2004 (supp. R4, tabs 2, 3, 4).

The contract incorporated the following standard FAR provisions: 52.233-1, DISPUTES (DEC 1998); 52.236-2, DIFFERING SITE CONDITIONS (APR 1984); and 52.236-3, SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984) (supp. R4, tab 1 at 40, 49-50).

Section A1000 of the contract, "PIER AND DOLPHIN SUPPORT PILING," provided in relevant part as follows:

> 1.1 SYSTEM DESCRIPTION
>
> Provide solid prestressed concrete pier and dolphin support piling. Soil conditions affecting capacity and installation of piling have been outlined in the geotechnical reports included in Attachments 6D and 6E of this RFP [Request for Proposal].
>
> ....
>
> 1.2.1 General
>
> ....
>
> b. Contractor is to determine if the existing geotechnical reports contain sufficient information.... Construct pier and dolphin support piling using geotechnical data from the geotechnical reports.
>
> ....
>
> f. Provide a test pile program, as a minimum, following the recommendations included in the geotechnical report, Attachment 6D. For piling system not discussed in the geotechnical report, Contractor shall provide a test pile program meeting the intent of the recommended program.

(Supp. R4, tab 1 at 78-79)

Attachment 6D was a Marine Geotechnical Survey dated 25 March 2002, prepared by Group Delta Consultants, Inc. (Group Delta); Attachment 6E was a Geotechnical Investigation Onshore Facilities Surface Transportation Pier (P-250), dated 2 July 2002, prepared by URS Corporation (URS) (supp. R4, tabs 5, 6).

Section 01120, "DESIGN BUILD REQUIREMENTS," provided in paragraph 1.9.4, "Attachments:"

> Utilize Attachments...furnished with the contract as necessary to develop the design and construct the facility.

(Supp. R4, tab 1 at 214)

Section 01321, "NETWORK ANALYSIS SCHEDULES," required in paragraph 1.1, "DESCRIPTION," that the contractor provide a computerized critical path method (CPM) schedule. Pursuant to paragraph 1.3.2., "Use of the Network Analysis Schedule," the CPM schedule was to be updated monthly. Paragraph 1.10, TIME EXTENSIONS, provided:

> Extension of time for performance required under the contract clauses titled, "Changes", "Differing Site Conditions", "Default (Fixed-Price Construction)" or "Suspension of Work" shall be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float along the network paths involved.

The paragraph went on to specify the minimum information required to support contract time extension requests. (Supp. R4, tab 1 at 243, 250-51)

The Geotechnical Attachments

Boring Logs

In preparing Attachment 6D, Group Delta was charged with reviewing existing data and performing a subsurface investigation along the alignment of the proposed pier, laboratory testing on selected samples of the subsurface soils/rocks, and a geotechnical analysis for pile design, as well as developing geotechnical recommendations for design and construction of the pier foundations (supp. R4, tab 5 at 321). Group Delta's subsurface investigation consisted of borings B-1 through B-5 drilled to depths ranging from 8 to 31 feet below the sea floor (*id*. at 347-49). None of the borings were within the footprint of the proposed location of the pier because that area was in the surf zone, making it too difficult and costly to obtain borings (tr. 1/37-38). Boring B-1 was just beyond the end of the pier system, and borings B-2 and B-3 were close together, somewhat further out into the sea (supp. R4, tab 5 at 342, tab 128 at 33386; tr. 1/36-37, 4/61-63). Borings B-4 and B-5 were still further away from the project site, the actual distance from which we are unable to ascertain from the record (supp. R4, tab 5 at 342).

Boring B-1 was abandoned at a depth of eight feet below the sea floor when the barge shifted and pulled the drill rig off the drill due to high winds and increased ocean swells. The log for boring B-1 indicates claystone bedrock was first encountered at a depth of approximately three feet below the sea floor. From that depth until the boring was abandoned at eight feet, the log describes the bedrock as "moderately weathered, soft to moderately soft, laminated, intensely fractured." (*Id*. at 358) The log for boring B-2 describes "Siltstone soft to moderately soft" and "sandstone moderately hard to hard, intensely fractured, laminated" beginning at a depth of two feet below the sea floor. At about seven feet, there is "moderately to slightly weathered" claystone and "thin interbeds" of "moderately hard to hard" sandstone. From 12 to 17 feet, the claystone is "slightly weathered to fresh, soft to moderately hard, laminated to moderately bedded, moderately fractured." (*Id.* at 361)

The log for boring B-3 shows claystone bedrock beginning at approximately three feet below the sea floor, described as "moderately to slightly weathered, moderately soft to moderately hard, intensely fractured" which becomes "moderately hard to hard, slightly weathered,...moderately to slightly fractured" bedrock between 15 and 20 feet (*id*. at 368). The log for boring B-4 shows one inch of "decomposed residual CLAY (CL), grey, stiff, wet" immediately beneath the bedrock, which begins at one foot below the sea floor, followed by claystone that is described as "moderately to slightly weathered...moderately hard to hard...intensely fractured...moderately to locally slightly weathered, occasionally intensely weathered in fragmented zones," sandstone that is "moderately hard to hard" and siltstone that is "soft to moderately soft...moderately fractured." Between 11 feet and 16 feet, the claystone is "moderately to slightly weathered, few fresh zones" and the sandstone is "moderately hard to hard." (Supp. R4, tab 5 at 374)

The log for boring B-5 reflects the bedrock beginning at a depth of one foot with two inches of "extremely weathered residual Clay, grey, very stiff" immediately beneath it, followed by claystone that is "intensely to moderately weathered" and sandstone that is "moderately soft to moderately hard...intensely fractured...intensely weathered to moderately weathered." At a depth of 12 feet the claystone is "slightly weathered to fresh, moderately hard...moderately fractured." (*Id*. at 381)

The Group Delta report included excerpts from the "Soil & Rock Logging Classification Manual (Field Guide)," issued by the State of California Department of Transportation, Engineering Service Center, Office of Structural Foundations, which were identified as Figure A-3. One of the excerpts, Figure A-3c, is a standard chart entitled "Rock Classification Descriptive Sequence" which is used when classifying rocks. (R4, tab 5 at 352-57)

The purpose of the 2002 URS investigation, which produced Attachment 6E, was to "characterize subsurface conditions in the onshore areas of the proposed construction and provide geotechnical considerations for design and construction of the project" (supp. R4, tab 6 at 421). The URS explorations included two borings, B-6 and B-7, both of which were on the beach near the shoreline. Boring B-6 was within the proposed pier footprint. (Supp. R4, tab 128 at 33386) The log for B-6 shows bedrock at a depth of 4.5 meters (16.2 feet) described as "SANDSTONE...moderately weathered, very weak" becoming "slightly to moderately weathered, weak sandstone" at about 5 meters (18 feet) (supp. R4, tab 6 at 451).

Bedrock

Paragraph 3.3, "Subsurface Conditions," of the Group Delta report summarizes its findings from borings B1-B6 as follows:

> The subsurface conditions encountered in borings along the pier alignment consist of 1 to 3 feet (0.3 to 1 meter) of sand cover overlying bedrock materials, with generally thicker sand closer to the beach....
>
> ...The bedrock consists of low plasticity claystone (CL) with intermittent silty to clayey fine sandstone lenses typically 1 to 4 inches (25 to 100 mm) thick. The bedrock is generally intensely fractured and moderately weathered near the surface, becoming moderately to slightly fractured and slightly weathered to fresh at depths of 6 to 15 feet (2 to 5 meters). Based on field procedures, the fine-grained rocks (claystone) were generally soft to moderately hard, while the sandstone lenses were generally moderately soft to hard.

(Supp. R4, tab 5 at 324, 361, 368, 374, 381)

Paragraph 3.2.2, "Subsurface," of the URS report described the bedrock underlying the beach deposits as follows:

> Typically, the formational bedrock underlying the beach deposits is composed of yellowish brown fine sandstone with interbedded gray siltstone to claystone lenses. Intact core samples recovered from Boring B-6 suggest that the unit is intensely to highly fractured along bedding and high-angled fracture zones, which decrease in frequency with depth. Within the beach area, the upper 6 to 8 m [meters] of the

> bedrock is characterized as highly to moderately weathered, very weak to weak rock.

(Supp. R4, tab 6 at 426-27)

Thus, the Group Delta and URS reports indicated that the sedimentary bedrock ranged from intensely to slightly fractured and highly to slightly weathered, and that it was very weak to weak. The intensity of the weathering and fracturing decreased with depth. (Supp. R4, tabs 5, 6)

Faults/Shear Zones

No faults or shear zones are identified on any of the Group Delta or URS boring logs (supp. R4, tabs 4, 5). “Discontinuity Characteristics” is the sixth of the 12 rock descriptions contained in the Rock Classification Descriptive Sequence chart that was included in the Group Delta report as Figure A-3c. The description of the “Discontinuity Characteristics,” in turn, lists nine characteristics, the last of which is “Shear/Fault.” (Supp. R4, tab 5 at 354)

Also included in the Group Delta report was Figure A-3t, which provides a list of “Standard Descriptors and Descriptive Criteria for Discontinuities,” including the following:

> SHEAR – A structural break where differential movement has taken place along a surface or zone of failure by shear, characterized by striations, slickensides, gouge, breccia, mylonite, or any combination of these. Often direction, amount of displacement, and continuity may not be known because of limited exposures or observations.
>
> FAULT – A shear with significant continuity which can be correlated between observations; occurs over a significant portion of a given site, foundation area, or region, or is a segment of a fault or fault zone defined in the literature. The designation of a shear as a fault or fault zone is a site-specific determination.

(Supp. R4, tab 5 at 357)

Notwithstanding these general references, neither the Group Delta nor the URS geotechnical reports contained any indication of fault or tectonic activity at the project site itself (tr. 2/38).

Slaking

Slaking occurs when particles of sedimentary rock deteriorate or weather back into soil when exposed to water (tr. 2/30-31). It is defined by geotechnical engineers as the decomposition of sedimentary rock back into soil (tr. 4/133). Slaking is not unusual in sedimentary rock (tr. 2/211-13) and it always occurs when a contractor drills into sedimentary bedrock (tr. 4/133-34).

The Group Delta and URS reports and boring logs made no mention of any slaking conditions at the project site (supp. R4, tabs 5, 6; tr. 1/99-100, 150-51, 2/31, 4/146). The only reference to slaking is found on the Rock Classification Descriptive Sequence chart included in the Group Delta report where it is the tenth of the 12 listed rock descriptions (supp. R4, tab 5 at 354).

Other Considerations

The Group Delta report stated in paragraph 4.3.1.1, "General," of Section 4.3.1, "**Driven Steel Piles**:" "Due to uncertainties about the ability to drive piles 15 to 20 feet into the bedrock, we recommend driving of test piles using the Pile Driving Analyzer (PDA) if this option is selected" (supp. R4, tab 5 at 327-28).

Section 5.0, **"**LIMITATIONS," of the Group Delta report states:

> The report, exploration logs, and other materials resulting from Group Delta's efforts were prepared exclusively for use in designing the proposed project.... If this report or portions of this report are provided to contractors or included in specifications, it should be understood that they are provided for information only.
>
> Our recommendations and evaluations were performed using generally accepted engineering approaches and principles available at this time, and the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical engineers practicing in this area. No other representation, either expressed or implied, is made.

(Supp. R4, tab 5 at 332)

The URS report in Section 4, "Discussions, Conclusions, and Recommendations," suggested in paragraph 4.3.3, "Installation Considerations," that consideration should be given to the use of a stable platform to conduct drilling operations because of the potential for wave and surge action. It noted that this could be accomplished by "reaching out from a completed portion of the approach pier" and cautioned drilling dolphin piles might require a "large, anchored barge or seafloor-supported platform." (R4, tab 6 at 434)

In Section 5, "Uncertainty and Limitations," the URS report stated:

> Only a small portion of pertinent subsurface conditions has been observed. The recommendations made herein are based on the assumption that soil/rock conditions do not deviate appreciably from those found during our field investigations.... If variations or undesirable geotechnical conditions are encountered during construction, the basis of design should be reevaluated.
>
> Geotechnical engineering and geologic sciences are characterized by uncertainty.... Our engineering work and judgments rendered meet current professional standards; we do not guarantee the performance of the project in any respect.

(Supp. R4, tab 6 at 437)

Nova's Interpretation of the Geotechnical Reports And Its Proposed Design

In preparing its technical proposal, Nova reviewed and relied upon the information contained in the Group Delta and URS geotechnical reports and borings and did not perform any additional geotechnical investigation (tr. 1/31-33, 48-51). There was no evidence that Nova visited the site prior to bidding. Mr. Ronald M. Fedrick, Nova's president and chief executive officer, understood that the geotechnical information provided had not been obtained from the proposed location of the pier due to the expense and difficulty of obtaining borings in the surf zone (tr. 1/37). Nevertheless, he felt comfortable bidding the project because there was geotechnical information for both onshore and offshore areas which appeared to be very similar in nature (tr. 1/31). Mr. Fedrick interpreted the Group Delta and URS reports as indicating the sea floor had three to five feet of sand, and then "very weak -- weak, very weak, rock material, sandstone, siltstone, mudstone type material" into which they would have to drive piles (tr. 1/33-34). Mr. Fedrick is not a geotechnical engineer (tr. 1/150).

Nova retained Mr. D. Michael Holloway, who has a Ph.D. in civil engineering and specializes in deep foundations, as a consultant to its proposal preparation team. He previously had been retained by Nova on approximately a dozen projects. (Ex. A-1; tr. 1/38, 2/6-9, 12, 18-19) He is not a registered geotechnical engineer (tr. 2/190-91) and he was not offered as an expert witness. Mr. Holloway thought the rock was harder than did Mr. Fedrick (tr. 2/221).

Nova submitted its technical proposal on 23 August 2002 (supp. R4, tab 7). The proposal reflected Nova's plan to construct the permanent pier by designing and building a temporary trestle. The proposal stated:

> As part of our work area program, Nova would plan to construct a trestle approximately 24 feet wide by 350 feet long that would run directly beside the pier and the mooring dolphins. This structure would be designed to support a 150 ton crane and all the other support equipment required to construct the pier and dolphin structures, thus eliminating any construction work having to be done off of barges and derricks. We would plan to construct the trestle at an elevation similar to the pier finished grade, following the same profile, and mooring dolphins, thus maximizing the efficiency of the structure by eliminating the inherent risk of working directly on the water.
>
> ....
>
> Nova's construction approach for this project eliminates the need to work off the water with floating equipment. We have designed our trestle to follow a similar elevation profile as the final pier design, which allows us to work on the structure even while the project may be seeing some form of weather impact. The ability to work off of a stable pile supported structure versus a floating derrick barge gives us much more control of our own destiny and allows our crew to work in a much more safety conscious environment, minimizing the impacts of swells and breaking waves on the project site.

(Supp. R4, tab 7 at 491, 494)

The Test Piles

In December 2002, Nova test drove four pilings on the beach, all within about 25 feet of boring B-6 (tr. 1/161, 163, 2/220-21). The purpose of the test was to evaluate pile driving as a pile installation method (tr. 1/40, 42). Mr. Fedrick thought the subsurface conditions described in the geotechnical reports were such that Nova would be able to drive piles successfully through what was thought to be “weak to very weak” rock (tr. 1/41-42, 44).

However, Nova was not able to drive piles through the rock because it was “much stronger, much harder” than had been indicated in the Group Delta and URS geotechnical reports (tr. 1/45-46, 2/221, 275-76). The harder rock was several feet below the bedrock surface (tr. 4/189-90). Thus, by a letter dated 7 January 2003, Mr. Fedrick informed the Navy that the test pile program had established that the “rock is significantly more competent than [Nova] had originally thought” and that it would drill, rather than drive, the piles for the project according to an enclosed preliminary installation sequence (supp. R4, tab 28).

Trestle and Pier Design

Nova first approached Mr. John Sprinkle, a registered civil engineer employed by Winzler & Kelly Consulting Engineers, about designing the concrete pier and subsequently engaged him to work on the trestle design as well (tr. 1/199-200).

The trestle was designed to be a temporary structure (supp. R4, tab 30 at 647). Looking out to sea from the shore, the trestle was on the right and the pier system to its left (tr. 4/9). Mr. Sprinkle began work on the trestle design in early March 2003 (tr. 1/205). He used a structural analysis program, “SAP2000 Version 7.10,” to model it (supp. R4, tab 30). The trestle was supported by bents, which are cross-beam structures made up of two piles connected with an orthogonal steel beam. The trestle bents were constructed at set distances beginning at the shore and identified by consecutive numbers from 1 through 20. (Tr. 1/90, 106, 2/84, 3/197)

The trestle piles were 12-inch outside diameter (OD) steel pipes of varying lengths encased in 24-inch OD cylindrical steel pipes with 12 ¾-inch OD steel pipe stingers. A stinger is a pipe that is drilled into harder bedrock. The 24-inch pipe was to rest on the bedrock surface and increased in length as the trestle went out to sea. (Tr. 1/261, 3/199, 4/190-91) The stingers were 10 feet long and welded to the bottom of the 24-inch pipe. Grout was not used in the trestle piles because Nova intended to extract the piles and reuse them. (Supp. R4, tab 30 at 532, tab 109 at 674; tr. 1/217-18, 2/60)

Nova planned to use a Sumitomo crane on the trestle during construction. It was the heaviest weight the trestle was expected to bear and Nova provided information about the crane to Winzler & Kelly so that the trestle could be designed for maximum load. (Tr. 1/201-02, 205-06) It was anticipated that there would be lateral loads on the trestle from sway when the crane was in use (tr. 1/229-30, 260, 2/58). Sumitomo set the maximum lateral load during work operations to be 1.365 tons, which is equivalent to 2.73 kips (a kip is 1,000 pounds) (supp. R4, tab 30 at 506; tr. 1/260). The trestle design assumed a lateral load of 10 kips (supp. R4, tab 30; tr. 1/230, 260). Axial loads were calculated for the individual trestle bents based upon the weight of the crane and the lateral loads: 230 kips for the first 6 or 7 bents; 260 kips for the bents further out in the water (tr. 1/261).

The trestle piles had two points of end load bearing: one at the bottom of the 24-inch cylindrical steel pipe resting on the bedrock; and the other at the bottom tip of the stinger. The 24-inch pipe was expected to settle as much as three inches into the bedrock surface when loaded. (Tr. 1/65, 140, 221-22, 2/66-67, 83, 4/31) It was intended that the 24-inch pipe would achieve significant bearing at the top surface of the bedrock and that, should it settle up to three inches, the stinger would have adequate end bearing at the bottom of the drilled hole (supp. R4, tab 109 at 674). Additionally, it was anticipated that skin friction (the resistance between the pile surface and the material through which it is drilled) would be created when the stingers were drilled into the rock and that the annular space between the stinger and the wall of the hole created by the drill bit would fill with sand. Skin friction was also expected to provide end load bearing. (Tr. 1/81-82, 2/64-65, 3/94) Thus, the design assumptions were based upon the concept that the 24-inch pipe would rest on the bedrock, with three inches of support from the bottom of the stinger if the bedrock was not sufficiently strong to hold the load with additional support from skin friction, if necessary (tr. 2/66-67, 4/162).

Another employee of Winzler & Kelly performed an LPILE analysis to evaluate the load capacity of the piles. Mr. Sprinkle assumed the Group Delta and URS boring log information had been used in the Winzler & Kelly LPILE analysis. (Tr. 1/208-16) The LPILE analysis indicated that approximately 10 feet of penetration into the rock would be needed for the stinger (supp. R4, tab 28 at 648). It also indicated the point of "fixity" (*i.e.*, the point beneath the ground surface at which the trestle would settle and obtain the proper forces and displacements from the pile) (supp. R4, tab 30 at 647; tr. 1/210, 216).

The permanent pier consisted of a concrete pier structure, a ramp and seven mooring dolphins. The concrete pier was located the closest to the shore, with the mooring dolphins the furthest seaward. (App. supp. R4, tab 43 at 43.8.2; tr. 1/74-75) Winzler & Kelly assumed the piles supporting the dolphins would be subjected to significant lateral loads during barge moorings (tr. 1/260-61, 2/57-58).

The pier and dolphin piles were to have 24-inch OD octagonal composite concrete jackets over 12-inch pipe piles that were to be filled with grout. The stingers had a 12 ¾-inch OD and were 16 feet long. The annulus for both the pier and the dolphin piles was designed at a nominal ¼ inch. The sand would be air jetted out of the annulus which would then be filled with grout as would be the presumptive three-inch "toe cavity" below the stinger and the bottom of the drilled hole. Additionally, grout was to be pumped out at the base of the pile to protect against corrosion and increase the end bearing capacity. Rock anchors were to be installed at the bottom of the pile stingers and grouted. (Supp. R4, tab 109 at 674, tab 118 at 687) The pier stingers could carry more load than the trestle stingers because they were longer and were grouted (ex. G-1; tr. 4/30).

In summary, the designs for the temporary trestle and the permanent pier and dolphin mooring piles were similar, the major differences were that the permanent piles used octagonal-shaped concrete instead of cylindrical steel to encase the 12-inch pile pipes, longer steel pipe drill stingers, and extensive grouting (ex. G-1 at 31178-79; tr. 4/28-29).

This was a design-build contract and the Navy's design review team conducted an intensive review of the permanent pier design before eventually approving it (tr. 1/58-62, 79). The trestle, however, was the method Nova selected to construct the pier and it was not subject to the contractual design review requirements (tr. 3/26, 40-41). The trestle design was never submitted to the Navy for review (supp. R4, tab 152 at 10).

Contract Performance

Nova also retained Mr. Holloway as a consultant during project performance. Nova began drilling piles on 3 May 2003 and started construction of the trestle on 21 July 2003, beginning at the shore and proceeding seaward with the piles and bents (app. supp. R4, tab 43). As construction proceeded, Nova worked on the pier using completed portions of the trestle as a scaffold, as planned (supp. R4, tab 183; ex. G-1).

Nova used a "Numa" drill to drill the pile stinger into the bedrock. The drill overcut the hole, creating the anticipated ¼ inch annular space between the stinger pipe and the rock. (Tr. 1/64-65, 2/61)

The Partnering Workshop Notes dated 5 August 2003 reflect an anticipated project completion date of 10 January 2004 (supp. R4, tab 57 at 14474). Nova's 29 August 2003 schedule update reflects 26 December 2003 as the start date for removing the trestle (activity A1000-69) and 16 January 2004 as the final project closeout completion date (activity AL1000-42) including punch list items (app. supp. R4, tab 43 at 43.3.4, 43.3.5).

During construction of the first third of the trestle (bents 1-6) in the late August/September 2003 time period, the crew noticed movement/settlement of some of the trestle piles and reported its concerns (supp. R4, tabs 121, 125 at 731). Mr. Fedrick traveled to the work site to reassure the crew about the safety of the trestle, explaining the design and that three inches of settlement was anticipated (tr. 1/187-88). Additionally, there had been some lateral sway due to the crane, which he explained was also anticipated and within the design (tr. 1/87, 194).

Trestle Settlement

On 6 October 2003, while installing the initial ramp support dolphin piles, Nova experienced differential settlement of the trestle that exceeded the design tolerances (supp. R4, tabs 81, 109 at 675). The following day it took an elevation survey along the length of the trestle and a portion of the pier. The results of the survey indicated that there was settlement of 3.6 inches at piles 2B and 5B, which were relatively close to the shore. (Supp. R4, tab 82) It also indicated settlement significantly in excess of the three-inch design assumption at four trestle bent piles: Pile 9A, settlement of -0.50 feet (six inches); Pile 11A, settlement of -0.41 feet (4.9 inches); Pile 12A, settlement of -0.60 feet (7.8 inches); and Pile 13A, settlement of -0.49 feet (5.8 inches) (supp. R4, tab 82; tr. 1/92). The A line was the right side of the trestle going offshore and had been subjected to lighter loads than the B line (supp. R4, tab 109 at 675).

In mid-October, Nova disassembled the trestle from bents 6 through 8 to examine the conditions in situ. It then cleaned a dark material that appeared to be an organic clay/claystone out of the trestle stinger piles at bents 6, 7, and 8 and took soundings which revealed there were voids as deep as two feet beneath the bottom of the stinger at some of the piles (supp. R4, tabs 87, 88 at 31333, tab 109 at 675; tr. 2/86-87). Nova took six samples of the material from the inside of the piles using a Portuguese pump and sent the samples to the Kleinfelder, Inc. laboratory for analysis of the plasticity index of the soil samples. It did not request a slaking analysis. (Supp. R4, tab 89; tr. 1/92-93) By a letter dated 23 October 2003, Nova notified the Navy that it had encountered a potential differing site condition based on the observations of material that appeared to be an organic clay (supp. R4, tab 88). Although Mr. Fedrick admitted that slaking was “a new terminology” for him on this project, he nevertheless attributed the voids to slaking at the hearing (tr. 1/108-09, 150-51).

On 28 October 2003, Kleinfelder reported that the sample materials were “predominately clay:” five of the samples were found to be an “Olive Brown Clay (CL)” indicating “[i]norganic clays of low to medium plasticity;” and one sample was classified as “Olive Brown Clay (CH),” indicating “[i]norganic clays of high plasticity.” Nova was surprised to find clay, but did not know whether the clay was naturally occurring or if it had been produced while drilling with the Numa drill. (Supp. R4, tab 89; tr. 1/93-94, 2/87-90)

Nova notified the Navy of the Kleinfelder test results and its belief that there was pure clay beneath the trestle piles. It suggested further geotechnical borings the sooner the better. (Supp. R4, tab 91) The Navy and Nova discussed the need for additional borings and on 30 October 2003, Mr. Mark Foster, Project Engineer for the Resident Officer in Charge of Construction, confirmed that the Navy had decided to obtain additional borings from the area in which the trestle had been built and from the proposed end of the concrete pier (supp. R4, tab 92). On 3 November 2003, Nova advised the

Navy that it had decided to wait for the additional boring information "to validate or redesign the trestle support" before continuing performance (supp. R4, tab 94).

Additional URS Borings

URS conducted the additional field investigation from 13 through 19 November 2003 (supp. R4, tab 99). It used Gregg Drilling and Testing, Inc. to drill and sample six borings, subject to Mr. Holloway's directions regarding the boring locations, sampling depths, etc. (supp. R4. tab 128 at 33376; tr. 2/150, 194). Both Mr. Holloway and Mr. Fedrick were present during the investigation (tr. 1/101).

Mr. Michael Hatch, a senior URS geologist, supervised the drilling and prepared the boring logs (supp. R4, tab 99 at 9309-29, tab 118 at 695-715; app. supp. R4, tab 39). The borings were taken along the length of the existing trestle and were labeled T1 through T6 (supp. R4, tab 109 at 676). Mr. Holloway discussed his field observations with Mr. Hatch and prepared his own "stick logs" which provided an elevation view of the geologic cross section projected approximately along the trestle alignment (supp. R4, tab 109 at 677; app. supp. R4, tab 43 at 43.1.1; tr. 2/140-43).

The borings were recorded in meters which we have converted to feet (3.28 feet per meter). Boring T1 was lost at a depth of about nine feet below the sea floor, but a thin layer of "Soft to stiff, wet CLAY" was found directly on top of the bedrock at about seven feet (supp. R4, tab 128 at 33392). T1A was drilled approximately six feet away from T1, just seaward of trestle bent 6, pile 6B, where the concrete pier ends and the ramp begins (supp. R4, tab 128 at 33386; app. supp. R4, tabs 42, 43; tr. 1/146-47). Boring T2 was drilled near trestle bent 9, pile 9A (supp. R4, tab 128 at 33386; app. supp. R4, tabs 42, 43 at 43.1.1). Borings T1/T1A and T2 reflected conditions similar to those indicated in the pre-bid documents, in particular B-6 (supp. R4, tabs 5, 6, 99; tr. 1/147, 2/94).

Boring T3 was drilled beyond trestle bent 10, near pile 11B (supp. R4, tab 128 at 33386; app. supp. R4, tab 43 at 43.1.1). The bedrock at T3 begins at a depth of about eight feet below the sea floor with claystone that is described as "moderately weathered, weak rock, highly fractured." At a depth of about 13 feet, the rock is described as "highly fractured and locally sheared...moderately weathered, with many fractures." At about 17 feet there is a band of "Strong rock, cemented" that is less than a foot thick that becomes "moderately to highly weathered, highly fractured...very weak rock with many...branching fractures." At 25 feet, the bedrock is described as "slightly weathered to fresh claystone...moderately strong to strong rock." (Supp. R4, tab 99 at 9316-17; tr. 2/146)

Boring T4 was located near trestle bent 12 (supp. R4, tab 128 at 33386; app. supp. R4, tab 42). The log shows bedrock at a depth of three feet below the sea floor, described as “completely weathered CLAYSTONE, stiff, olive gray,” with a thin layer of “lean CLAY (CL)” just below it. This is followed by more claystone, described as “highly weathered, very weak rock with extremely weak rock zones, highly fractured.” At about eight feet, the bedrock becomes “moderately weathered with highly weathered zones along fractures and zones of completely weathered.” Beginning at a depth of 13 feet and extending down to 19 feet, the boring log states: “Shear zone, becomes highly weathered and fractured, many high angle fractures and shears with clayey gouge, locally brecciated, and sheared along high angle and along bedding parallel shears.” Thereafter, the material is variously described as “highly to moderately weathered, moderately fractured...weak rock,” “[h]ighly fractured,” “slightly weathered,” to a depth of about 27 feet where it becomes “[m]oderately weathered and fractured.” (Supp. R4, tab 128 at 33401-04; app. supp. R4, tab 43 at 43.1.1; tr. 2/147)

Boring T5 was just beyond trestle bent 13, near piles 14A and 14B, and was the furthest away from the shore (supp. R4, tab 128 at 33386; app. supp. R4, tab 43 at 43.1.1). The boring log shows bedrock at a depth of five feet below the sea floor described as “highly weathered, very weak rock,” “moderately weathered, weak rock,” and “Highly fractured.” A “Fault” and “apparent vertical separation” are indicated at a depth of 22 feet, followed by “slightly to moderately weathered, weak rock” and “slightly weathered, weak to moderately strong rock.” At about 40 feet, “slightly weathered to fresh rock” was noted. (Supp. R4, tab 128 at 33405-07)

Boring T6 was located between piles 13E and 13F (supp. R4, tab 128 at 33386; app. supp. R4, tab 43 at 43.1.1). The boring log reflects a layer of “Completely weathered, stiff, olive green CLAY” directly on top of the bedrock at a depth of about five feet. Thereafter, claystone is described as “extremely weak,” with “Alternating layers of slightly weathered and moderately weathered, weak rock” from 18 feet down to 23 feet. (Supp. R4, tab 128 at 33408-11; tr. 2/147)

Photographs were taken of the URS boring core sample boxes (supp. R4, tab 128 at 33413-429). We are unable to make any findings of fact from these photographs in the absence of any satisfactory testimonial explanation about what the photos show.

Bilateral Modification No. A00002, effective 6 February 2004, increased the contract price by $139,925.00, and extended the completion date by 30 calendar days to 4 May 2004 for the additional URL geotechnical investigations (supp. R4, tab 2). Mr. Foster provided background information to the contracting officer in conjunction with the modification. He advised that:

> The Government Soils investigation was a two part report. One part investigated the shore conditions to the low tide line and the other part investigated the deep water site up to the surf zone. There was no investigation in the actual surf zone,

instead the conditions in the surf zone were estimated based upon the surrounding areas.

(Supp. R4, tab 122)

Mr. Holloway reached a variety of conclusions about the subsurface conditions from his field observations and discussions, the URS boring logs and the core samples. He thought that Nova had "problem rock in terms of [its] support conditions" up to a depth of 25 feet for T3 (tr. 2/146). His 5 and 24 December 2003 reports to Mr. Fedrick state that T4 "showed a profound amount of both weathering and shearing in-situ...suggest[ing] a fault-like structure that has near vertical fractures that are rock-like on one side and relatively weak clay-like on the opposite side of the fracture" (supp. R4, tab 109 at 678, tab 118 at 686). It was his view that boring T5 was not as "badly disturbed" as T4 (tr. 2/148).

Boring B-2 was in the general vicinity of where trestle bent 19 would be located, which is adjacent to the dolphin farthest from the shore at the far end of the pier (supp. R4, tab 109 at 673; tr. 2/275). Mr. Holloway acknowledged that the quality of the near-surface rock between T4, T5 and T6 and boring B-2 remained uncertain (supp. R4, tab 109 at 678, tab 118 at 686-87).

Redesigns

Following the 2003 URS field investigation, Nova retained J.M. Turner Engineering, Inc. to redesign the trestle structure and tasked Mr. Holloway with redesign of the piles (supp. R4, tab 125 at 836-37; tr. 1/106-07).

The Trestle Piles

By 26 November 2003, Mr. Holloway had developed a preliminary redesign for the trestle piles (supp. R4, tab 106). On 2 December 2003, Nova began dismantling the trestle from bents 6 through 9 (supp. R4, tab 183 at 32046-47, tab 184 at 26967). It began removal of trestle piles on 4 December 2003 (supp. R4, tab 183 at 32048-49).

Mr. Holloway's 5 December 2003 report to Mr. Fedrick contained his recommended revisions to the trestle pile design. His report states that, with respect to trestle bents 8 and beyond, "the endbearing conditions at the top of the rock have been compromised, and may well further degrade with time due to the decay of ground strength properties in the saltwater environment." (Supp. R4, tab 109 at 678) We infer this to be a reference to slaking.

He recommended that the piles for trestle bent 6 remain in place, that the pipes be filled with grout and that the annulus between the pipe and the borehole and any voids in situ also be filled with grout. The piles for bent 7 were to be extracted, the stinger perforated to facilitate grout flow and the pipes grouted in the same manner as the bent 6 piles.

For bents 8 and beyond, he assumed "that the contributions from endbearing of the 24-inch-pipes on the rock surface was [sic] unreliable, and therefore neglected" (supp. R4, tab 109 at 680). The piles for bents 8 through 14 were to be removed. He recommended that an extension be added to the stinger, increasing it from 10 to 20 feet for bents 8 through 11 and to 30 feet for bents 12, 13 and 14, and that the stinger pipes be perforated and the pipes grouted as indicated. Use of battered piles with rock anchors at bents 6 through 14 was also suggested. (*Id.* at 678-79) Adding grout to the trestle piles provided skin friction and immediate end bearing at the stinger tip (tr. 4/36-37).

In sum, Mr. Holloway's redesign of the trestle piles provided for full grouting, an extension of the length of the stingers and the elimination of the contribution of bearing support from the 24-inch pipe resting on the bedrock surface for bents 8 through 14 (tr. 3/243-44, 4/36-37). His trestle pile redesign work was done without any laboratory analysis of slaking (tr. 2/197). Mr. Holloway also orally recommended to Nova that it take the same "conservative approach" of using grout and longer stingers on trestle bents 15 and beyond given its experience with settlement and the limited information available about the subsurface conditions at the those locations (tr. 2/248-52). Trestle bents 15 and beyond had not been constructed at the time of the trestle settlement. Nova took the conservative approach and followed this recommendation (tr. 1/183-85).

The Pier and Dolphin Piles

Mr. Holloway's 24 December 2003 report to Mr. Fedrick contains his recommendations for the pier and dolphin piles (supp. R4, tab 118). The pier piles were in the vicinity of borings T1, T1A and T2 (app. supp. R4, tab 43 at 43.8.2). With respect to the existing pier piles, the report states:

> The...concrete over pipe stinger piles that are supporting the new pier are installed into sound bedrock that has behaved in the manner originally anticipated in the design....
>
> The trestle piles thru bent 7 performed well, with the greatest share of the capacity being developed at the base of the 24-inch diameter pipe section at the top of the rock surface. The stingers on the trestle piles were 10-ft-long, and there was no intention to grout these piles in place. The trestle piles were subjected to significantly larger axial compression loads than those for which the pier was designed. **As the pier piles have 16-ft-long stinger pipes, and were tremie**

> **grouted with added pressure (to enhance their shaft friction and endbearing contributions), the pier piles should perform satisfactorily in service.**

(Supp. R4, tab 118 at 688) (emphasis in original)

With respect to the mooring dolphin piles the report opines that:

> The subsurface bedrock materials further offshore (borings T3 thru T6) unfortunately provide significantly poorer support for the original rock-socketed piles than original boring information portrayed. In other words, the dolphin piles would have performed poorly as originally designed, due to rock that is moderately to severely sheared in situ, a differing site condition. This moderately to severely sheared zone extends offshore from T3 thru T6, and appears to be absent once we reach B-2.

(*Id*. at 689)

Mr. Holloway assumed that the contributions from end bearing of the 24-inch piles on the rock surface were "unreliable, and therefore, it is neglected." He recommended that the dolphin stinger pipes "remain perforated over their full length to facilitate grout flow," that the "penetration of the stinger pipe reach at least elevation -45 ft" and that length of the rock anchors be increased to 15 feet. (*Id*.)

<u>Slaking Tests</u>

Mr. Holloway was experienced with the slaking phenomenon in sedimentary rock and commonly tests for slaking in rock explorations, particularly when drilling. During the 2003 URS investigation, he performed his own informal field tests for slaking to evaluate whether the material was susceptible to disintegration. (Tr. 2/208-09) He acknowledged that his informal tests were not based upon any recognized scientific standards (tr. 2/195-96). He took material pieces from the URS boring samples and hammered them into small pieces, but did not record the sizes and types of material for most of them, or the depth at which they had been recovered, although he focused upon the bedrock surface and ten feet below the surface. He then placed the material pieces into 11 Dixie cups which he filled with sea water. He recorded his observations of the samples after "a few days," on 20 November 2003, and then again on 18 December 2003. He described a sample from T1 as changing from "hard clay-like behavior to that of a soft marshmallow overnight;" a sample from T4 as "almost fully disintegrated to toothpaste easily;" and a sample from T6 as "chunks of seemingly hard clay became marshmallows within 2 hrs." He thought a quarter to a third (three or four) of his samples reflected evidence of slaking. (App. supp. R4, tab 27 at 691-92; tr. 2/102-07, 110, 196) We consider Mr. Holloway's informal field tests and his summary evaluation to be both subjective and lacking in scientific underpinnings.

Mr. Holloway also wanted to have slake durability tests performed by a professional laboratory in accordance with ASTM standards and asked URS about performing them (tr. 2/195-97). The test is used to "estimate qualitatively the durability of weak rocks" (app. supp. R4, tab 31, ¶ 4.1). On 23 December 2003, following a 19 December 2003 telephone conference, URS provided its quotation for the "Slake Durability" testing Mr. Holloway had requested (supp. R4, tab 116). Mr. Holloway selected the locations and the number of samples to be tested, but he denied instructing URS that the slake durability test was to be "performed in saltwater bath (at concentrations similar to the ocean)" as reflected in footnote 2 to the URS quotation, which he understood would be a deviation from the applicable ASTM standard, D 4644 (supp. R4, tab 116, 123; tr. 2/194-201). ASTM D 4644 covers the determination of the slake durability index of a shale and similar weak rocks after two wetting and drying cycles with abrasion using distilled water (app. supp. R4, tab 31). Mr. Holloway thought that the use of saltwater would increase the possibility of slaking (tr. 2/199).

URS provided preliminary "Slake Durability Test Results" for five of the ten samples selected by Mr. Holloway on 10 February 2004. Footnote 1 states that the tests were performed in accordance with ASTM D 4644; while there was no direct testimony on this factual issue, Mr. Holloway expressed the view from his personal experience that URS "follow[s] the standards to the letter religiously" (tr. 2/200-01). Footnote 2 states that: "High Durability Index (I_D) indicates that the rock is not particularly susceptible to degradation when exposed." (Supp. R4, tab 123) The cover e-mail message from URS stated that "[s]o far the tests indicate that most of the materials are susceptible to degradation when exposed." Nova sent these results on to the Navy. (Supp. R4, tab 124; tr. 1/138-39) There was no evidence explaining which samples were being referred to or describing the severity of the degradation susceptibility.

The final URS report, "Geotechnical Data Report" on "Additional Subsurface Investigation," was issued on 18 May 2004 (supp. R4, tab 128). Paragraph 4.2 "SUBBOTTOM CONDITIONS" of Section 4, "SITE CONDITIONS" of the narrative portion of the report states in relevant part:

> The underlying bedrock surface slopes seaward and is underlain by a thin layer of highly to completely weathered bedrock material comprised of stiff, wet, lean to fat clay. This residual clay was thin in most of the borings and transitioned into moist, highly weathered bedrock comprised of siltstone or claystone....

> The quality of the rock encountered in the borings appears to abruptly transition between Borings T-2 and T-3. In addition, three of the borings encountered significant zones of highly weathered, jointed and sheared materials from high angle joints and minor faults. There is more fracturing observed in the upper levels of Borings T-3, T-4 and T-5, relative to that observed in Borings T-1A and T-2. Inspection of the core photographs in Appendix B provides a similar observation. The Rock Quality Designation (RQD) becomes "excellent" at an elevation of about...-23 to -24 feet...in Borings T-1A and T-2, whereas the RQD becomes excellent at elevations ranging from about...32 to 51 feet...in Borings T-3 through T-6....
>
> ....
>
> Correlation to Unconfined Compressive Strength Test results indicate that the rock sampled is predominately weak to moderately weak. Four of the samples classified as weak, an additional four samples classified as moderately weak and one sample classified as very weak. The results of Slake Durability Tests indicate that the rock sampled is predominately "durable" to "hard, non-durable" using criteria developed by Strom et al., 1978 (as reproduced in FHWA [Federal Highway Administration], 2002) to evaluate shale as rockfill. Two of the 10 samples test classified as "soft, non-durable."

(Supp. R4, tab 128 at 33380-81)

Included in the report is an "INTERPRETIVE GEOLOGIC CROSS SECTION (ALONG TRESTLE)." The cross section shows what is identified as a " __ ? __ hypothetical fault" on the shore between boring T1 and boring B-6. (R4, tab 128 at 33388)

The URS report also provided the "Slake Durability Test Results" for all 10 of the samples in Table C-3 of Appendix C and indicated in footnote b. that the tests were performed "Per ASTM D 4644." Footnote c. is identical to footnote 2 in the URS preliminary results and there were no changes to the preliminary results previously provided. The samples were given "Durability Descriptive Term[s]" with the following statement provided in footnote d: "Rock Durability Classification Criteria for use of shale as rockfill (Strohm, 1978 as reproduced by FHWA, 2002)." The two samples classified as "Soft, Non Durable" are both from boring T4. (Supp. R4, tab 128 at 33434)

Mr. Holloway added the URS slake durability test results to his stick logs using an index scale pursuant to which he described material with a durability index of less than 40 as "highly susceptible to degradation or slaking," an index of between 40 and 60 as "somewhat susceptible," and index of 60 and higher as having "little susceptibility" to slaking (tr. 2/143-45). He acknowledged that he arbitrarily selected the index numbers he used for his interpretation of material subject to slaking (tr. 2/218-20). He decided that three samples at T4 and one sample at T2 were highly susceptible to slaking (app. supp. R4, tab 43 at 43.1.1; tr. 2/143-49). Two of the T4 samples and the T2 sample were taken from areas very near the beginning of the bedrock surface (app. supp. R4, tab 43 at 43.1.1). With the possible exception of the T4 samples, we find virtually no correlation between Mr. Holloway's Dixie cup test results and his evaluation of the URS slake durability test results.

Differing Site Conditions and Delay Claims

By a letter dated 19 February 2004, Nova submitted a request for an equitable adjustment (REA) alleging Type I differing site conditions. It pointed to the trestle settlement and asserted the results of the Kleinfelder tests were inconsistent with the pre-bid borings. It discussed Nova's trestle design review efforts, a rock slaking problem that affected the trestle, but not the pier, and the additional URS borings, in particular borings T3 and T4 and to a lesser extent borings T5 and T6, which Mr. Fedrick described as "indicating the presence of an extremely fractured area" reflected by shear zones and high angle fractures with shears (supp. R4, tab 125 at 732). Nova sought $4,611,302 for additional costs associated with crew standby, demolition of trestle bent 5, demolition, redrilling and installing trestle bents 6 through 14, differential costs for drilling and installing bents 15 through 19, additional costs for installing longer dolphin piles and dolphin rock sockets, and other miscellaneous demolition costs, together with an estimated contract time extension of 180 days (*id.* at 737-43). On 24 March 2004, the contracting officer unilaterally issued Modification A00003, increasing the contract price by $1,558,779.00 and extending the contract completion date by 96 calendar days, to 8 August 2004, as a result of "differing site conditions that were encountered when some unique soil conditions were discovered by the contractor." The costs awarded related to the lengthening of the trestle piles at bents 6 through 14 and installation of batter piles and cross beams at bents 10 and 12. (Supp. R4, tab 3)

On 2 April 2004, Nova submitted an REA based upon the same alleged differing site conditions and seeking an additional $2,199,392.00 in costs associated with redrilling and installing trestle bents 13 and 14, differential costs for drilling and installing longer piles at bents 15 through 19, and additional dolphin pile costs, together with a contract time extension of 180 days (supp. R4, tab 127). On 28 June 2004, the contracting officer unilaterally issued Modification No. A00009 for differing site conditions, increasing the contract price by $610,713.00 and extending the contract completion date by an additional 36 calendar days, to 13 September 2004. The costs awarded related to installing additional pile lengths at the bents and dolphins and the differential costs for bents 15 through 19. (Supp. R4, tab 4)

On 18 November 2004, Nova submitted another REA for costs, including differential costs for trestle bent 20, and time associated with the alleged differing site conditions which specifically referenced its prior 19 February and 2 April 2004 submissions. Recognizing the payments previously made in Modifications Nos. A00003 and A00009, the REA sought a price adjustment of $5,219,884 and a contract time extension of 289 days and excluded costs and impact awarded by the two earlier modifications. (Supp. R4, tab 134) On 11 January 2005, the contracting officer responded that an analysis of the REA was underway, but that the Navy's position was: (1) that the claim for lengthening the piles and the installation of the extra length for the trestle piles within the differing site condition area and for the dolphin piles had merit; and (2) that costs stemming from rework of the trestle were due to a design error and were without merit (supp. R4, tab 137).

On 8 February 2005, the Navy notified Nova that it had accepted the project for useable completion as of 3 February 2005 (supp. R4, tab 139). The Navy reiterated the position it had taken in January in a formal response dated 11 February 2005 that specifically stated it was not a contracting officer's final decision. Attached to the response was a written report prepared by Mr. Steven Coolong, a senior NAFAC geotechnical engineer, following his investigation into the matter (supp. R4, tab 141; tr. 3/154-55). Additionally, the Navy's response stated:

> The DSC [differing site condition] portion is considered to have merit, but the costs associated with reworking the trestle are considered to be the result of a design error and as such are considered to be without merit....
>
> ...It is the government's position that there is no merit in [sic] responsibility for costs to re-work the trestle to account for the bottom conditions that are correctly portrayed in the pre-award government furnished subsurface investigations, both on the beach and beyond the surf line. It is obvious that trestle instability would have been a problem even without the DSC.
>
> ....
>
> Unilateral modifications A00003 and A00009 intended to compensate the contractor for as much as could be justified

> prior to a full analysis of the impact of the differing-site condition.

(Supp. R4, tab 141)

On 1 March 2005, Nova provided additional information to the contracting officer regarding the alleged delay aspect of its REA which specifically referenced its 2 April and 18 November 2004 REA submissions. The letter included a summary chart of 42 separate delay items which Nova purported established a total delay of 421 calendar days associated with the alleged differing site conditions. None of the items was supported by either a CPM analysis or any specific documentation. (Supp. R4, tab 142) Nevertheless, Mr. Foster recommended that a time extension be issued (supp. R4, tab 144). His recommendation was not followed; instead, the contracting officer advised Nova by a letter dated 9 May 2005 that the Navy believed it had fully compensated Nova regarding its 18 November 2004 REA and did not find justification in Nova's contract time extension request. Nova was advised of its right to submit a certified claim. (Supp. R4, tab 145)

Nova submitted its certified claim for additional costs and time on 20 May 2005. The introductory paragraph states:

> Enclosed please find the contractors [sic] claim for the above referenced subject and project. The prior submissions occurred on February 19, 2004, April 2, 2004 and subsequently on November 18, 2004 as the scope of the impact was continuing to develop. This claim does include additional time delays and costs which are attributable to the DSC and indicates a final overall cost impact of $8,284,524. The government previously paid by unilateral change order a total of $2,169,492. The end result is this final request for a net final equitable adjustment and payment of $6,115,032.

(Supp. R4, tab 146 at 843) The claim also sought a contract time extension of 299 days, "calculated by taking the total days lost of 435 less the days given on A00003 and A00009 of 136 [sic], thus leaving 299 days of lost time" (*id*. at 844). The number of days was based upon an attached update of the summary chart of 42 separate delay items originally attached to Nova's 1 March REA supplement. It appears that additional weather days are claimed. (*Id*. at 861-62)

Mr. Fedrick's testimony at the hearing addressed the 421 days of delay computed in the chart attached to Nova's 1 March REA supplement, rather than the 435 days asserted in the certified claim. He did not prepare the chart himself, but summarily explained that it was based upon contemporaneous raw data that could be, but was not, used for a CPM analysis. He provided no details or documentation supporting the various categories of delay days claimed. (Supp. R4, tab 142; tr. 1/153-55, 156) Mr. Fedrick testified that the trestle, "almost for all intents and purpose, is on the critical path," but that there were a "couple of times where short pieces" of it were not. He stated that "[e]verything critical path for us is on building this pier...the dolphins, the trestle, the removal of the trestle. That is literally linear." (Tr. 1/117) The Navy identified conflicting record evidence relating to many of the delay items claimed (gov't sur-reply br. at 68-109).

Nova's reply brief likewise represents that it is seeking a total of 421 days, not 435 days, of compensable delay (app. reply br. at 119-23). Two additional computations presented in Nova's reply brief purport to measure the delay from the planned to the actual completion dates: one measures 405 days of delay and the other 460 days (app. reply br. at 120-21). Both use a completion date of 26 December 2003, taken from Activity A1000-69, "Remove Trestle," on Nova's 29 August 2003 schedule update (app. supp. R4, tab 43 at 43.3.5).

On 30 March 2006, Ms. Kathy Jones, a new contracting officer, issued a final decision denying Nova's claim for $6,115,032 and a time extension of 299 days in its entirety (supp. R4, tab 152 at 863, 874). The decision notes the payment of a total $2,169,492 under Modification Nos. A00003 and A00009 for "costs associated with lengthening the piles for the differing site condition encountered between bents 6 and 14 for both the trestle pier and the permanent pier" and the contract time extension of 132 calendar days (*id.* at 871).

The decision recites Nova's redesign efforts based upon the additional URS borings, Nova's submission of an REA asserting differing site conditions and the Navy's acknowledgment "that the bedrock depth in the DSC area differed than what would have been expected by interpolating the data found in the" pre-bid Group Delta and URS geotechnical reports. It recounts the inability to negotiate the costs claimed for "the additional pile lengths" resulting in the issuance of unilateral Modification Nos. A00003 and A00009. (*Id.* at 872) The decision goes on to assert that flaws in the trestle design (failure to use fixed piles and load conditions exceeding the bearing capacity of the piles at the surface of the fractured bedrock) were identified by Nova and corrected. It states that the costs of the corrective actions sought in Nova's claim are separate and distinct from the pile modifications required by the differing site condition. The decision concludes that Nova was "fairly compensated for the differing soil condition" and that the additional costs sought are the "result of Nova's poor design choices and failure to follow their consultant's design recommendations." (*Id*. at 873)

The final decision did not assert a government claim to recoup any costs previously paid or time awarded to Nova. This timely appeal followed.

The Navy's Technical Analysis Report

Mr. Coolong was qualified as an expert in geotechnical engineering, including piling (tr. 3/154-55, 194-95). His initial report, dated 9 December 2004, was attached to the contracting officer's 11 February 2005 letter to Nova (ex. G-1; supp. R4, tab 141; tr. 4/19-21). He supplemented his initial report with e-mails to counsel dated 17 September 2007 (ex. G-1, last page) and 16 November 2007 (ex. G-2).

He first became involved in the San Nicolas Island project in late 2003 when he was asked by the Navy's project manager to investigate the problems that had surfaced (tr. 3/204-05). He began by reviewing the relevant documents and then made three visits to the work site (tr. 3/205, 207-09, 228, 230). He examined exposed sections of in situ bedrock near the pier where the sand had been washed away because he thought the in situ bedrock on the beach would be similar to the bedrock on the sea floor. He found it to be "very weathered and fractured on the surface" and concluded from the spacing and location of outcroppings of the rock that the sea floor would not be flat. (Ex. G-2, tab 11; tr. 3/210-11, 214-16, 218, 223-26, 4/181-82, 195, 215-19)

Mr. Coolong talked with Mr. Foster, Ms. Robin Murphy, Nova's Quality Control Inspector, and Nova's on-site workers, who confirmed there had been lateral and vertical movement of the trestle before the settlement on 6 October 2003 (tr. 3/207-10, 226-27, 232-33). Additionally, he performed informal slaking tests similar in nature to those performed by Mr. Holloway. He used pea gravel size cuttings from the drilling operation, but found very little evidence of slaking, "nothing that appeared to be unusual." (Tr. 3/235-36, 4/136-38) He explained that there is always some degree of slaking when there is drilling in sedimentary rock, but he did not feel that it presented difficulty, and thought, in any event, that Nova should not have been surprised to find slaking (tr. 4/133-34).

Mr. Coolong reviewed the Group Delta and URS boring logs and geotechnical reports and interpreted them as describing the surface of the bedrock as being "intensely fractured and moderately weathered," which was consistent with his site observations. It was his opinion that the bedrock was not "a good, solid stratum to set piles upon," not "favorable for foundation support." (Ex. G-2 at 7; tr. 3/236-37, 4/53) He explained that "intensely fractured and weathered" describes rock that is going to be penetrated very easily, and that "fresh" rock is good quality rock that has not been exposed to significant weathering (tr. 4/47). He speculated that the inclusion of slaking on the Group Delta Rock Classification Descriptive Sequence chart suggested that slaking may have been one of the criteria Group Delta considered (tr. 4/135-36).

Mr. Coolong also compared the two pre-bid geotechnical reports with the 2004 URS report. He thought the bedrock surface described in all three reports was the same, specifically, in "its highly weathered and fractured nature" and "its soft condition" (tr. 4/53, 99, 116-17). On this point his supplemental report states:

> All the boring logs indicated that the surface of the bedrock is highly fractured and incapable of adequately supporting heavily loaded piles that would bear directly on the surface of the bedrock.

(Ex. G-2)

With respect to the 2004 URS report, Mr. Coolong opined that the main shear was identified on T4, but did not have any impact on the failure of the trestle because the shear zone began at a depth of about 13 feet below the bedrock surface and the trestle pile only went down to a depth of 10 feet (supp. R4, tab 128 at 33402; tr. 4/118-19). He explained that the Interpretive Geologic Cross Section map included with the URS report indicates that the limits of the shear zone on T4 and the depth of the weathered layers are not known (supp. R4, tab 128 at 33388; tr. 4/120-22). It was his view that the shear zone at T4 did not appear to extend to either the T3 or T5 borings (tr. 4/119-20, 151). He interpreted the Cross Section map, the Group Delta and URS boring logs provided with the bid documents as indicating the same thing: "that you go from a highly weathered, highly fractured zone at the surface, and then the bedrock becomes better with depth" (tr. 4/123).

With respect to the slake durability test results reflected in Table C-3, Mr. Coolong thought that three samples, all from boring T4, indicated slaking. This was apparently due to low durability index numbers, the import of which he did not explain. He did not express any view as to the degree of slaking he thought was present. (Tr. 4/139-40)

Mr. Coolong questioned whether skin friction was an initial component of the trestle pile design because densified sand would have made it difficult to extract the pile (tr. 4/31-36, 191-94). Mr. Fedrick was adamant in his disagreement; it was his view that skin friction provided additional bearing when the sand was packed around the outside of the pipe by the drilling vibration (tr. 5/20-22).

Ultimately, it was Mr. Coolong's opinion that the primary cause of the failure of the trestle was Nova's reliance upon the highly weathered and fractured bedrock surface as a key supporting element of the pile (ex. G-1 at 31183; tr. 4/51, 160). He thought that the application of axial loads from the crane exceeded the strength of the bedrock, causing the pile to drop to the bottom of the drilled hole and to transfer the load to the tip of the stinger (ex. G-1 at 31183-84; tr. 4/163-65).

His supplemental opinion, dated 17 September 2007, addressed both the trestle and the permanent pier piles (tr. 4/52-53). He concluded that the redesign lengthened the stinger piles in order to account for the elimination of bearing capacity from the bedrock surface (ex. G-1, last page).

Mr. Coolong also addressed the question of the voids reflected by Nova's soundings at trestle bents 6, 7, and 8. He testified that he had seen the pilings Nova had extracted after the settlements lying on the shore without "shoes" or pile tips on the stingers (tr. 5/26-27). He speculated that the voids could be accounted for because Nova did not put shoes on the trestle pile stinger tips (tr. 3/185-85, 238-41). Nova presented persuasive rebuttal evidence that it had purchased and installed shoes for every pile on the project and that pile installation is not possible without them (ex. A-7; tr. 5/10-13, 15-19).

The Navy's Post-Hearing Motions

Motion to Strike Portions of Appellant's Reply Brief Based on New Documents in the Record

The Navy's Motion to Strike Portions of Appellant's Reply Brief Based on New Documents Not in the Record relates to excerpts of a document provided as Attachment A to Nova's reply brief. The document is a publication by P.J. Sabatini, *et al.*, 2002, Evaluation of Soil and Rock Properties, Geotechnical Engineering Circular No. 5, Federal Highway Administration (FHWA Circular 5). Attachment A includes Table 51, "Criteria for rockfill materials (after Strohm *et al.*, 1978)" which provides a "Slake Durability Index, I_D" and related "Category" descriptions. According to Table 51, a slake durability index greater than 90 is categorized as "Durable rockfill materials, if minus gravel-sized fraction is less than 20 to 30 percent;" an index between 60 to 90 is categorized as "Hard, Non-durable intermediate material;" and an index less than 60 is "Soft, non-durable materials treated as soil."

In its reply brief, Nova applies Table 51 to the slake durability indexes shown on Table C-3 of the May 2004 URS report for the 10 samples tested to propose findings of fact regarding the rock durability category descriptions. It then contends that these proposed facts establish that URS was incorrect in concluding that the "rock sampled is predominately 'durable' to 'hard, non-durable' using criteria developed by Strohm, *et al.*, 1978 (as reproduced in FHWA, 2002)" (app. reply br. at 52-55). It relies upon these and related factual assertions to support its contention that Nova encountered severe slaking (app. reply br. at 76-82, 108-09).

The Navy moves to strike Attachment A and the related factual and legal contentions on grounds that this is not one of the rare and exceptional circumstances in which the Board should exercise its discretion to re-open the record under Rule 13(b). It further asserts that Nova is using Attachment A to draw expert conclusions and is denying the Navy the opportunity to evaluate Attachment A and Nova's interpretation of it. Nova responds that the Navy relied upon the URS report and its findings that only two of the samples were described as "Soft, Non-Durable," that Attachment A is its affirmative response to that argument and that it is official reference material and does not constitute new evidence. It sees no prejudice to the Navy and concludes that, under Board Rule 13(b), the Board should allow Attachment A to be included in the record for completeness.

Nova relies upon *Reflectone, Inc.*, ASBCA No. 34891, 89-3 BCA ¶ 21,962, *aff'd*, 891 F.2d 299 (Fed. Cir. 1989) (table). We consider Attachment A and the related factual and legal contentions raised in this case to be significantly different than what apparently were pure legal issues associated with the Department of Defense (DoD) instruction at issue in *Reflectone*, the substance of which we note was neither discussed nor tied to the issues presented in the decision. *Northrop Worldwide Aircraft Services, Inc.*, ASBCA Nos. 45216, 45877, 98-1 BCA ¶ 29,654, also relied upon by Nova, is inapplicable because the documents at issue there were Army Criminal Investigation Command (CID) regulations. *Id*. at 146,933.

Attachment A is neither a directive nor a regulation and without it Nova cannot provide the factual predicate to support its contention that URS incorrectly concluded the "rock sampled is predominately 'durable' to 'hard, non-durable' using criteria developed by Strohm, *et al.*, 1978 (as reproduced in FHWA, 2002)." The record in this appeal was closed after the hearing (tr. 5/35, 37). Irrespective of whether it constitutes expert evidence as the Navy asserts, we think Attachment A is subject to the standard rules regarding the admission of new evidence after the record has been closed. *See D.E.W., Inc. and D.E. Wurzbach, a Joint Venture*, ASBCA No. 38392, 98-2 BCA ¶ 29,768 at 147,509 (receipt of additional evidence granted only in rare and exceptional circumstances and for compelling reasons; newly discovered evidence admitted only where the moving party was excusably ignorant of the evidence and could not, by the exercise of due diligence, have discovered it at the time of hearing).

Nova directed URS to perform the slake durability tests and has had the URS report since 2004. It obviously considered the test results to be of considerable relevance inasmuch as Mr. Holloway used them to annotate his stick logs, albeit with his own scale to classify the URS durability test results and his own descriptive terms, even though he claimed to be familiar with the Strohm criteria (tr. 2/202-04). Further, Nova cross-examined Mr. Coolong about the URS durability test results, eliciting testimony that he thought three samples (all from boring T4) reflected slaking, but not to what degree, and that he also thought that the mechanical test method used "often over predicts the slaking conditions" (tr. 4/138-40, 186). Nova seeks to establish facts using Attachment A after the record was closed, thereby precluding the Navy from presenting any rebuttal or clarifying evidence. Nova offers no explanation for its failure to offer its proposed evidence relating to the Strohm criteria during the hearing. We find no exceptional circumstances or compelling reasons for us to receive Attachment A as evidence in the hearing record. Accordingly, we grant the Navy's motion.

Motion to Strike Section III of Nova's Reply Brief

Section III of Nova's Reply Brief is titled: "**WITHDRAWAL OF CONTRADICTORY ARGUMENTS.**" Section III consists of one paragraph which states:

> An initial post-hearing brief in this appeal was filed on Nova's behalf by previous counsel on or about April 3, 2008. Nova did not know of or authorize the filing of that brief. See, Nova's Motion for Leave to Strike Post-Hearing Brief and File Substitute Brief dated May 9, 2008, Affidavit of Ronald M. Fedrick, ¶¶ 7-10. Nova hereby withdraws any arguments made or positions taken in the April 3, 2008 initial brief that contradict or are inconsistent with arguments or positions herein. Nova considers the arguments made and positions taken herein to supersede contradictory or inconsistent statements in the April 3, 2008 initial brief.

(App. reply br. at 137)

The Navy characterizes Nova's statement as disregarding the Board's 21 August 2008 Order denying Nova's Motion for Leave to Strike Post-Hearing Brief and File Substitute Brief and asserts that it places the burden on the Board to evaluate any inconsistencies between two briefs written by different counsel. Nova responds that it is not aware of any contradictory arguments in the two briefs and asserts that the statement could have been made even if there had not been a change of counsel. It asserts that, like any litigant, it is entitled to refine its arguments.

If Nova is correct and there are no contradictions between its initial and reply briefs, both the statement in Section III of its reply and the Navy's motion are moot. In any event, the Navy has not presented any compelling reason for the Board to strike Section III of Nova's reply. The Navy's motion is denied.

DISCUSSION

Differing Site Conditions – Type I

Nova contends that it encountered Type I differing site conditions consisting of severe slaking, shearing and fault zones, and disturbed bedrock at depths greater than indicated. The contracting officer awarded Nova a total of $2,169,492 and extended the contract completion date 132 days in Modification Nos. A00003 and A00009 as a result of differing site conditions. She denied Nova's 20 May 2005 certified claim for the remaining $6,115,032 and additional delay, now computed to be 289 days (421 days less 132 days). This appeal followed. Our review is *de novo*. 41 U.S.C. § 605(a). *See England v. Sherman R. Smoot Corp.*, 388 F.3d 844 (Fed. Cir. 2004); *Wilner v. United States*, 24 F.3d 1397 (Fed. Cir. 1994) (*en banc*); *Assurance Co. v. United States*, 813 F.2d 1202 (Fed. Cir. 1987).

The standards we are to apply in evaluating Nova's allegations are familiar. In order to recover for a Type I differing site condition, Nova has the burden of proving that: (1) the contract contained positive indications of the conditions at the site; (2) it reasonably interpreted and relied upon the indicated site conditions; (3) the conditions encountered were materially different from those indicated; (4) the conditions encountered were reasonably unforeseeable based upon all the information available at the time of bidding; and (5) its injury was caused solely by the differing site condition. *See H.B. Mac, Inc. v. United States*, 153 F.3d 1338, 1345 (Fed. Cir. 1998); *Stuyvesant Dredging Co. v. United States*, 834 F.2d 1576, 1581 (Fed. Cir. 1987). *See also International Technology Corp. v. Winter*, 523 F.3d 1341, 1348-49 (Fed. Cir. 2008) (combining the proof requirements into four, rather than five, elements).

The threshold inquiry of whether the contract contained some indication of the site conditions is a question of contract interpretation which we are to consider from the perspective of a reasonable and prudent contractor. *H.B. Mac*, 153 F.3d at 1345; *P.J. Maffei Building Wrecking Corp. v. United States*, 732 F.2d 913, 916-17 (Fed. Cir. 1984). The indications need not be explicit or specific, but they must be "reasonably plain or positive" or are such as to have "induced reasonable reliance by [the contractor] that the conditions would be more favorable than those encountered." *Pacific Alaska Contractors v. United States*, 436 F.2d 461, 469 (Ct. Cl. 1971). *See also Foster Constr. C.A. & Williams Bros. Co. v. United States*, 435 F.2d 873, 884 (Ct. Cl. 1970); *Kinetic Builders, Inc.*, ASBCA No. 32627, 88-2 BCA ¶ 20,657 at 104,399. While positive indications of favorable site conditions may be established in a number of ways, "mere silence is insufficient to establish the absence of unfavorable site conditions." *Kato Corp.*, ASBCA No. 51513, 02-1 BCA ¶ 31,669 at 156,495. *See Comtrol, Inc. v. United States*, 294 F.3d 1357, 1363 (Fed. Cir. 2002).

Nova contends that the contract explicitly advised bidders to rely on the Group Delta and July 2002 URS boring logs and geotechnical reports and that these logs and reports provided express indications about the subsurface conditions upon which it reasonably relied. According to Nova, the reports and boring logs indicated sedimentary bedrock composed of layers of claystone, sandstone and siltstone, with slightly weathered rock beginning at depths of 6 to 15 feet. It asserts that the reports and logs indicated that pure clay soil would not be present, that shears, faults and fault zones would not be encountered, that there would not be severely disturbed bedrock at depths beyond 6 to 15 feet and that slaking would not be encountered at any degree that would affect constructability, all of which it claims to have encountered, causing it injury. (App. reply br. at 67)

Contract Indications and Reliance

The evidence established that Nova relied upon the Group Delta and URS boring logs and geotechnical reports and felt comfortable bidding the project because the geotechnical information for both onshore and offshore areas was very similar in nature. The Navy argues generally that it was unreasonable for Nova to rely upon this information because only boring B-6 was within the footprint of the pier.

We infer from the evidence that Nova did not visit the site prior to bidding. However, Mr. Coolong's conclusions from his investigative visit essentially confirmed the information provided in the boring logs and geotechnical reports, namely that the surface layer of the bedrock was weathered and fractured and that the depths at which bedrock would be encountered varied, indicating an uneven surface. Thus, a site visit would not have disclosed any further information about the subsurface conditions. *E.g., Townsco Contracting Co.*, ASBCA No. 39924, 94-2 BCA ¶ 26,707 at 132,844.

In any event, it has long been the rule that contract borings are the most significant indicator of subsurface conditions and we are satisfied on this record that it was reasonable for Nova to rely upon the Group Delta and URS borings and geotechnical reports. *Foster Constr.*, 435 F.2d at 888-89. Group Delta was charged with performing a subsurface investigation, providing a geotechnical analysis for pile design and geotechnical recommendations for design and construction of the pier foundation. The URS investigation was performed to characterize the subsurface conditions on the shore and provide geotechnical considerations for design and construction of the project.

The proposed location of the pier was in the surf zone, making it too difficult and costly to obtain borings at the specific construction site. Boring B-1 was drilled just north of the future pier structure and was abandoned at eight feet due to high winds and ocean swells. Borings B-2 and B-3 were close together, with B-2 in the general vicinity of the future location of trestle bent 19. Borings B-4 and B-5 were further out to sea. Borings B-6 and B-7 were drilled on the beach near the shoreline, with boring B-6 within the proposed pier footprint. Thus, borings B-1, B-2 and B-6 provided information extending from the proposed location of the pier on the shore outward into the sea to points near the end of the pier and trestle bent 19. We consider these three borings to be sufficiently within the work site area. *See Bay West, Inc.*, ASBCA No. 54166, 07-1 BCA ¶ 33,569 at 166,301.

Determining the reasonableness of reliance on soil borings taken a distance from the work site is not a bright line rule, but one based on the geologic and topographical features present at the site. *H.B. Mac*, 153 F.3d at 1346. Here, irrespective of the locations at which the Group Delta and URS borings were taken, all of the borings and both of the geotechnical reports contain substantially similar descriptions about the subsurface conditions. Moreover, the geotechnical reports and the contract specifications encouraged bidder reliance. The Group Delta report specifically stated that the information it provided was intended for use in designing the project and the 2002 URS report represented that its design recommendations were "based on the assumption that the soil/rock conditions do not deviate appreciably from those found during our site investigations." Additionally, paragraphs 1.1 and 1.2.1 of section A1000 and paragraph 1.9.4 of section 01120 of the contract specifications encouraged bidders to rely upon the geotechnical information provided. Finally, there was some evidence that the Navy had anticipated bidders would rely on the Group Delta and URS logs and geotechnical reports inasmuch as Mr. Foster advised the contracting officer that the anticipated subsurface conditions in the surf zone had been based upon them when he was seeking payment approval for the 2003 URS investigation.

Thus, as a general proposition, we conclude it was reasonable for Nova to rely upon the boring logs and geotechnical reports to prepare its bid. It interpreted the logs and reports as indicating the subsurface conditions would consist of very weak to weak sedimentary bedrock. We address each of Nova's specific Type I differing site condition arguments below.

(1) The Quality of the Bedrock

Nova's first argument relates to the quality of the bedrock (app. reply br. at 74). The Navy contends that this is a new argument over which the Board lacks jurisdiction because Nova did not assert a Type I differing site condition based upon the quality of the bedrock in its claim (gov't sur-reply br. at 52-53).

The Navy's contention fails to distinguish new arguments from new claims. The Contract Disputes Act (CDA) requires the contractor to submit a certified claim to the contracting officer for a final decision as a prerequisite to our jurisdiction. *See, e.g., Contel Advanced Systems, Inc.*, ASBCA No. 49073, 02-1 BCA ¶ 31,809 at 157,149. The test for what constitutes a "new" claim is whether the "claims are based on a common or related set of operative facts. If the [Board] will have to review the same or related evidence to make its decision, then only one claim exists." *Placeway Construction Corp. v. United States*, 920 F.2d 903, 908 (Fed. Cir. 1990). A new legal theory or argument, when based upon the same operative facts, does not constitute a new claim. *See Lockheed Martin Aircraft Center*, ASBCA No. 55164, 07-1 BCA ¶ 33,472 at 165,934; *Contel*, 02-1 BCA ¶ 31,809 at 157,149.

All of the arguments relating to Nova's Type I differing site conditions claim in this appeal, including the new argument relating to the quality of the bedrock, are based upon the same common and related set of operative facts, in particular the information regarding the subsurface conditions provided in the Group Delta and URS geotechnical reports and boring logs provided to bidders with the solicitation, the Kleinfelder test results, and the additional geotechnical investigation undertaken by URS following settlement of the trestle and its final 2004 report. Thus, deciding whether there is a differing site condition associated with Nova's new argument will not require the Board to hear and review new evidence. We have jurisdiction to consider the argument. The Navy's motion to dismiss is denied.

Nova contends that the solicitation documents indicated that "relatively undisturbed bedrock" would begin at 6 to 15 feet below the sea floor (app. reply br. at 74). The contention is based upon the statement taken from the Group Delta report which summarizes the information provided from its boring logs as indicating that the bedrock was "generally intensely fractured and moderately weathered near the surface, becoming moderately to slightly fractured and slightly weathered to fresh at depths of 6 to 15 feet."

The log for B-1 shows moderately weathered and intensely fractured bedrock extending to eight feet below the sea floor, where the boring was abandoned. The log for B-2 reflects moderately to slightly weathered bedrock beginning at a depth of about seven feet. The logs for borings B-3, B-4 and B-5 show moderately to slightly weathered and fresh bedrock beginning at depths of about 12 feet.

To the extent relevant to this argument, the 2002 URS report summarizes boring log B-6 as "intensely to highly fractured along bedding and high-angled fracture zones, which decrease in frequency with depth." The beach area bedrock was generally "characterized as highly to moderately weathered, very weak to weak rock."

Accordingly, we consider the Group Delta and URS boring logs and geotechnical reports to have provided reasonably plain and positive indications about the quality of the sedimentary bedrock beginning at depths of 6 to 15 feet. *See Pacific Alaska Contractors,* 436 F.2d at 469. The Group Delta quotation that forms the basis of Nova's present argument was included in the information it relied upon and we infer that Nova's use of the words "relatively undisturbed bedrock" means the "moderately to slightly fractured and slightly weathered to fresh" rock the Group Delta report describes as beginning at 6 to 15 feet below the sea floor. Nova did not address the relationship, if any, between the Group Delta quotation and its interpretation of the solicitation documents as indicating the rock would be very weak to weak.

(2) Shearing and Fault Zones

Nova also contends that the reports and boring logs did not indicate the presence of shears and faults. The Navy does not challenge this interpretation of the reports and logs, but again contends that Nova's reliance upon the boring logs was unreasonable.

The Group Delta report summarizes the subsurface conditions reflected in borings B-1 through B-5 as "generally intensely fractured and moderately weathered" near the surface, becoming "moderately to slightly fractured and slightly weathered to fresh" with depth. The URS report contained a similar summary with respect to Boring B-6 and further characterized the bedrock as "highly to moderately weathered, very weak to weak rock." No faults or shear zones are identified on any of the Group Delta or URS boring logs. Although the Group Delta report does contain definitions of "SHEAR" and "FAULT" in Figure A-3t and "Shear/Fault" is the last of nine "Discontinuity Characteristics" in its Rock Classification Descriptive Sequence chart, neither the Group Delta nor the URS reports contained any indication of fault or tectonic activity at the project site itself.

We consider the Group Delta and URS boring logs and geologic reports to have provided sufficient affirmative information about the subsurface conditions to give Nova reasonable expectations that it would not encounter shears or faults in the bedrock. *See Boro Developers, Inc.*, ASBCA No. 48748, 98-1 BCA ¶ 29,346 at 145,914, *recon. denied*, 98-1 BCA ¶ 29,503 (boring logs showing no evidence of rock at given locations gave positive indication that none would be encountered).

(3) Slaking

Nova further contends that the reports and logs indicated that slaking would not be encountered at any degree that would affect constructability. The Navy responds that the solicitation documents did not contain the requisite positive or affirmative indications concerning the durability of the rock, *i.e.*, susceptibility to slaking.

Nova's position is that "[i]ndications may be derived from omissions in the contract documents, and a contractor is entitled to rely on indirect information suggestive of certain subsurface conditions" (app. reply br. at 65). It maintains that the soil materials described in the solicitation documents did not exhibit characteristics of rock that was highly susceptible to degradation as a result of slaking. It points to the standard Rock Classification Descriptive Sequence chart included as Figure A-3c in the Group Delta report which lists slaking as the tenth of 12 sequential descriptions. No witness from Group Delta was called to testify as to whether slaking was considered or whether any conclusions were reached regarding the possibility of excessive slaking. Nova nevertheless infers that slaking may have been evaluated from the single reference in the standard chart and Mr. Coolong's speculation. It then jumps to the conclusion that the omission of information about excessive slaking in either the Group Delta or URS reports affirmatively indicated that Nova would not encounter slaking to the degree encountered.

We are of the view that the solicitation documents did not indicate anything at all about the durability of the rock or its susceptibility to slaking; rather, the contract was silent on the subject. *See Stuyvesant Dredging*, 834 F.2d at 1580. In this regard, we consider the circumstances in this appeal to be analogous to those in *Servidone Construction Corp. v. United States*, 19 Cl. Ct. 346, 360 (1990), *aff'd*, 931 F.2d 860 (Fed. Cir. 1991), where the absence of an affirmative contract indication regarding the toughness of the soil did not imply any assurance that the soil was normal. *See also Comtrol*, 294 F.3d at 1363, where the specification's statement that hard material "may exist" was not an affirmative representation that only hard material would be encountered. The omission of information relating to slaking here is not an implicit affirmative indication from which Nova could reasonably have inferred favorable soil durability conditions. Stated otherwise, the contract's silence did not imply the absence of unfavorable conditions. *Kato*, 02-1 BCA ¶ 31,669 at 156,495.

In any event, there was no evidence, in particular from Mr. Holloway who was familiar with the slaking phenomena and was a consultant to Nova, from which we can conclude that Nova interpreted the contract documents as indicating that slaking would not affect constructability and relied upon that interpretation at the time of bidding. On this proof requirement we also note that Mr. Fedrick was not familiar with the term slaking until the project problems surfaced. *See Comtrol*, 294 F.3d at 1364 (there can be no recovery if there was not reliance).

The Conditions Encountered

(1) The Quality of the Bedrock

With respect to the bedrock conditions it encountered at depths of 6 to 15 feet, Nova relies upon the 2003 URS boring logs and core samples, the latter of which we found to be of little evidentiary value because of the lack of explanatory testimony. We understand from the hearing evidence that the bedrock at depths of 6 to 15 feet below the sea floor was of better quality than that found just below the bedrock surface. The 2002 URS report characterized the rock as improving with depth.

The Navy authorized the additional investigation undertaken by URS in 2003, following settlement of the trestle. The borings were drilled along the length of the existing trestle built by Nova and labeled T1 through T6. The evidence established that the bedrock conditions reflected in borings T1, T1A and T2 were similar to those indicated in the pre-bid geotechnical logs and reports. Thus, Nova's contention that the bedrock did not become "relatively undisturbed," which we inferred above means "moderately to slightly fractured and slightly weathered to fresh," until depths of 25 to 40 feet necessarily is restricted to the areas in which borings T3, T4, T5, and T6 were drilled.

The boring logs establish that "slightly weathered to fresh claystone...moderately strong to strong rock" is first recorded at a depth of 25 feet for T3, "Moderately weathered and fractured" bedrock is first found at a depth of about 27 feet for T4, "slightly to moderately weathered, weak rock" is first recorded at 22 feet for T5, and "Alternating layers of slightly weathered and moderately weathered, weak rock" is found at 18 feet for T6.

The final URS geotechnical report issued 18 May 2004 states that the quality of the rock encountered appeared "to abruptly transition" between borings T2 and T3. Leaving aside the shears and faults discussed below, we have difficulty with Nova's contentions about the quality of the rock encountered in the absence of evidence providing an explanatory comparison of borings B-1 through B-7 with borings T3 through T6. In this regard, we also consider Nova's subjective characterization of the bedrock as being "severely disturbed" to lack factual definition (app. reply br. at 74).

Nevertheless, the logs contain a variety of descriptions about the extent of the weathering and fracturing and the weakness and strength of the rock at given depths. Using the "moderately to slightly fractured and slightly weathered to fresh" standard, it is apparent that there are differences in the bedrock described in the two sets of boring logs at depths of 6 to 15 feet. The materiality of these differences is discussed below in connection with the causation requirement.

(*2) Shears and Faults*

Nova asserts generally that "[i]ndications of shear zones and faults are evident in the boring logs and core samples from the 2003 URS investigation and the narrative section of the 2004 URS Report." It then cites proposed findings of fact based upon some of the 2003 URS logs, Mr. Holloway's interpretation of them and field observations relating to a fault at T4. (App. reply br. at 84-85)

With respect to the 2003 URS investigation, the Navy points out that the "hypothetical fault" shown at boring T1 is not only hypothetical, but also that it was on the shore. The Navy goes on to contend that the proposed findings of fact cited by Nova establish that Nova is not asserting that it encountered shearing and faults at T1, T1A, T2, or T6. This is consistent with the final 18 May 2004 URS geotechnical report, which states that "three of the borings encountered significant zones of highly weathered, jointed and sheared materials from high angle joints and minor faults." The three borings referred to are T3 and T4, which show shear zones, and T5, where there is a fault. The Navy's analysis is also consistent with the evidence indicating that the bedrock reflected in borings T1, T1A and T2 was similar to that indicated in the pre-bid documents.

The conditions encountered at borings T3, T4, and T5, which included shear zones and a fault, are materially different than the subsurface conditions indicated in the Group Delta and URS boring logs and reports.

(3) Slaking

We concluded that there were no indications in the solicitation documents about the durability of the rock. However, the presence of sedimentary bedrock was indicated and the evidence established that slaking is not unusual in sedimentary rock and that it always results from drilling. Mr. Holloway commonly performs tests for slaking in sedimentary rock, and particularly so when drilling. Thus, we believe the possibility of slaking should have been reasonably foreseeable and considered in the context of the work to be performed. *See Stuyvesant Dredging*, 834 F.2d at 1581 (foreseeability determined on basis of all information available at the time of bidding).

In any event, Nova did not carry its burden of proving it encountered "severe" slaking. First, Nova has not defined "severe" slaking. It simply assumes that the trestle settlement was caused by slaking, thereby affecting constructability and being characterized as "severe." Second, Nova relies principally upon Attachment A to its reply brief as evidence that URS misapplied the Strohm Criteria in Table C-3 of its 2004 report and incorrectly concluded that the rock sampled was "predominately 'durable' to 'hard, non-durable.'" It asserts that proper application of ASTM D 4644 and the Strohm criteria to the URS slake durability tests would result in a finding that all of the samples indicated susceptibility to degradation. (App. reply br. at 76-77) These contentions are unavailing in light of our ruling on the Navy's Motion to Strike Portions of Appellant's Reply Brief Based on New Documents in the Record pursuant to which Attachment A has been excluded from the appeal record.

Third, the evidence that is in the hearing record leaves much to be desired. The cover e-mail to the preliminary 2004 URS findings states only that "[s]o far the tests indicate that most of the materials are susceptible to degradation when exposed." The e-mail does not elaborate on how many of the samples showed susceptibility to slaking or the degree to which it was encountered. Footnotes to both the preliminary findings and Table C-3 to the final report stated that a "High Durability Index (I_D)" indicates that the rock is not particularly susceptible to degradation when exposed." Apart from the scale Mr. Holloway used, which he admitted he had arbitrarily established, there was no evidence explaining what constitutes a high durability index. Using his scale, Mr. Holloway thought three samples from boring T4 and one from T2 were highly susceptible to slaking. Mr. Coolong thought that three samples from boring T4 reflected slaking, but did not explain either the reason for his belief or the degree of slaking he thought was present. He also expressed the view that the laboratory test "often over predicts slaking conditions." The 2004 URS report itself describes two of the samples tested, both from T4, as "Soft, Non Durable." At best, then, this evidence establishes only that samples from T4 were susceptible to some indefinite amount of slaking.

Fourth, the informal, subjective field tests performed by Messrs. Holloway and Coolong, even if reliable, proved nothing. Mr. Holloway's Dixie cup tests suggested that there was slaking in three or four samples, one of which was from T4. Mr. Coolong found very little evidence of slaking from his field tests, "nothing that appeared to be unusual." And finally, Mr. Holloway's redesign of the trestle and dolphin mooring piles was completed without the benefit of the URS slake durability test results.

Nova's remaining arguments, which relate to the voids and clay, fail to provide further support for its contention that it encountered severe slaking.

Voids

Nova asserts that the voids encountered at trestle bents 6, 7 and 8 are evidence of severe slaking. It relies upon the testimony of Mr. Fedrick.

Mr. Fedrick's summary testimony on this issue was clearly speculative in nature. Further, as the Navy points out, there is no contemporaneous evidence to support Nova's argument because the Kleinfelder laboratory did not perform any slake durability tests on the material samples Nova obtained from the inside of the stinger piles at trestle bents 6, 7, and 8. Mr. Coolong's conjecture that the voids were due to the lack of and/or failure of stinger shoes was disproved by contradictory evidence presented by Nova. In short, there is no credible evidence explaining the reason for the voids, much less that they were caused by slaking.

Clay

Nova also asserts that the presence of clay is evidence of severe slaking. It begins with the Kleinfelder test results of the six samples it extracted from the stinger piles at trestle bents 6, 7, and 8. Five of the samples were found to be an "Olive Brown Clay (CL)" indicating "[i]norganic clays of low to medium plasticity" and one was classified as "Olive Brown Clay (CH)" indicating "[i]norganic clays of high plasticity." It then points to the 2004 URS report findings of "stiff, wet, lean to fat clay" beneath the trestle. In what apparently is an alternative argument, it concludes that clay was not indicated in the pre-bid borings and constitutes a differing site condition.

The Navy responds that Nova has not shown that clay is evidence of severe slaking. It also asserts that Nova's contention is inconsistent with its argument that the materials indicated by the solicitation documents did not exhibit characteristics of rock that was highly susceptible to slaking because clay is indicated in the solicitation boring logs and that, if clay is synonymous with slaking, Nova had notice of slaking at the time it bid the project.

We agree with the Navy that there is no evidence that the presence of clay necessarily means that severe slaking has occurred. The Navy is also correct that the logs for borings B-4 and B-5 indicated a layer of clay immediately beneath the bedrock surface. As to the samples taken from the stinger piles, there was evidence that Nova did not know if the clay reflected in the Kleinfelder test results was naturally occurring or if it had been produced while drilling. Finally, we note that neither Mr. Holloway's 5 December 2003 trestle report and recommendations nor his 24 December 2003 pier and dolphin report and recommendations reflect any concern on his part about slaking due to the fact that clay was found in the stinger samples.

In sum, even if the solicitation documents were not silent on the subject of slaking and contained reasonably plain or positive affirmative indications that the rock was not susceptible to unforeseeable excessive slaking upon which Nova reasonably relied upon when bidding, Nova did not prove that it encountered slaking that was so severe as to affect constructability or that the clay found in the stinger samples constituted a differing site condition.

We find no merit in Nova's Type I differing site condition claims based upon severe slaking or clay.

Causation

Nova contends that the differing site conditions it encountered caused it to incur additional costs and time for performance associated with the redesign of the trestle and dolphin mooring piles. It seeks costs totaling $6,115,032, consisting of crew standby, demolition costs for trestle bent 5, demolition, redrilling and installation of trestle bents 6 through 14, differential costs for drilling and installing longer piles at bents 15 through 20, and additional costs for longer dolphin piles and rock sockets, together with a contract time extension of 289 days.

Nova's original design for the trestle piles and the permanent concrete pier and mooring dolphin piles anticipated three points of end load bearing: the bottom of the 24-inch OD pipe; the tip of the stinger; and skin friction. The pipes for both the trestle piles and the permanent concrete pier and mooring dolphin piles were 12-inch OD steel pipes of varying lengths. The trestle pile pipe was to be encased in 24-inch OD cylindrical steel pipes. The pier and dolphin pile pipes were to be encased in 24-inch OD octagonal composite concrete jackets and grouted. The bottoms of the 24-inch piles were intended to rest on the surface of the bedrock and were expected to settle as much as three inches into the bedrock when loaded. Should the 24-inch pile settle three inches, the tip of the stinger was expected to have adequate end load bearing at the bottom of the drilled hole. Both the trestle and the pier and dolphin mooring stingers were 12 ¾-inch OD steel pipes. The trestle stingers were 10 feet long. The pier and dolphin mooring stingers were 16 feet long, with grouting of the annulus, toe cavity and rock anchors. Skin friction was to provide additional support. The trestle piles settled; the pier piles did not.

Following the trestle settlement, Nova tasked Mr. Holloway with redesign of the piles. He concluded the pier piles were adequate, but assumed the contribution from end bearing from the 24-inch pipes at the bedrock surface was “unreliable, and therefore neglected” for the trestle piles at bents 8 and beyond and for the mooring dolphin piles.

With respect to the trestle piles, he recommended that the piles for trestle bent 6 and beyond be grouted, that the stingers lengthened to 20 feet for bents 8 through 11 and to 30 feet for bents 12, 13 and 14. He recommended the same approach, namely longer stingers and grouting, for trestle bents 15 and beyond. With respect to the dolphin mooring piles, he recommended that the stinger pipes remain perforated to facilitate grout flow and that the stinger pipe penetration reach at least elevation -45 feet.

(1) Borings T1/T1A and T2

Nova’s claim seeks costs associated with alleged differing site conditions in the areas in which borings T1/T1A and T2 were drilled. Borings T1/T1A were drilled just seaward of trestle bent 6, pile 6B. Nova experienced settlement of 3.6 inches at piles 2B and 5B, which were relatively close to shore, before trestle bent 6. Boring T2 was drilled near trestle bent 9, pile 9A, where Nova experienced six inches of settlement. Costs for the settlement at bent 2 are not included in the claim; costs for trestle bents 5 through 9 are included in the claim.

We are not persuaded that Nova has established that the claimed costs associated with trestle bents 5 through 9 can be attributed to differing site conditions. First and foremost, the Group Delta and URS pre-bid borings and the URS 2003 borings at T1/T1A and T2 all indicated similar, not differing, subsurface site conditions within the reasonable bounds of the three locations at which Nova experienced trestle pile settlement.

Second, the redesign recommendations made by Mr. Holloway and adopted by Nova do not seem to relate directly to the locations at which settlements were experienced. Mr. Holloway did not recommend design changes for the piles at trestle bents 1 through 5, although there had been settlement in excess of three inches there at two different locations. In contrast, although there was no settlement between pile 5B and pile 9A, Mr. Holloway recommended incrementally increasing design changes beginning at trestle bent 6. To the extent these recommendations may relate to the voids at bents 6, 7, and 8, we note that we found no credible evidence explaining the cause of the voids.

Finally, although pier piles also had been drilled in the vicinity of borings T1/T1A and T2, Mr. Holloway determined that they did not need to be redesigned. Rather, he thought the pier piles had “behaved in the manner originally anticipated in the design” and he considered the design for them to be adequate.

(2) The Bedrock

The Navy's position with respect to causation regarding Nova's "severely disturbed bedrock" contention is that any differences of the quality of bedrock at depth are not material.

We inferred above that Nova's use of the words "relatively undisturbed bedrock" means the same thing as the Group Delta summary description of the bedrock beginning at depths of 6 to 15 feet, *i.e.*, "moderately to slightly fractured and slightly weathered to fresh." Using that standard, we found that there were differences in the bedrock described in the Group Delta borings and borings T3, T4, T5, and T6 at depth. That finding notwithstanding, we agree with the Navy that the differences are not material with respect to causation because of the trestle pile design.

The Group Delta log for boring B-2 shows the bedrock surface at two feet below the sea floor, with "moderately to slightly weathered" bedrock beginning at a depth of about seven feet. Assuming "moderately to slightly weathered" bedrock is "relatively undisturbed bedrock," the 10-foot long stinger pipe would have penetrated about five feet of "relatively undisturbed bedrock."

Boring log B-3 shows the bedrock surface at a depth of three feet and "moderately hard to hard, slightly weathered,...moderately to slightly fractured" bedrock at 15 feet, some 12 feet below the bedrock surface. If this is "relatively undisturbed bedrock," the 10-foot long stinger pipe would not have been long enough to reach it. The depths for the bedrock surface at B-4 and B-5 are both at one foot, with "moderately to slightly weathered, few fresh zones" and "slightly weathered to fresh, moderately hard...moderately fractured" bedrock beginning at depths of 11 and 12 feet respectively. Again, if this is "relatively undisturbed bedrock" and if the 24-inch pipe resting on the bedrock surface settled a full three inches, or more, the stinger tip would have just barely penetrated the "relatively undisturbed bedrock" at B-4. It would not have reached the "relatively undisturbed bedrock" at B-5.

Accordingly, with respect to borings B-3, B-4 and B-5, the evidence established that the 10-foot long trestle stingers were not long enough to penetrate into the "relatively undisturbed bedrock," and the differences between these borings and T3, T4, T5, and T6 at depth is immaterial to our evaluation of Nova's differing site condition argument.

Boring log B-2 is the only Group Delta log which reflects "relatively undisturbed bedrock" at a depth shallow enough to have had any effect on the trestle piles. It was in the general vicinity of the location at which trestle bent 19 was to be drilled, adjacent to the dolphin furthest from shore. The Group Delta quotation upon which Nova relies for its "severely disturbed bedrock" argument is a summary of the information obtained from all of its boring. We do not consider boring B-2 alone, particularly given its location, to be sufficient to establish the conditions at depth against which the conditions reflected in borings T3, T4, T5, and T6 are to be measured.

We find no merit to Nova's Type I differing site condition argument based upon the bedrock at depths of 6 to 15 feet.

(3) Shears and Faults

The Navy's view is that shears in T3 and T4 and the fault in T5 did not have any impact upon trestle failure.

The log for boring T3 shows the bedrock surface at about eight feet below the sea floor and "highly fractured and locally sheared" rock beginning at a depth of about 13 feet, extending four feet to a thin band of "Strong rock, cemented" at 17 feet, followed by "moderately to highly weathered, highly fractured...very weak rock with many...branching fractures." "[S]lightly weathered to fresh claystone" was found at 25 feet. Thus, the 10-foot stinger would have been drilled through about four feet of sheared rock, with the last foot of the stinger ending in either the thin band of strong rock or the very weak rock below it. Boring T3 was drilled near trestle pile 11B, where, despite the locally sheared rock, there was no unanticipated settlement. In contrast, there was settlement of 4.9 inches at pile 11A.

The log for boring T4 states that bedrock begins at a depth of three feet and is "completely weathered." This is followed by about five feet of "highly weathered, very weak rock with extremely weak rock zones, highly fractured." A "[s]hear zone" begins at a depth of 13 feet and extends to a depth of 19 feet, after which the rock is variously described as "highly to moderately weathered, moderately fractured...weak rock," "Highly fractured," "slightly weathered" to about 27 feet. Thus, the tip of the stinger might barely have penetrated the shear, but only if the 24-inch pipe settled a full three inches, or more. Boring T4 was drilled near trestle bent 12; settlement of 7.8 inches occurred at pile 12A.

The evidence established that the bedrock surface in general was intensely fractured, highly weathered and very weak and that it was not a good surface upon which to rest the 24-inch pile pipes. As we noted, Mr. Holloway concluded that the contribution from end bearing of the 24-inch pipes on the rock surface was "unreliable, and therefore neglected." Mr. Coolong thought the bedrock surface was "incapable of adequately supporting heavily loaded piles that would bear directly on [it]." The description of the first five feet of the bedrock at T4 indicates particularly incompetent rock and the magnitude of the settlement at pile 12A suggests that it was the inability of the bedrock surface rock to support the 24-inch pipe, a design issue, and not the shear zone that began at a depth of 13 feet that caused the settlement.

The boring log for T5 shows bedrock at a depth of five feet and a "[f]ault" and "vertical separation" at a depth of 22 feet, 15 feet below the bedrock surface. Thus, the fault would have had no impact upon the trestle pile.

All told, the evidence does not preponderate itself so as to persuade us that the shears and the fault caused the trestle settlement which led Nova to incur costs to redesign the trestle piles. Despite the shear at boring T3, there was no settlement at pile 11B, near the boring location, and the settlement at T4 appears to have been caused by the surface bedrock, not the shear. The fault at T5 was too deep to have had any impact whatsoever upon the trestle piles.

Nova's Type I differing site condition claim based upon the shears and the fault also is without merit.

Trestle Bents 15 and Beyond
And the Dolphin Mooring Piles

Trestle bents 15 and beyond had not been constructed at the time of the excessive trestle settlement. The evidence does not establish the extent to which the dolphin mooring piles had been completed. T5, which was just beyond trestle bent 13, near piles 14A and 14B, was the furthest out to sea of the URS drilled borings in 2003. Nevertheless, Nova adopted Mr. Holloway's recommendation that longer stingers and grouting be used for trestle bents 15 and beyond and that the dolphin mooring piles be lengthened to reach elevation -45 feet. His recommendation was based upon the assumption that the conditions there were likely to be similar to those indicated by borings T3, T4, T5, and T6.

To the extent this assumption is correct, our conclusions regarding the allegations of differing site conditions associated with severely disturbed bedrock, the shear zones and fault, and slaking are applicable to the remaining trestle and the dolphin mooring piles. If, however, the assumption is incorrect, there is no evidence as to whether the conditions at trestle bents 15 and beyond were materially different than those indicated in the solicitation documents. In either case, Nova cannot recover the costs claimed based upon any of its Type I differing site conditions arguments.

Differing Site Conditions – Type II

Nova also alleges a Type II differing site condition based upon severe slaking. A Type II differing site condition requires the contractor to prove the recognized and usual conditions at the site, the actual physical conditions encountered and that they differed from the known and usual, and that the different conditions caused an increase in the cost of contract performance. *Charles T. Parker Constr. Co. v. United States*, 433 F.2d 771, 778 (Ct. Cl. 1970); *Costello Industries, Inc.*, ASBCA No. 49125, 00-2 BCA ¶ 31,098 at 153,585. It is a "relatively heavy burden of proof." *Parker Constr*., 433 F.2d at 778.

The Navy responds that Nova cannot prevail on its Type II differing site condition allegation because it was aware through Mr. Holloway that slaking was common in sedimentary rock and that it has not defined a baseline against which to measure whether "severe" slaking was encountered.

As our conclusions regarding Nova's Type I differing site condition allegations with respect to slaking make clear, we agree generally with the Navy's contentions. We also hasten to point out the paucity of evidence relating to the conditions Nova actually encountered which resulted in our finding that Nova failed to prove the conditions that should be characterized as severe slaking. That being so, it is apparent that Nova has not met its "relatively heavy burden of proof."

We find no merit to Nova's Type II differing site condition contentions.

Delay

Nova seeks a total of 421 calendar days of delay, a net of 289 days with the credit for the 132 days awarded in Modification Nos. A00003 and A00009. Our conclusions that Nova cannot recover for either Type I or Type II differing site conditions resolve the delay claims against Nova and in favor the Navy.

In any event, Nova's evidence of delay is based upon testimony from Mr. Fedrick about Nova's critical path and the summary delay chart attached to Nova's claim. The Navy's position is that the contract required the use of a CPM analysis for delay claims and that Mr. Fedrick's testimony is insufficient to meet Nova's burden of proof.

We agree with the Navy on both points. Contract section 01321, NETWORK ANALYSIS SCHEDULES, requires a CPM analysis of contract time extension requests based upon the Changes and Differing Site Conditions clauses. Nova made no effort to comply with this contractual requirement, relying instead upon Mr. Fedrick's testimony and a summary chart of the various claim items included with its claim as evidence of delay.

The chart attached to Nova's claim represents bare allegations. Allegations are not proof. *Cascade General, Inc.*, ASBCA No. 47754, 00-2 BCA ¶ 31,093 at 153,531. Moreover, the only witness called to testify about the chart was Mr. Fedrick, who did not prepare it. He nevertheless thought that the information that formed the basis of the chart could have been used in a CPM analysis, but did not explain why a CPM analysis had not been performed. Further, apart from the chart and other very general and very limited testimony given by Mr. Fedrick regarding the critical path, there was no evidence showing that the various delay claim items were actually on the critical path. *See Santa Fe Engineers, Inc.*, ASBCA No. 24578 *et al.*, 94-2 BCA ¶ 26,872 at 133,753.

Finally, the alternative total delay claim computations asserted in Nova's reply brief were not only unsupported by any testimony, but also were based upon incorrect dates. As the Navy points out, according to the 29 August 2003 schedule update, 26 December 2003 was not the completion date, but rather was the date scheduled to begin removal of the trestle.

Conclusions Regarding Differing Site Conditions and Delay

We have carefully considered all relevant, credible record evidence in our consideration of the many issues presented in this appeal. We are satisfied that Nova's contentions that it encountered Type I differing site conditions consisting of severe slaking, clay, shearing and fault zones, and disturbed rock at depths greater than indicated are without merit. The same is true of its Type II differing site condition contention regarding slaking. Nova's delay claim likewise fails.

Recoupment

The contracting officer awarded Nova $1,558,779 in unilateral Modification No. A00003 and $610,713 in unilateral Modification No. A00009, a total of $2,169,492. The CDA claim submitted by Nova sought $6,115,032. According to the Navy, Nova's entire claim is for $8,284,524 ($2,169,492 + $6,115,032) and is before the Board *de novo* under *England v. Sherman R. Smoot Corp.*, 388 F.3d 844 (Fed. Cir. 2004), because the contracting officer found partial entitlement, both in unilateral Modification Nos. A00003 and A00009, as well as in her final decision. The Navy further asserts that, under *Assurance Co. v. United States*, 813 F.2d 1202 (Fed. Cir. 1987), we may find that the contracting officer erroneously made the previous payments of $2,169,492.

In *Smoot* the Court of Appeals for the Federal Circuit considered the so-called "*McMullan* presumption" in the context of unilateral contract modifications. Subject to rebuttal, the *McMullan* presumption assumed that the government was responsible for delays for which it had extended contract performance. *See Robert McMullan & Son, Inc.*, ASBCA No. 19023, 76-1 BCA ¶ 11,728 at 55,903. The unilateral contract modifications in *Smoot*, which the court characterized as "interim decisions," extended the contract completion date and increased the contract price. The modifications were issued after Smoot certified its REA as a CDA claim, but did not award all of the money requested. Smoot amended its claim to reflect the payment. When no final decision was issued by the contracting officer, Smoot appealed from a deemed denial, seeking the remainder of its claimed costs. After discussing *Assurance* and *Wilner v. United States*, 24 F.3d 1397 (Fed. Cir. 1994) (*en banc)*, the court held that there was no basis for distinguishing unilateral contract modifications from contracting officer final decisions for purposes of applying presumptions and declared the *McMullan* presumption at odds with *de novo* review under the CDA and "no longer good law." *Smoot*, 388 F.3d at 856-57. The Navy interprets *Smoot* as standing for the proposition that the contracting officer's finding of partial entitlement in Modification Nos. A00003 and A00009 accords us *de novo* jurisdiction over Nova's entire claim, in particular the part previously allowed.

Nova cites both *Assurance* and *Wilner* in contending that, absent a contracting officer's final decision, we have no jurisdiction to determine entitlement to repayment of compensation already made. It points out that in *Smoot,* the court considered the unilateral modifications under review to be interim final decisions because they had been issued on the contractor's previously certified claim and thus were the subject of *de novo* review.

We find Nova's arguments to be persuasive. In this case, the contracting officer issued Modification Nos. A00003 and A00009 in response to Nova's 19 February and 2 April 2004 REA submissions. Thus, unlike the circumstances in *Smoot*, the unilateral modifications were issued based upon consideration of REA submissions, and not a certified CDA claim. Indeed, both unilateral modifications were issued long before Nova ever submitted its certified claim. Accordingly, absent a valid CDA claim, we decline to consider these unilateral modifications to be interim contracting officer final decisions.

Next, the amounts awarded, $1,558,779 and $610,713, were not included in either Nova's subsequent 18 November 2004 REA or its 20 May 2005 certified CDA claim. And, although the contracting officer's final decision did make reference to the amounts previously awarded, the final decision itself did not make these awards. More importantly, however, the final decision also did not make a demand for the return of the amounts awarded. Thus, we agree with Nova that there was no claim upon which the contracting officer issued a final decision from which an appeal could be taken, absent which we lack jurisdiction. 41 U.S.C. §§ 605(a), 606; *Paragon Energy Corp. v. United States*, 645 F.2d 966 (Ct. Cl. 1981).

Further, although the recoupment issue was not directly before it, the Court of Appeals in *Wilner* noted that the decision of the Claims Court from which the government had taken its appeal had included the dismissal of the government's claim for recovery of delay compensation paid to Wilner for lack of jurisdiction because no contracting officer's final decision had been issued demanding its return. *Wilner*, 24 F.3d at 1399 n.6. We agree with the Claims Court's jurisdictional conclusion and find no legal or factual reason here to depart from it. *See Wilner v. United States*, 26 Cl. Ct. 260, 279 (1992).

Finally, in *Assurance Co.*, ASBCA No. 30116, 86-1 BCA ¶ 18,737, the contracting officer had issued a final decision making monetary awards for the so-called "crawl space claim" and for the mark-up associated with modifying ductwork. We negated the crawl space award and reduced the mark-up allowance. On appeal, the Court of Appeals affirmed our decision. In doing so, it concluded that, with respect to a contracting officer's decision from which an appeal has been taken, the Board has jurisdiction to "reduce as well as increase the award made by [the] contracting officer." *Assurance*, 813 F.2d at 1206. The Court then commented in a footnote:

> We caution that our holding is limited to the very same claim appealed by the contractor, in which the contractor seeks a larger award. We do not consider the boards' authority with respect to a part of the contracting officer's decision which has not been appealed, *i.e.*, a different claim.

Id. n.6. We have determined that unilateral Modification Nos. A00003 and A00009 were not interim final decisions issued by the contracting officer and are not part of Nova's present appeal. Further, because Nova's claim did not include the amounts previously awarded and the contracting officer's decision did not seek recoupment of these amounts, we have no authority to reduce the prior awards inasmuch as they are not part of "the very same claim" that has been appealed by Nova.

We have concluded that Nova is not entitled to recover under its claim for Type I and Type II differing site conditions and delay. For the reasons stated, we further conclude that we have no jurisdiction in this appeal to consider the Navy's attempt to recoup the $2,169,492.00 it previously paid to Nova in unilateral Modification Nos. A00003 and A00009.

CONCLUSION

The appeal is denied.

Dated: 13 August 2010

CAROL N. PARK-CONROY
Administrative Judge
Armed Services Board
of Contract Appeals

(Signatures continued)

I concur

MARK N. STEMPLER
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. 55408, Appeal of Nova Group, Inc., rendered in conformance with the Board's Charter.

Dated:

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