BEFORE THE
MARYLAND STATE BOARD OF CONTRACT APPEALS

Appeal of W.M. SCHLOSSER CO., INC.	)	Docket Nos. MSBCA 1373 & 1385
Under DGS Contract No. ES-001-831-001	)	

May 21, 1990

Differing Site Condition - Where the contract stated that "excavations shall be made to the elevations or subgrade specified..." such language clearly implied that the limiting subgrade indicated in the contract would be sufficient to support the structures to be constructed thereon. Accordingly, the contractor was entitled to an equitable adjustment for the cost of additional excavation and backfill involved in stabilizing the site for support of structures when the specified subgrade was found to be unstable.

Burden of Proof - Appellant contractor failed to meet its burden to show that the number of changes to the contract (relative to its increased costs from that allocated in its bid for preparation of record as-built drawings) were excessive. Appellant did not show nor did the record otherwise demonstrate through neutral documentary or opinion evidence comparing the project (construction of a wastewater treatment facility) with other similar projects that the number of changes was excessive and thus could not have been anticipated.

Specifications - Implied Warranty - The State impliedly warrants that the plans and specifications which it furnishes are adequate and sufficient for the purpose intended. Accordingly, the Appellant contractor was entitled to an equitable adjustment for additional drawing review necessitated by the State's defective drawings and specifications.

Risk of Loss - The risk of loss pursuant to specific terms of the contract remained with the contractor prior to acceptance. Implied acceptance may be found under certain circumstances. Here the Board found that the State's use of the liquid side of the facility to train State employees in plant operation constituted an implied acceptance such that the risk of loss for damage to the plant shifted from the contractor to the State. Despite such shift in the risk of loss, however, a contractor remains liable for damage caused by its own negligent acts. While the action of one of the contractor's employees was the proximate cause of certain damage to the plant, the State failed to show as was its burden that the action taken by the employee (to protect the glass lined water tanks of the plant from cracking during a freeze) was negligent. Thus the State remained liable to the contractor for the cost of repair of such damage.

APPEARANCES FOR APPELLANT: Joel S. Rubinstein, Esq.
Michael J. Cohen, Esq.
Sadur, Pelland & Rubinstein
Chartered
Washington, D.C.

APPEARANCE FOR RESPONDENT: Brian W. Craver
Assistant Attorney General
Baltimore, MD

PROPOSED DECISION BY CHAIRMAN HARRISON

Appellant timely appeals from a Department of General Services (DGS) procurement officer's final decision denying its claim for an equitable adjustment arising out of the construction of a wastewater treatment facility at Dorsey Run, Jessup, Maryland.

Proposed Findings of Fact

1. The contract to construct the subject facility was awarded on or about July 24, 1985.

2. The contract required construction of four pairs of large outdoor tanks and several buildings including as relevant to this appeal the Blower Building, Screen and Grit Building and the Administration Building.

3. The tanks were to be located in the so called "tank farm area". Two pairs of tanks, the equalization and primary clarifiers, were to be constructed in one end of the tank farm. The other two pairs of tanks, to be constructed in the other end, additional excavation for which is at issue in this

appeal, are denominated First and Second Stage Process Tanks. Under the nomenclature within the contract documents, the process tanks on the westside are denominated "No. 2" tanks and on the eastside "No. 1" tanks.

4. On October 1, 1985, DGS issued a Notice to Proceed to Appellant who had previously subcontracted the excavation of the site to Stockett's Excavating, Inc. (Stockett's).

5. DGS's on-site representatives were the firms of O'Brien & Gere Engineers, Inc. (OBG) the project engineer and Earth Engineering, Inc. (Earth Engineering) the soil consultant.

Additional Excavation and Backfill Costs Tank Farm Area

6. Excavation of the subgrade in the tank farm area began in the fall of 1985. The subgrade for the process tanks was to be approximately 15-20 feet below the rough grade. Excavation was conducted using earth moving scrapers to approximately one foot above subgrade and completed with the use of bulldozers and a backhoe.

7. In performing the excavation from rough to subgrade, perched water[1] was encountered within pockets of silty clay and at approximately 10 feet above subgrade the soil being excavated was damp. However, no substantial amount of ground water was encountered and excavation was not impeded by the perched water.

8. Before reaching subgrade, Appellant, to control groundwater and natural run off, installed a berm around the perimeter of the site, and two sumps within the perimeter. These actions were implemented based upon information contained in the soil report available to bidders prepared by Atec Associates, Inc., that:

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[1]Perched water is underground water lying over dry soil and sealed from it by an impervious layer.

> [G]roundwater conditions encountered at this site were either trapped or perched water. . . . [T]he groundwater encountered appears to be traveling in seams, lenses, and layers of granular SM and GN materials. Pre-construction dewatering of these layers would probably be quite costly and may prove to be unnecessary. Therefore, we recommend that groundwater related problems be handled during construction as the nature of the groundwater source becomes more fully exposed. (Ex. R-7, p.12).

9. Subgrade was reached on or about November 13, 1985. The soil at subgrade was a moist plastic type of clay and DGS and Appellant concluded that the subgrade contrary to the representation in the contract documents was unstable, and unsuitable for support of the tanks.

10. OBG instructed Appellant to perform specific corrective action (undercutting and backfill) referred to by the parties as the "first fix". The parties initially construed this corrective work to be beyond the scope of Appellant's contract and DGS agreed to pay Appellant for the work based on contract unit prices for excavation, filter cloth and stone.

11. Upon completion of the first fix, the stone used to backfill the subgrade proved to be unstable in the area where the No. 2 tanks were to be constructed.

Since the first fix did not accomplish the desired result, further consultation ensued and Appellant was directed by OBG to perform additional undercutting ("second fix") in the westside tank area. The second fix required excavation to inconsistent depths varying from between one to five feet below the first fix excavation. This work was also performed as work for which Appellant would be paid at contract unit prices.

12. Upon reaching suitable material, Appellant installed filter fabric and backfilled to subgrade. Appellant then submitted a claim to DGS for the cost of the additional work. However, despite the initial agreement to pay for the "fixes" DGS denied the claim.

13. In denying the claim, DGS attributed the instability of the subgrade to Appellant's failure to dewater the area, even though DGS's on site representatives had never questioned the manner or extent of Appellant's dewatering effort until sometime after it was discovered that the first fix was unsuccessful in the area of the western process tanks.

Proposed Decision-Additional Excavation and Backfill Costs

Appellant contends that that the soil encountered at subgrade constituted a changed condition.

DGS contends, however, that the contract specifications required dewatering of all construction areas and that the failure to dewater the site led to the subgrade instability. DGS asserts that dewatering should have been accomplished by the use of wellpoint and deep well systems.

The contract requires that the contractor "provide and maintain proper and satisfactory means and devises for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the excavation of the work or the proper placing of pipes, structures or other work." In accordance with the contract provisions, Appellant asserts it maintained proper and satisfactory means and devises for the removal of all water entering into the excavation on the project, and that the subgrade instability was not caused by a failure of Appellant to properly dewater the site.

We agree with Appellant that the subgrade instability was not caused by a failure to dewater.

The groundwater on-site was contained in lenses of more permeable materials in isolated pockets. Therefore, contrary to DGS's assertion, the site could not have been dewatered by the use of wellpoints and deep wells. The evidence reflects that the soil at subgrade was a type of plastic clay which cannot be dewatered.[2]

At the hearing, Mr. Peter Brelia, OBG's on-site representative tried to justify OBG's acknowledgment that the subgrade constituted a changed condition for which it offered to pay by stating that he did so solely to "keep the job going". Mr. Brelia also testified, however, that he was aware that under the contract, OBG could have ordered Appellant to perform the first fix on a force account basis or by directive and that payment responsibilities could be determined at a later date. In short, the soil encountered at the subgrade was soft and unstable in its in-situ state, and did not become unstable during excavation. The soil could not have been stabilized through any dewatering method.

DGS next asserts that the Appellant's method of excavation which involved use of heavy equipment to remove the soil down to within a few inches of subgrade caused or at least contributed to the unstable subgrade.

DGS did not object during construction to the manner in which excavation was performed or to the equipment that was used. However, at the hearing DGS's experts suggested various alternative means by which the tank farm area could have been excavated which would not have had the

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[2]Mr. Richard Spratt, who supervised Stockett's excavation operation, and Mr. Jack Gumtow, Appellant's superintendent, and Appellant's expert, Mr. Peter Rebull, all testified that moist plastic clay cannot be dewatered. Moreover, Earth Engineering's on-site representative, Barry Beatty, testified with regard to the area around the pista grit chamber [Screen and Grit Building] that the only way a stable subgrade could have been obtained was to try to dry and recompact the subgrade or excavate and backfill. Soil conditions encountered at the subgrade in the pista grit chamber were similar to those encountered in the tank farm area.

potential for disturbing the soil below subgrade. These experts asserted that backhoes could have been used, a clamshell could have been used, or a dragline could have been used.

Stockett's Mr. Spratt testified, however, that in thirty-five years of construction experience he had never seen excavation of the scale required on Dorsey Run performed solely with backhoes. Mr. Spratt also testified that a dragline would have increased the bid price by one thousand percent because of various inefficiencies involved. This testimony was corroborated by Appellant's expert, Mr. Rebull. Mr. Rebull also testified that the use of a clamshell would have been inefficient and also would have had potentially damaging impact on the subgrade.

The record reflects that the method of excavation actually employed by Appellant was normal and proper. Moreover, as prescribed by the contract, Apellant's dewatering efforts were "proper and satisfactory." We thus find that Appellant's techniques in performing the excavation did not cause the subgrade instability. The subgrade instability was caused by inherent weakness in the soil.

DGS next asserts that the Appellant should have anticipated the actual conditions encountered in preparing its bid; i.e. DGS asserts that the subgrade instability was not a changed or differing site condition from that represented in the contract documents.

A changed condition from that indicated exists when a contractor encounters an unanticipated quantity, nature, or form of an anticipated material. See John Grimberg Company, Inc., ASBCA No. 15218, 73-1 BCA ¶ 9785 (1973); Paccon, Inc., ASBCA No. 7643, 62 BCA ¶ 3546 (1962). In determining whether a changed condition exists:

> . . . it is not necessary that the indications in the contract be explicit or specific; all that is required is that there be enough of an indication on the face of the

> contract document for a bidder reasonably not to expect subsurface . . . conditions at the site differing materially from those indicated in the contract. Foster Construction Co., and Williams Brothers Company v. United States, 193 Ct. Cl. 587, 435 F.2d 873 (1970).

See also Hardaway Constructors Inc., MSBCA 1249, 3 MSBCA ¶ ___ (1989); Fruin-Colnon Corporation and Horn Construction Co., Inc. (A Joint Venture), MDOT 1025, 2 MSBCA ¶ 165 (1987). In the instant case, the contract stated that "excavations shall be made to the elevations or subgrade specified. . ." (R4, Tab 45, p.135). This language clearly implies that the limiting subgrade indicated in the contract would be sufficient to support the structures to be constructed thereon[3]. In Bennett v. United States, 178 Ct. Cl. 61 (1967), for example, the contractor's interpretation of a levee construction contract which set a fixed distance from the center line of the levee for excavation as not requiring removal of materials from beyond such point was held reasonable. Thus, the contractor was entitled to additional compensation for excavation performed beyond the indicated point. "By fixing the riverward limit of excavation at the 260 foot mark, [the Government] fixed the limits of the excavation that it could legally insist upon." Bennett supra, at 66.

That the condition encountered at the subgrade on the instant project constituted a changed condition is also clear from a careful analysis of the facts. Appellant excavated to the original subgrade specified in a uniform manner. The original subgrade, however, was unstable. At the hearing, Appellant's expert testified that the instability was due to an inherent weakness in the soil, not Appellant's manner of excavation.

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[3]DGS' argument that other contract language requiring additional excavation as directed by DGS required such additional excavation to be performed at no additional cost is addressed below.

In ordering the first fix, OBG acknowledged that the condition of the existing subgrade constituted a changed condition. The first fix was accomplished in a uniform manner across all four process tanks. The first fix worked in the eastern tanks. The western tanks, however, required additional undercutting to a depth of at least one foot below the excavation for the first fix. Thus, the soil one foot below the original subgrade in the western tanks, independent of Appellant's manner of excavation, was inherently weaker than the soil one foot below subgrade in the eastern tanks. Inherent differences in the soil's stability explains why the first fix succeeded in the eastern tanks only to fail in the western tanks. Likewise, the contemporaneous actions of on-site personnel and the views of the Appellant's expert indicate that the instability of the initial subgrade could only be due to the soil's inherent properties.

In short, the soil encountered at subgrade constituted a changed condition.

DGS finally asserts that a changed condition notwithstanding, Appellant's claim must fail because of (1) improper workmanship and (2) its contention that that the work was already encompassed by the original contract and Appellant's bid price therein. Concerning DGS's second contention, we find that Appellant is entitled to an equitable adjustment in the contract price for excavation properly conducted below the indicated subgrade. The instant contract required excavation to be to the elevation or subgrade shown in the contract drawings or as otherwise specified or directed. DGS argues that since the contract required the Appellant to excavate beyond the subgrade shown on the drawings where additional excavation was directed as necessary to support structures, Appellant was required at no additional cost to perform the additonal excavation involved in the fixes. (R4, Tab 45, pp 120 et.

seq.). It is undisputed that OBG ordered additional excavation beyond the initial subgrade. It is also undisputed that in ordering the first fix, OBG acknowledged, in writing, that the additional excavation was due to a "changed condition" for which Appellant would be paid. On December 14, 1986, almost a year after the first fix had been completed, DGS, writing directly to Appellant, acknowledged that the first fix was "a reimbursable expense" and offered to pay Appellant $34,806.00. That the "first fix" was due to a changed condition was never disputed until DGS denied Appellant's claim in connection with both the first and second fixes by letter of January 25, 1988.

We find that the contract contemplates excavation below the indicated subgrade as an add to the contract price. The contract calls for excavation below subgrade to be paid for at unit prices. The fixed unit price items for excavation below subgrade represent items of work which may be required in addition to those shown or specified in the contract documents. Clearly, the excavation performed by Appellant in the tank farm area below the intended subgrade was, when initially ordered, contemplated by both the terms of the contract and DGS to be an extra for which Appellant was entitled to additional compensation.

DGS's improper workmanship contention revolves around its assertion that Appellant's excavation technique for the first fix was marred by poor or defective workmanship which then required the second fix such that Appellant should absorb the cost of both fixes. The essence of the defective workmanship argument was that Appellant failed to dewater the fix area and used heavy equipment for the excavation which further de-stabilized the area where the second fix was required. At the hearing, one of the DGS expert witnesses, Mr. Kaiser, admitted that his testimony on this issue was based

entirely on "hindsight". DGS's other expert, Mr. Lacey, admitted that he did not visit the Dorsey Run sight until after the first fix had been accomplished. Thus, Mr. Lacey never observed the original excavation or saw the original subgrade of the project until it had already been covered with a filter cloth and backfilled with one foot of stone.[4]

The State's on-site representatives during construction, Mr. Brelia of OBG and Mr. Beatty of Earth Engineering, never countermanded Appellant's manner of excavation. Only after the first fix failed to achieve the intended results was there mention of impropriety on Appellant's part. Thus, allegations of improper workmanship by Appellant are apparently based on hindsight, DGS having contemporaneously acknowledged the changed condition and its willingness to pay for the additional excavation.

Appellant's personnel, on the other hand, testified at the hearing that Appellant used well-accepted means of excavation and the most economical means available. In weighing the evidence on DGS's poor workmanship contention we find that the record does not support its after the fact argument that Appellant failed to perform the excavation for the first fix in a workmanlike manner or that the manner of excavation for the first fix caused the need for the second fix to stabilize the site.

We thus find Appellant entitled to an equitable adjustment (in the amount stipulated by the parties - $79,551.00) for the cost of the additional excavation and backfill involved in the two fixes.

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[4]Upon being called to the job site after the first fix, Mr. Lacey did not recommend that the State avoid having excavation equipment operated over the subgrade, an alleged cause for the initial instability. Instead, Mr. Lacey suggested that "they attempt to operate excavation equipment on the subgrade. However, if that was unsuccessful, that they should consider using methods that wouldn't involve the equipment operating on the subgrade." (TR IV, pp.33-34).

Pista Grit Chamber - Replacement of Unsuitable Material

14. The Screen and Grit Building contains a pista grit pump, which has a shaft descending into a conical shaped chamber. As the pump draws in sewage the chamber extracts grit from the sewage.

15. During excavation for the building which began in the spring of 1986, Appellant encountered unstable subgrade in the chamber area as confirmed by DGS's representative Earth Engineering. Appellant requested direction, relative to this excavation, and not receiving a timely reply, Appellant proceeded to undercut approximately one foot of unstable material and backfill at a cost of $2,206.23 for which it seeks an equitable adjustment. DGS declined to pay Appellant for this work, contending that the work (1) resulted from instability caused by Appellant's failure to properly dewater the area, (2) that DGS never authorized the work, and (3) that the work was not accomplished in the most cost effective manner.

Proposed Decision-Pista Grit Chamber - Replacement of Unsuitable Material

The Board finds that the material excavated was impermeable clay and that the instability was not caused by a failure of Appellant to properly dewater the site. Thus the Board rejects DGS's asserted defense in this regard.

The parties agree that the specified subgrade was unstable. Immediately upon discovering the instability, Appellant requested direction from DGS as to how to proceed. Time was of the essence. When such direction was not forthcoming, Appellant noted the solution prescribed by OBG for a similar problem in the tank farm area (as described above) and undercut (i.e. excavated) one foot and backfilled.

DGS argues that the method employed by Appellant was one of two available solutions, the other and allegedly more cost effective being to allow the clay to dry and then to compact it. However, the problem arose during the spring, a period when one may expect rain, such that the drying out process could have taken weeks.

Corrective work that is done as the only practical response to silence and inaction on a request constitutes a change in the quantity of the work under the contract. See Altman Carpentry, Inc., HUD BCA, 81-2 BCA ¶ 15,414 (1981).

It took less than a half a day for Appellant to complete the undercut and backfill operation. Under the circumstances, we find that Appellant acted in a prudent and expeditious manner and took the only practical option. Appellant is entitled, therefore, to an equitable adjustment for its asserted costs (which we find to be reasonable) for the additional undercut and backfill in the area of the pista grit chamber.[5]

Blower Building - Pile Settlement

16. The project required the stacking of pipe below grade in the area of the Blower Building. This involved the excavating of a trench, with repetitive laying of pipe, backfilling and compacting.

17. DGS's representative Earth Engineering had the responsibility to test for compaction of the soil for proper stability. Earth Engineering tested the soil and accepted the soil bearing capacity prior to installation of the pipes and backfill. However, in early 1987, Appellant observed that a pipe was angling upward where it entered the Blower Building, the excavation for the pipes having settled outside the foundation.

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[5]DGS argues that Appellant has never paid for the work involved. While not completely clear from the record, we assume Appellant has actually absorbed its claimed costs in this regard or is legally liable therefore.

18. By letter dated May 14, 1987, Appellant was directed by OBG to support the pipes outside of the Blower Building by means of a brace and hanger rod system. Appellant performed the directed work and claims the cost of this work with markup in an amount of $11,293.00.

Proposed Decision - Blower Building - Pipe Settlement

DGS denies that it is liable for any payment for the corrective work alleging that Appellant failed to properly compact the subgrade and to request compaction tests prior to installation of the pipes. Alternatively, i.e. regardless of fault regarding compaction, DGS argues that Appellant must bear the cost of the corrective action because DGS had not accepted the project when the soil underneath the buckled pipe settled. DGS also contends that Appellant has improperly marked up its pipe settlement claim.

In denying Appellant's claim, the DGS procurement officer stated that "Schlosser's failure to properly compact the subgrade and to request compaction tests prior to the installation of pipes establishes Schlosser's failure to comply with contract requirements." (R4, Tab 1 ¶ 12) At the hearing, Barry Beatty of Earth Engineering admitted that he checked the compaction of the soil before the pipe was laid adjacent to the Blower Building. Mr. Beatty also testified that the backfill had been performed properly. Thus, DGS's initial justification for denying Appellant's claim is disputed by the testimony of its own soil technician.[6]

Concerning, DGS's acceptance argument, it is undisputed that the manner of correcting the pipe settlement problem was not contemplated by Appellant when it submitted its bid for the contract. The direction from OBG to correct the settlement of the pipe by means of a brace and hanger rod

[6]The Board rejects DGS's suggestion that Stockett's could not have compacted the soil where settlement occurred because its compaction equipment could not be operated in the area immediately adjacent to the building.

system included drawings which were not a part of the original contract, nor were they part of Appellant's contemplated manner of performance. Changes in the method or manner of performance are considered changes in the work itself and, thus, changes in the specifications. Farnsworth & Chambers Co., ASBCA 5408, 59-2 BCA ¶ 2329 (1959) (premature mobilization ordered by the government). As such, Appellant is entitled to an equitable adjustment for the non-contemplated manner of supporting the pipe adjacent to the Blower Building including additional excavation and backfill regardless of whether the project had or had not been accepted.

The evidence of record establishes that Appellant in initially installing the pipe, acted consistent with the contract and the direction of the State's on-site representatives. As such, Appellant is not responsible for the settlement of the pipe adjacent to the Blower Building. Because the record further reflects that the means specified by DGS to correct the pipe settlement problem was in addition to the original contract work, Appellant is entitled to an equitable adjustment as requested. However, we agree with DGS that Appellant's claim must be reduced.

Appellant's additional labor and equipment costs, exclusive of mark-up were $9,400. Appellant's mark-up is 20%. However, General Conditions, Section 8.02 A (8) allows only a 17% mark-up on claims between $5,001 and $10,000 for work performed under the force account provisions of the contract (R4, Tab 45) and there is otherwise no evidence of the reasonableness of a 20% mark-up under the circumstances. In addition, General Conditions, Section 6.15G prohibits Appellant's claim for increased "bond" payments. (R4, Tab 45) Accordingly, Appellant's cost of repairing the pipe settlement, properly calculated is:

$9,400	Labor & Equipment
1,598	17% OH & P
$10,998	Total

Removal and Replacement of Storefront at the Administration Building

19. The Administration Building housed the computer system which controls the plant functions. The building has a series of hollow metal frame window and door panels, including a metal window and door frame attached to the front of the building, forming the main entrance which the parties refer to as the storefront.

20. According to Appellant's original construction schedule submitted to OBG in February 1986, the storefront was to be installed by late October, 1986. The graphic panel containing the central controls for the computer was originally scheduled to be installed after the storefront installation. Storefront installation was delayed for various reasons until December, 1986 when it was installed due to Appellant's concerns that the Administration Building was unprotected from vandalism and inclement weather which would impact finish work.

21. When the storefront was installed in December, 1986 the computer graphic panel had not been delivered due to the need to accomplish certain modifications to the panel ordered by OBG..

22. The computer graphic panel was finally delivered in mid-January, 1987 at which time it was discovered that the graphic panel was too large to fit through the store front. In order to move the computer graphic panel into the building, the storefront was removed by Appellant's subcontractor J.B. Kendall Company, Inc. ("Kendall") and the storefront was subsequently re-installed by Kendall after the computer graphic panel was in place.

Proposed Decision - Removal and Replacement of Storefront

Appellant seeks an adjustment of $1,102.00 for the costs billed by Kendall to remove and re-install the storefront ($1,000.00) and Appellant's markup ($102.00) for profit and bonding.

Appellant asserts that it is entitled to an equitable adjustment because the modifications to the computer graphic panel ordered by OBG delayed the delivery of the panel until after the onset of winter weather and required temporary installation of the storefront to attain a constant temperature to enable finish work to be accomplished and to protect such work from vandalism.

DGS on the other hand contends that an analysis of Appellant's original CPM schedule as submitted to OBG in February, 1986 reflects that Appellant did not recognize that the graphic panel was too large to fit through the door front. While the evidence is conflicting on the matter, the Board finds that Appellant intended to install the graphic panel after the storefront was installed, not recognizing that it was too large to fit through the storefront.

Therefore, even if there had been no delay in delivery of the graphic panel attributable to the OBG modifications, Appellant would still have installed the storefront first and then have been faced with the dilemma of removal upon discovery that the graphic panel was too large to fit through the storefront. Accordingly, the Appellant's claim for an equitable adjustment for the costs involved in removal and re-installation of the storefront is denied.

Additional Cost to Maintain As Built Drawings

23. Appellant was required by the contract to maintain as-built drawings. In this regard the contract provides:

> The Contractor shall keep at the site of the work a copy of the contract document to be used record purposes [sic]. The Contractor shall record all

changes made during the construction process in said copy of contract document. The record drawings shall be available to the engineer and shall be delivered to the engineer by the Contractor upon completion of the project.

Thirty-eight changes, each with subparts, were made to the contract over the length of the construction period. Appellant incorporated these changes and the drawings attendant thereto into the as-built record drawings which were furnished to OBG upon completion of the project.

24. Appellant had included an amount in its bid for as-built drawing updates. However, it contends that it could not have anticipated thirty-eight changes which it argues is an unusually high number of changes. Accordingly, Appellant submitted a claim for the alleged cost of incorporation of the changes into the record as-built drawings. DGS denied the claim.

Proposed Decision - Additional Cost to Maintain As-Built Drawings

Appellant argues that the number of contract changes for the project were out of proportion to the number that Appellant should reasonably have anticipated in preparing that portion of its bid relating to cost estimates for record as-built drawings for a project such as the instant one, i.e. a waste-water treatment facility. DGS argues that the number of changes was not excessive and thus should reasonably have been anticipated by Appellant in the preparation of its bid.

We deny Appellant's claim for an equitable adjustment. Appellant has not shown, nor does the record otherwise demonstrate through neutral documentary or opinion evidence comparing this project with other similar projects that the number of changes was excessive and thus could not have been anticipated. The number of changes may border on the excessive, but we find Appellant has failed to meet its burden to show that the number of changes was in fact excessive for a project of this nature.

The Interest Claim

25. Appellant seeks interest for alleged late payment of invoices for work covered by change orders in the amount of $6,826.43. The interest is calculated on the basis of 1-1/2% per month beginning thirty days after the work had been accepted on each change and the claim is based upon Section 8.09 of the contract's General Conditions which provides:

> [T]he State shall remit payment to the contractor within 45 days after receipt of a proper invoice. The State's failure to remit payment within this period may entitle the contractor to obtain interest at the rate of 10% per annum, beginning on the 31st day. (Emphasis added).

26. The change orders and processing times upon which the claim is based (taken from Appellant's Post Hearing Brief) are as follows:

WMS No. 128

Mod#	Submitted	Change Order Issued	Time Claimed	Amount[7]
92	March 20, 1987	July 1987	3 mos.	$1,938.00
97	Feb. 16, 1987	July 1987	3 mos.	$2,805.00

WMS No. 128

Mod#	Submitted	Change Order Issued	Time Claimed	Amount
46	Sept. 5, 1986	April 1987	3 mos.	$3,650.00

Mod#	Submitted	Change Order Issued	Time Claimed	Amount
74	Oct. 22, 1986	May 1987	9 mos.	$232.47
82	Jan. 23, 1987	May 1987	4 mos.	$137.76
87	May 13, 1986	May 1987	12 mos.	$216.72

27. There is no explanation in the record for the various processing times involved; nor is there evidence that Appellant incurred costs to finance the project or portions thereof while awaiting payment of its invoices.

[7]The Board is unable to reconcile the amount claimed, $6,826.43, and the total of the amounts set forth in Appellant's post hearing brief.

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Proposed Decision - The Interest Claims

Appellant seeks interest for alleged late payment of invoices related to changed work, apparently relying on the provisions of Section 8.09 of the General Conditions. Section 8.09 states that the State's failure to remit payment within 45 days after receipt of a proper invoice may entitle the contractor to obtain interest as specified. We believe that use of the word may requires a contractor, in addition to demonstrating that payment of an invoice was late, to also show that the late payment caused it to incur specific project related costs rather than mere loss of use of the money for the period of delayed payment in question. Such evidence is lacking. Thus, the claim is denied.

Shirco Drawing Review

28. Appellant seeks an equitable adjustment in the amount of $23,410.20 for engineering and coordination costs related to the sludge incinerator for the project. Part of the claim is for $14,015.00 for drawing review time estimated to have been incurred by Appellant's electrical subcontractor Billings and Birckhead (B&B) and the balance is for costs estimated to have been incurred by Appellant.

29. OBG prepared the contract specifications and drawings for the sludge incinerator. Section 11171, 1.02 of the specifications designates Shirco Infrared Systems, Inc. ("Shirco") or equal as manufacturer of the sludge incinerator. The contract drawings for the Shirco incinerator were prepared by OBG based on a preliminary design, but the contract drawings and specifications do not disclose that the drawings for the incinerator were based on a preliminary design.

30. Appellant awarded a subcontract to Shirco to supply the sludge incinerator, and in addition subcontracted with B&B to supply and install electrical equipment to interface with the incinerator as shown on the drawings.

31. In the fall of 1985, B&B began initial planning and drawing review based on the contract specifications and drawings. Subsequently, in December, 1985, Shirco submitted shop drawings to Appellant, which were forwarded to OBG for review and approval. The incinerator indicated on the shop drawings differed from the preliminary design within the contract drawings, resulting in OBG making revisions and resubmissions of drawings.

32. In a letter to Appellant dated February 6, 1986, OBG acknowledged that the design of the incinerator would require modifications to the electrical system shown on the contract drawings. In April, 1986, OBG prepared drawings incorporating changes to permit the interfacing of electrical systems with the incinerator, designating the changes as "modification No. 46."

33. On May 8, 1986, OBG forwarded the revised drawings to Appellant requesting a price quotation for the implementation of the electrical work involved in modification No. 46. B&B submitted a price quotation on June 2, 1986 in the amount of $106,898.00. OBG in ensuing discussion with Appellant and B&B took the position that DGS was not responsible for the 415.5 hours of drawing review time included in the B&B quotation and refused to process the proposal unless the drawing review time was deleted. Under protest, Appellant deleted the drawing review costs resulting in B&B submitting a revised quotation on September 30, 1986, without the drawing review costs, which was approved by DGS.

34. Some five months thereafter, Appellant submitted to the procurement officer the B&B claim for drawing review and its own claim for $9,395.20 (including markup) based on an estimated 200 hours of its own time spent on

drawing review. The procurement officer denied the claims on the ground that "the changes were initiated by Shirco, Schlosser's supplier, not the State or its agent."

Proposed Decision - Shirco Drawing Review

DGS contends initially that Appellant by using Shirco as the manufacturer of the incinerator is liable to absorb the cost of all the design changes including the instant claim for drawing review.

However, DGS designated Shirco as the manufacturer of the sludge incinerator for the project and represented that the equipment and systems shown on the contract drawings were designed to operate with the Shirco incinerator. DGS knew that the design for the Shirco incinerator incorporated in the contract specifications and contract drawings was only a preliminary design but failed to disclose this fact to the bidders. Appellant in good faith procured the sludge incinerator from Shirco as permitted by the specifications.

The design of the incinerator shown on Shirco's shop drawings differed from the preliminary design incorporated in the contract drawings. The Shirco incinerator was not compatible with the electrical equipment and systems shown on the contract drawings. Thus, the contract drawings were incomplete and defective - incomplete in that the sludge incinerator design was preliminary only, and defective in that the design of the electrical equipment and systems was not compatible with the incinerator designated by the contract drawings and specifications. Accordingly, DGS approved a change order (i.e. modificaton No. 46) to redesign and modify the electrical equipment and systems to allow proper interface with the Shirco incinerator.

By approving a change order for the costs of modification No. 46, DGS has conceded that the redesign of the electrical equipment and systems necessary to resolve the incompatibility between the Shirco incinerator and the contract drawings exceeds the scope of the contract. Necessarily, we find that the drawing review time incurred by Appellant and B&B as a result of the incompatibility between the Shirco incinerator and the contract drawings likewise exceeds the scope of the contract.

B&B began drawing review in the fall of 1985 based on the contract specifications and contract drawings. However, a significant amount of that drawing review was wasted effort because OBG subsequently found it necessary to substantially modify the design of the electrical equipment and systems to interface with the Shirco incinerator that would actually be provided. Review of the Shirco shop drawings required more time than normal because the design of the incinerator shown on the Shirco shop drawings was not compatible with the design of the electrical equipment and systems originally shown on the contract drawings. The substantial redesign of the electrical systems shown on Drawings Z-12 and Z-13 and included in modification No. 46 also required significant drawing review as a predicate for preparing a price quotation and to implement the modification.[8]

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[8]DGS characterizes Appellant's claim as being based solely on revisions to Shirco's shop drawings, and contends that revision to Shirco's shop drawings were initiated by OBG to conform the Shirco equipment to the requirements of the contract (Resp. Br., pp. 90-91). Appellant's claim does include time spent reviewing the Shirco shop drawings (as well as the contract drawings and Drawings Z-12 and Z-13) as a result of the incompatibility between the Shirco shop drawings and the contract drawings. However, as DGS's witness Mr. Crosier testified (TR. V pp. 87-89), that incompatibility was resolved by revising the contract drawings, not by revising the Shirco shop drawings as DGS suggests.

Under the circumstances, Appellant and B&B are entitled to an equitable adjustment for reasonable additional drawing review necessitated by the state's defective drawings and specifications. See Owens Corning Fiberglas Corporation v. U.S., 190 Ct. Cl. 211 (1969); Hol-Gar Manufacturing Corporation v. U.S., 175 Ct. Cl. 518 (1966).

DGS, however, questions the reasonableness of the hours claimed by B&B and Appellant, particularly those claimed by Appellant, and also contends citing the report of Rubino & McGeehin (DGS's auditors for purposes of the appeal) that there is no evidence that Appellant and B&B ever paid anyone for the drawing review time that is the subject of this claim (Resp Br., pp. 93-94).

Neither Appellant nor B&B could have known in advance of bid opening that the Shirco incinerator would not be compatible with the contract drawings and specifications. Thus neither devised nor should they have been expected to devise a system to track the drawing review time expended as a result of that incompatibility. B&B's accounting system did record a total of 1,300 hours expended for drawing review through May, 1986 but did not segregate the hours related to Shirco (TR. V, pp. 27, 45). In June, 1986, B&B's project manager estimated that B&B had expended 415.5 hours on review of drawings related to the Shirco incinerator made necessary by the incompatibility between the Shirco incinerator and the contract drawings (TR. V, p. 28; Ex. A-37), and Mr. Robert Billings, B&B's president, testified that such was a reasonable estimate of the time expended by B&B (TR. V, pp. 28-31). Based on the record we find B&B's estimate of hours expended to be reasonable and to represent an incurred cost. We likewise find the 200 hours claimed by Appellant to be reasonable and to represent incurred costs once appropriate adjustments are made for bonding and mark-up.

Appellant's equitable adjustment is thus calculated as follows:

B&B	$14,014.58	Drawing Review
Appellant	$ 7,970.20	Drawing Review
	$21,984.78	Subtotal
	$ 1,354.93	Appellant's OH & P at 17%
	$23,339.71	Total

Damaged Diffuser System Replacement

35. This claim generally involves responsibility for the cost of replacement of the diffusers located at the bottom of the two glass lined equalization tanks on the liquid side of the plant.

36. Diffusers are pre-molded fittings covered with a sheath which shoot air bubbles into the liquid.

The equalization tanks were initially filled with fluid so that the liquid side of the plant could be demonstrated as properly functioning and thereafter used by the State.

The liquid side of the plant was successfully demonstrated in September, 1987.

37. At the time of the September 1987 demonstration only punch list work remained to be accomplished on the plant and the State had beneficial use of the plant for training purposes. However, the State did not actually start up the plant because of the State's lack of a laboratory staff and an operating lab. (Ex. A-123).

38. Appellant's on-site superintendent in December of 1987 and January of 1988 was Mr. John Cox. Mr. Cox has been in the construction industry for approximately 26 years.

39. In late December, 1987, Mr. Cox became concerned about the glass lining of the equalization tanks when he heard weather reports calling for a hard freeze. He was specifically concerned that a hard freeze would freeze the water in the tanks, and crack their glass lining.

40. To protect the glass lined tanks in the face of the prediction of a freeze, Mr. Cox decided to drain the water from the tanks to a level just above the diffusers.

Mr. Cox drained the tanks and both the tanks and the diffusers survived the freeze.

Approximately a week later, however, after a slight snow fall, Appellant noticed that the diffusers had been damaged.

Thereafter, at the request of DGS, Appellant replaced the damaged diffusers.

41. By letter of March 8, 1988, Appellant submitted a claim in the amount of $12,506.00 for replacing the damaged diffusers.

42. There is credible evidence in the record that had Mr. Cox, when he heard the freeze warning, simply turned on the diffusers (rather than draining the tanks), the motion created in the water in the tanks from the release of the air bubbles from the diffusers would have kept the water from freezing and thus protected the glass lining from cracking.

Proposed Decision - Damaged Diffuser System Replacement

We find, despite the contention of DGS that the risk of loss remained with Appellant at the time the diffusers were damaged, that Appellant is entitled to an equitable adjustment.

The Contract provides that "the contractor shall maintain the work during construction and until acceptance." Thus, under the terms of the contract the risk of loss remained with Appellant prior to acceptance. See Santa Fe Engineers, Inc., ASBCA Nos. 27933, 28682, 85-2 BCA ¶ 18001 (1985) at 90247.

At the time the diffusers were damaged and subsequently replaced, the entire liquid side of the plant to include the equalization tanks had already been demonstrated. After the demonstration, which occurred in September, 1987, the State began operation of the liquid side of the plant to train State employees in plant operation. Under these circumstances, the State's actions constitute an implied acceptance of the liquid side of the plant. Upon acceptance, the risk of loss for damage to and the responsibility for maintenance of the plant shifted to DGS. Thus, the State bore the risk of loss under the circumstances.

DGS next contends, however, that the risk shifted to Appellant as a result of the alleged negligent act of Mr. Cox in draining the tanks rather than turning on the diffusers. DGS bears the burden in this regard, and while the record does reflect that turning on the diffusers was an option, and perhaps the best means of protecting the glass lining of the tanks, DGS has failed to show that the draining of the tanks (which the Board finds to be the proximate cause of the subsequent damage to the diffusers) was a negligent act. We thus find Appellant entitled to an equitable adjustment for the reasonable costs of replacing the damaged diffusers.

Appellant paid $9,590.00 to replace the diffusers. (RPOC at 14). In addition, Appellant has claimed a "commission" of 20%. There is no evidence to support the reasonableness of such a mark-up under the circumstances, and as noted above, General Conditions, Section 8.02 A (8) allows only 17% overhead and profit on claims between $5,001 and $10,000.

While Appellant claims increased "bond" costs, as previously noted, General Conditions, Section 6.15 G precludes award of such costs in an equitable adjustment. Therefore, Appellant's equitable adjustment is calculated as follows:

$ 9,190.00	Diffusers
400.00	Labor and Equipment
$ 9,590.00	Subtotal
$ 1,630.30	17% OH&P
$11,220.30	Total

In summary the various claims of the Appellant for an equitable adjustment are either denied or allowed to the extent indicated above.

Dated: May 21, 1990

Robert B. Harrison III
Chairman

I concur:

Sheldon H. Press
Member

Neal E. Malone
Member

* * *

I certify that the foregoing is a true copy of the Maryland State Board of Contract Appeals decision in MSBCA Nos. 1373 and 1385, appeal of W.M. SCHLOSSER CO., INC., under DGS Contract No. ES-001-831-001.

Dated: May 21, 1990

Mary F. Priscilla
Recorder

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