ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of --	)	
	)	
EM Systems, Inc.	)	ASBCA No. 51782
	)	
Under Contract No. N62477-94-C-3063	)	

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OPINION BY ADMINISTRATIVE JUDGE JAMES

This appeal arises from the contracting officer's (CO) deemed denial of EM Systems, Inc.'s (EM) seven claims submitted in June 1998 on the captioned construction contract, totaling $254,007. The Board has jurisdiction of the appeal under the Contract Disputes Act of 1978, 41 U.S.C. §§ 605(c)(5), 607. After a three-day hearing at the Board's offices, the parties submitted post-hearing briefs. The Board is to decide entitlement only (tr. 6).

FINDINGS OF FACT

1. In April 1995 the Engineering Field Office, Chesapeake Division, Naval Facilities Engineering Command, issued solicitation No. N62477-94-B-3063 (the IFB) for bids to extend the fiber optic distribution network at the Naval Air Warfare Center, Patuxent River, MD (NAWC). The IFB contemplated an indefinite delivery, indefinite quantity-type contract with issuance of written delivery orders (DO). (R4, tab 1 at 1, 01010-4 to-7; tr. 329)

2. The IFB set forth four line items that were divided into sub-line items (SLIN). For each SLIN: (a) the IFB set forth Government-estimated quantities, and (b) bidders were to enter unit material, labor and equipment costs, total unit price and extended total (*i.e.*, quantity times total unit price). (R4, tab 1)

3. The IFB's first nine SLINs described trenches ranging from 9" to 38.5" wide. Relevant to this appeal are the following other SLINs:

SLIN	Description	Unit	Qty
1.20	Pump, blow, test, and barricade manhole [PBTB]	ea	50
	. . . .		
1.32	Provide and install 6' x12' x7'h precast manhole with no pedestal	ea	28
1.33	Provide and install 10' x10' x9'h precast manhole with 1 pedestal	ea	8
1.34	Provide and install 16' x10' x8'h precast manhole with 2 pedestals	ea	2
1.35	Cut and restore asphalt road surface	sq. ft.	28000

(R4, tab 1)

4. The IFB included 46 typical drawings depicting fiber-optic pedestals, equipment racks, installation trenches with 1 to 24 internal conduits, "double pedestal manhole" ("Exhibit 16765-25"), "single pedestal manhole" ("Exhibit 16765-26"), "J-type manhole" ("Exhibit 16765-27"), cuts and restorations of concrete and other type surface materials, and steel pipes encasing cable ducts of various diameters (R4, tab 1).

5. EM was the low bidder at the bid opening on 26 June 1995. Respondent awarded contract N62477-94-C-3063 (the contract) to EM on 15 September 1995. The contract incorporated the FAR 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (APR 1984) and 52.243-4 CHANGES (AUG 1987) clauses. (Comp. & ans., ¶ 6; R4, tab 1)

6. Respondent issued seven DOs under the contract (R4, tabs 115, 126, 136, 144, 153, 162, 164). At the time of DO issuance, the parties negotiated the quantities for each SLIN included in the DO. Upon completion of a DO, EM submitted for payment measurements of the actual quantity performed for each SLIN therein. (Tr. 164-67, 516)

7. On 19 June 1998, EM submitted a certified claim to the CO, alleging: (1) 123 PBTBs ordered under DOs 1-7 not required by the specifications: $24,600. (2) 11,723 square feet of asphalt repairs ordered under DOs 1 and 2 not required by the specifications: $85,254.72. (3) Restocking charge for four "A" type manholes under DOs 1-5: $5,575.

(4) One-hour safety inspection delay on DOs 1-7: $547.46. (5) 55 soil compaction tests on DOs 1-5 and 7 of backfill lifts not required by the specifications: $34,388.07. (6) 79 concrete tests under DOs 1-7 not required by the specifications: $48,067.90. (7) Precluding the QC Manager to perform operational work under DOs 1-7: $55,574.50. EM's seven claims total $254,007.65, though its letter said $254,268.40. (R4, tab 35) Our further findings and decisions address each item sequentially.

PBTB

8. Contract specification § 16765, "**Underground Communications Structure**," provided in pertinent part:

> ***3.5 PUMP, BLOW, TEST, AND BARRICADE MANHOLE***
>
> **3.5.1 Guards and Warning Devices**
>
> Manhole guards and warning devices shall be set up at the manhole in accordance with . . . 29 CFR 1910.268 and the *Manual on Uniform Traffic Control Devices* of the U. S. Department of Transportation before the manhole cover is removed. Warning devices are used for the purpose of providing maximum protection to workers, equipment, and the public in general . . . .
>
> **3.5.2 Internal Atmosphere**
>
> The internal atmosphere shall be tested for hazardous gases before a worker enters a manhole in accordance with . . . 29 CFR 1910.268 . . . .
>
> **3.5.3 Ventilation**
>
> Manholes shall be ventilated in accordance with . . . 29 CFR 1910.268. Manhole ventilation with forced air is necessary to expel unwanted gases that may be present in the manhole atmosphere and to maintain an adequate supply of oxygen . . . . The ventilation system may consist of only a blower and a blower hose . . . .
>
> **3.5.4 Pumps**

> Manholes shall be pumped in accordance with . . . 29 CFR 1910.268 . . . to remove water if pumping is required. [Emphasis in original.]

(R4, tab 1 at 16765-20 -21) Those PBTB requirements applied to both existing and newly installed manholes (tr. 20). 29 CFR 1910.268 did not require an employer to have a tripod and safety harness for employees in a manhole.

9. For SLIN 1.20 the contract specified a "total unit price" of $100, which EM based on performing PBTBs only for final inspection (R4, tab 1; tr. 25-26, 79, 174).

10. During contract performance EM installed manhole barricades and had on hand an air pump and hose (tr. 474-75). Respondent's resident engineer Ellis Herndon required EM to perform PBTB air quality testing and to have a tripod and safety harness for each manhole entry, including after lunch breaks (tr. 22-26, 174, 322, 475-76, 563).

11. EM personnel entered: (a) two manholes to pull strings and mandrels through conduits and to perform BB testing between J-type manholes; (b) one manhole to install grounding, racking, and innerduct, to perform BB testing between a J-type and a pedestal manhole, and to perform final inspection; and (c) no manhole to install a new manhole or PVC conduit (R4, tab 216 at 4; tr. 477-78, 480-83, 485, 491-4, 496-501, 558-61).

12. Respondent paid EM for 81 PBTB entries under SLIN 1.20 (tr. 175). Based on the work described in its Daily Reports to Inspector (DRI), EM counted 219 PBTB entries, revised to 355 during discovery (R4, tab 248-49; tr. 175, 226-27, 557-59, 561, 570). By the foregoing criteria, we find in EM's DRIs 232 PBTB entries (rather than 355), of which 119 were for DOs 1 and 3 (R4, tab 100).

13. To revise the PBTB quantities under SLIN 1.20, the parties agreed to bilateral modifications on DOs 1 and 3, including unqualified contractor releases of further Government liability, and respondent issued unilateral modifications on DOs 4 and 5. The documentary record shows only 51 PBTB entries billed to DOs 1 and 3, and 18 PBTB entries billed to DOs 2, 4-7 (totaling 69), whereas the revised quantity of PBTB entries for all seven DOs was 79, and there was unopposed testimony that 81 PBTB entries were paid and documents showing that 119 PBTB entries were for DOs 1 and 3 (finding 12). We attribute the undocumented 12 PBTB entries (81-69) to DOs 2, 4-7. (R4, tabs 125, 133, 142, 150, 160, 163, 166; tr. 228-29, 234-37, 239-40)

DECISION

EM argues that the specifications did not define when PBTB entry procedures were required. EM is incorrect. Specification § 16765 required barricades and warning devices "before the manhole cover is removed;" air quality testing "before a worker enters a

manhole;" ventilation when "unwanted gases" were present or oxygen was inadequate; and pumping when water was present. 29 CFR 1910.268 did not require any tripod or safety harness. (Finding 8) The contract required barricades, air quality testing, and ventilation when needed, for each manhole entry. Respondent's direction to have a tripod and safety harness available for each entry exceeded contract requirements.

Respondent paid EM for 81 PBTBs. EM's DRIs recorded 232 PBTBs, of which 119 were under DOs 1 and 3. (Finding 12) EM billed 51 PBTBs under DOs 1 and 3, which were released without qualification in bilateral modifications thereto, and 30 PBTBs under and attributed to DOs 2 and 4-7 that were not released (finding 13). Thus, of the 151 PBTBs that exceeded the 81 paid PBTBs, 68 PBTBs (119 - 51) were released under DOs 1 and 3, and 83 PBTBs (151 - 68) under DOs 2 and 4-7 were not released.

We hold that EM is entitled to recover for 83 excess PBTB entries under DOs 2 and 4-7, including recovery for keeping a tripod and safety harness available for the 83 excess PBTB entries, as well as for 30 of the 81 paid, but unreleased, PBTB entries.

Asphalt

14. Specification § 02225, "**Excavation, Backfill, and Compacting for Utilities**," ¶ 3.7.5, and specification § 16765, ¶ 3.7.9.5, prescribed: "Provide a temporary road surface of gravel or crushed stone over the backfill portion until the permanent pavement is repaired" (R4, tab 1 at 02225-11, 16765-28).

15. EM's SLIN 1.35 bid was based on saw-cutting 1' 6" beyond the trench width for the asphalt patch, use of a trench-box for narrow and uniform trench widths, and temporary use of washed gravel before installing the final asphalt patch (tr. 28-31).

16. On 22 May 1996, EM asked respondent what kind of surface restoration was required for thin and broken up asphalt from station 23+00 to 27+25 under DO No. 1. The CO answered on 30 May 1996 to repair in accordance with the specifications and Exhibit 16765-28. (R4, tab 181). Exhibit 16765-28 depicted a 6' 0" minimum repair width plus 3" cuts on each side adjoining the bituminous concrete surface (R4, tab 1).

17. Respondent ordered 385' of 14.5"-wide trench under DO No. 2, of which 250' was under paved areas (R4, tab 126 at 2; tr. 511). Due in major part to deteriorated existing surface paving, and to an undisclosed subsurface sewer line and immaterial amounts of concrete sub-base, the square footage of asphalt installed on DO No. 2 exceeded the amount ordered (tr. 31-32, 180-81, 292-93). There is no evidence that EM did not cut a trench in accordance with Exhibit 16765-28 through deteriorated paving under DO No. 2, as respondent directed under DO No. 1. Thus, about 1,990 square feet of repairs were performed under DO No. 2, composed of about 1,625 square feet of asphalt surface repairs (6.5 x 250) and 365 square feet of other repairs (1.2 + 1.5 x 135).

18. The parties agreed to a bilateral modification on DO 1, including a contractor release of further Government liability. Respondent did not modify the original quantity of SLIN 1.35 asphalt repairs under DO No. 2. The quantities for DO 1 were modified as set forth below.

DO	Orig. Qty	Rev. Qty	EM Billed	R4, tabs
1	4,335 115, 118, 125	14,692		14,692
2	1,657 126, 133	1,657		1,657
Totals:	5,992	16,349		16,349

The difference between 1990 square feet of repairs performed and 1657 square feet of asphalt repairs ordered yields a 333 square foot overrun. At the hearing, EM testified that under SLIN 1.35 it measured and installed about 20,000 square feet, of which respondent did not pay for 3,000 square feet (tr. 179-80).

19. EM installed washed gravel, consisting of clean, smooth, # 57 stones, as temporary patch material for the first three or four patches. Thereafter, vehicular traffic scattered the gravel, and respondent's inspector, Louis Moschetto, orally directed EM to use "CR-6" crushed stone, which was compactable into a very tight surface, was more costly than washed gravel, and was not reusable by EM. (R4, tab 100, Reports 32, 48, 61, 83; tr. 32-35, 156-57, 182-83, 512-14) Mr. Moschetto did not deny such oral direction (tr. 415-30). Unilateral Modification No. 06 to DO No. 1 provided a $3,415.34 price increase for the change from #57 stone to #6 crushed stone (R4, tab 120 at 2).

DECISION

At the 2001 hearing, EM alleged that it installed about 20,000 square feet of asphalt repairs under SLIN 1.35, of which respondent did not pay for 3,000 square feet (finding 18). EM's unexplained overrun on SLIN 1.35 under DO No. 1 was released (finding 18). EM's 333 square foot overrun in performing DO No. 2 in major part was due to deteriorated surface paving, a plainly visible site condition that EM should have taken into consideration in agreeing upon the square footage of SLIN 1.35 repairs, and was due to undisclosed subsurface conditions in immaterial amounts. *See G & P Const. Co., Inc.*, ASBCA No. 49524, 98-1 BCA ¶ 29,457 at 146,227 (condition observable through a reasonable site visit is not unforeseeable and, therefore, is not a compensable differing site condition).

Respondent argues that its direction to change EM's temporary patch material from # 57 stone to # 6 crushed stone was not a compensable change. Yet unilateral Modification No. 06 to DO No. 1 acknowledged that such change was compensable in the amount of $3,415.34 (finding 19). Except for the temporary patch material change from #57 stones to # 6 crushed stone, we deny EM's asphalt repair claim.

"J" v. "A"-type manholes

20. Specification § 16765, ¶ 2.2.1.1, required:

> All precast manhole units will conform to the design as shown in Exhibit 16765-25, "Double Pedestal Manhole . . . "; Exhibit 16765-26, "Single Pedestal Manhole . . . "; and Exhibit 16765-27, "Typical 16'[sic]x12'x7' J Type Manhole."

(R4, tab 1 at 16765-11) Contract Appendix B added to the SLIN 1.32 specification: "The 6'x 12' x 7'H Precast Manhole with No Pedestal [*i.e.*, J-type] shall be A. C. Miller Concrete Products, Inc., part no. 38Y4046J or approved equal." Specification § 16763, "**Underground Tube Cable**," required a minimum bending radius of 20 times the specified 1.78" maximum outside diameter, *i.e.*, a 35.6" bending radius for tube cable. (R4, tab 1, IFB Amend. 0004, tab 1 at 16763-8, -10)

21. Specification § 01300, "**Submittals**," stated:

> 1.2.1 . . . Contract clauses . . . "Specifications and Drawings for Construction," paragraphs (d), (e) and (f) apply to all submittals.
>
> . . . .
>
> 1.4.4 Variations
>
> Variations from contract requirements require Government approval pursuant to the Contract Clause entitled "Specifications and Drawings for Construction" . . . . The proposed variation shall be identified separately and included with the required submittal for the item.

(R4, tab 1 at 01300-5) Additionally, the FAR 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (APR 1984) clause provided in pertinent part:

> (e) . . . Approval [of shop drawings] by the [CO] shall not relieve the Contractor from responsibility for . . . complying

> with the requirements of this contract, except with respect to variations described [by the contractor] and approved [by the CO]. . . .
>
> (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the [CO] approves any such variation, the [CO] shall issue an appropriate contract modification. . . .

22. Exhibit 16765-27 depicted a plan/elevation view of the 6' x 12' x 7' J-type manhole top and floor and the four walls rotated 90° from elevation to plan views, with a vertical collar rising 24" over a 27" manhole cover located two feet from one side, and ten feet from the opposite side, of the manhole on its longitudinal axis (R4, tab 1, IFB Amend. 0004; tr. 104-05). DO Nos. 3 and 4, dated 28 December 1995, included drawing "E-3" showing a "Typical 6 X 12 X 7 J-Type manhole" configured essentially as in Exhibit 16765-27 (R4, tabs 136, 144).

23. EM's Submittal No. 5, dated 24 January 1996, included item No. 4, "Manhole Data & Details," citing specification § 16765, ¶ 2.2. EM proposed a Smith-Midland Co. Model 1260 Utility Vault with exterior dimensions of 7' x 13' x 7' 10½" high. The Model 1260 drawing depicted an opening centered on the X axis of the manhole (later called an "A" type manhole, *see* findings 26-27), different from the J-type manhole design specified in specification § 16765, ¶ 2.2. EM's submittal said "Deviation Request Attached for Item . . . No. 4," and enclosed a deviant manhole drawing wholly different from the specified J-type. On 12 February 1996, respondent's engineer Carl M. King approved EM's submittal. (Ex. G-1; tr. 36-37, 389-92) We find that EM's submittal was sufficiently clear and formal to put respondent on notice of the deviant manhole opening, and that respondent knowingly approved the variance (*see* finding 27 below).

24. On 29 February 1996, EM sent an order to Smith-Midland: "Proceed with immediate fabrication of J Manholes in accordance with approved submittals" (ex. A-7). DO No. 5, dated 6 March 1996, included a SLIN 1.32A for one Government-provided manhole 6' x 12' x 7' with drawing E-5 depicting a J-type manhole (R4, tabs 153, 160).

25. Respondent ordered, and EM invoiced for, the following J-type manholes:

DO	Orig. Qty	Rev. Qty	EM Billed	R4, tabs
1	5	6	6	115, 118, 125
2	0	1	1	126, 129, 133

3	1	1	1	136, 142
4	2	2	2	144, 150
7	1	1	1	164, 166
Totals:	9	11	11	

26. William F. Lowther, Jr., employed by Jahn Corp. under an engineering support contract with NAWC (tr. 506-07), rejected the first four Smith-Midland manholes shipped to the NAWC site on 10 May 1996 when he learned that they were "A"-type, not the specified "J-type," manholes. Nonetheless, respondent paid for those four "A"-type manholes. (R4, tab 100 at Report 11; tr. 38-39, 186-87, 409, 436).

27. On 17 May 1996, Craig Stephens, the Assistant Resident Engineer in Charge of Construction, directed EM not to install the four "A"-type manholes delivered to the site and to stop delivery of four "A"-type, Smith-Midland manholes because "[a]fter further research it was determined that your government approved variance for the A-type manhole will not meet the required installation." Stephens recommended A. C. Miller as a source for "the correct J-type manholes." (R4, tab 39; tr. 187-88, 435-36)

28. EM's 30 August 1996 letter to respondent stated that on 28 August 1996 Smith-Midland had requested a "restocking" charge of about $5,000 for the four unshipped manholes (R4, tab 37; tr. 316) After respondent replied that such amount was too high, EM authorized respondent to communicate directly with Smith-Midland about the restocking charge (tr. 189, 316).

29. On 12 November 1996, respondent told EM that respondent had negotiated "an acceptable restocking charge for the four remaining A-Type manholes with Smith-Midland" of $2,800 and respondent would pay such amount. Respondent did not agree on a payment deadline with Smith-Midland. (R4, tab 212; tr. 40, 317-18) On 15 November 1996, Smith-Midland sent EM a reduced restocking charge of $2,240 plus tax, if paid by 29 November 1996 (R4, tab 213). On 18 November 1996, EM sent respondent a copy of the foregoing Smith-Midland letter (R4, tab 40; tr. 190, 318).

30. On 11 December 1996, respondent sent EM proposed Modification No. 4 to DO No. 1 to increase the DO price by a $2,800 restocking fee for four "A" type manholes (R4, tab 41). That modification was sent two weeks past Smith-Midland's 29 November deadline, so on 13 December 1996 EM returned it to respondent unexecuted, and requested respondent to change its amount to $5,853.75 (R4, tab 42; tr. 191-92).

31. The CO denied EM's request on 8 April 1997 based on EM's failure to identify the variant A-type manhole in its submittal, and stated:

> When you submitted your variance request on January 24, 1996 you indicated the manhole you were going to provide was equal in all way with the exception that the duct entrance will be core drilled rather than preformed. This was inaccurate. The biggest difference between the manholes, and the only reason the "A" type was unacceptable was the location of the opening. The "A" type have the opening in the middle of the box, which makes pulling the Sumitomo cable and assuring it will not deform difficult. That was the reason the Government specified the "J" type. You did not indicate this critical difference in your deviation request.

(R4, tab 43).

DECISION

EM argues that (1) it detrimentally relied on respondent's approval of submittal No. 5, which proposed a variation from the "J" type manhole required by Exhibit 16765-27, and (2) although the variation as to the manhole opening was not specifically identified in an attachment to the submittal, it was apparent since the Smith-Midland drawing depicted a manhole opening centered on its x axis, deviating from the J-type manhole design (finding 23). EM concludes that it is entitled to recover Smith-Midland's restocking charge. Respondent argues that an uninformed approval of a deviation submittal does not constitute a waiver of the contract requirements, citing *Aulson Roofing, Inc.*, ASBCA No. 37677, 91-2 BCA ¶ 23,720 at 118,730, and *Algernon Blair, Inc.*, ASBCA No. 28818, 84-1 BCA ¶ 17,185.

A contractor's request for deviation or variance from a contract drawing requirement must be sufficiently clear and formal to put the Government on notice of the deviation or variation. *See Vogt Bros. Mfg. Co. v. United States,* 160 Ct. Cl. 687, 714 (1963). EM's Submittal No. 5 was sufficiently clear and formal to put respondent on notice of the deviant, "A"-type manhole opening proposed (finding 23). Respondent's 17 May 1996 letter described its approval of EM submittal No. 5 as a "government approved variance" which it countermanded "after further research" (finding 27). Such statement implies knowledge of the variant manhole opening, and explains (i) respondent's payment for EM's first four "A"-type manholes (finding 26), and (ii) respondent's negotiation of a restocking charge for four additional Smith-Midland manholes whose delivery to EM respondent had stopped (findings 27, 29). We are persuaded that respondent apparently thought in February 1996 that the variant "A"-type manhole it approved was suitable for installation and bending of the specified conduit, but later decided otherwise and retracted its approval of the deviant manholes. We hold that EM is entitled to recover Smith-Midland's restocking charge.

Safety inspection

32. The contract incorporated by reference the FAR: (a) 52.246-12 INSPECTION OF CONSTRUCTION (JUL 1986) clause (R4, tab 1), which provided in pertinent part:

> (b) . . . All work . . . is subject to Government inspection and test at all places and at all reasonable times before acceptance to assure strict compliance with the terms of the contract.
>
> . . . .
>
> (e) . . . The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work.

and (b) 52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984) clause, which provided:

> At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has the authority to act for the Contractor.

(R4, tab 1)

33. On 11 June 1996, respondent mentioned to EM a planned safety inspection, but without disclosing the date. On 13 June 1996, Inspector Moschetto conducted a safety inspection in the nature of a training exercise for new personnel, and directed EM's QC Manager, Gregory Stevens, to participate. EM alleged that it stopped work, but if it had had advance notice of the inspection date, it could have arranged for an alternate superintendent to keep working. (R4, tab 101 at Report 33; tr. 49-51, 197-98) As we find below, at this time Robert G. Buckler, rather than Mr. Stevens, was EM's superintendent (finding 57).

34. EM's 13 June 1996 Contractor Production Report (CPR) stated, "ROICC Safety Inspection on Site. Conducted Tailgate Talk on trench excavation and results of safety inspection." The CPR reported eight hours each for EM's superintendent and other workers. EM's CPR and DRI for 13 June 1996 noted no work stoppage. (R4, tabs 100, 101 at Report 33; tr. 124) Inspector Moschetto did not recall that EM stopped work on 13 June 1996 (tr. 422-23). EM's 21 February 1997 letter to the CO alleged that the 13 June 1996 safety inspection required it to cease all operations for one hour (R4, tab 45).

DECISION

On 13 June 1996, respondent's inspector conducted a safety inspection training exercise which EM's Mr. Stevens attended (finding 33). The parties dispute whether such inspection stopped EM's work. EM asserts that it could not perform work without "superintendent" Stevens present. That assertion is untenable. EM's 13 June 1996 CPR and DRI entries disclose, and Inspector Moschetto recalled, no work stoppage (finding 34). Furthermore, on 13 June 1996 EM's Robert Buckler was superintendent. We hold that EM failed to substantiate its safety inspection claim.

Compaction testing

35. The typical trench detail in Exhibits 16765-1 to -24 depicted excavations of 33" to 50½" depth with conduit placed 4" from the trench bottom on a 4" sand bed, surrounded by sand, and covered with a 6" sand cover and "selected backfill compacted in 6" lifts" to "existing grade" (R4, tab 1; tr. 125-28).

36. Specification § 02225 provided in pertinent part:

> **2.1.1 Backfill**
>
> . . . [N]o test other than for compaction will be required before use as backfill.
>
> **2.1.2 Sand**
>
> Clean, course-grained sand classified as SW or SP by ASTM D 2487 for bedding and backfill as indicated.
>
> . . . .
>
> ***3.3 GENERAL BEDDING***
>
> General bedding shall be of the materials and depths as . . . indicated in Section 16765 . . . .
>
> . . . .
>
> ***3.8 FIELD SAMPLING AND TESTING***
>
> . . . Perform density and moisture tests in randomly selected locations and in accordance with ASTM D 1556 as follows:
>
> • Bedding in trenches: One test per 400 linear feet in each lift.

(R4, tab 1 at 02225-7, -9, -11)

37. Specification § 16765 provided in pertinent part:

3.1.8 Base Material

Compacted sand or granular material shall be provided in the trench bed at a minimum depth of 4 inches.

. . . .

3.1.10 Backfill

The trench shall be backfilled with sand or granular material to a minimum of 18 inches above the top of the conduit and compacted. The remaining portion of the trench shall be backfilled in 6-inch to 9-inch lifts . . . . Each layer of backfill shall be mechanically compacted to a standard proctor rating of 95 percent under paved areas and 90 percent standard proctor under all other areas.

. . . .

3.7.6 General Bedding

General bedding shall be of materials and depths as indicated in Section 02225 . . . .

3.7.7 General Backfilling

. . . Place initial backfill in 6-inch-maximum loose lifts unless otherwise specified. Compact each loose lift as specified in Paragraph 3.7.8, "General Compaction," before placing the next lift . . . .

3.7.8 General Compaction

. . . Compact initial back fill material surrounding . . . conduits, or ducts, to 90 percent of ASTM 1557 maximum density.

. . . .

3.7.10 Field Sampling and Testing

> Test sand bedding for conformance to specified requirements. Test bedding for moisture-density relations in accordance with ASTM D 1557 and as specified herein. Perform at least one of each of the required tests for each material used sufficiently in advance of construction so that work is not delayed. Provide additional tests as specified above for each change of source. Perform density and moisture tests in randomly selected locations and in accordance with ASTM D 1556: one test per 400 linear feet in each lift.

(R4, tab 1 at 16765-17, -27, -28)

38. EM's 11 October 1995 "CONTRACTORS QUALITY CONTROL PLAN," in a testing plan under "02225.3.8," stated that ASTM D 1556 testing of "sand bedding" would be performed at the frequency "1 PER 400 LF IN EACH LIFT." EM's plan did not explicitly refer to testing under § 16765, ¶ 3.7.10. (R4, tab 112 at 16) Respondent approved that QC plan without exception (tr. 54-55).

39. Most of EM's trench work was in very sandy conditions, so the bottom of the trench was usually the trench bed (tr. 52). Virginia Fallon, respondent's Assistant Resident Engineer in Charge of Construction, testified that backfill came from spoils from the hole or trench EM had just dug (tr. 361). We find that the trench bed and the backfill used to cover over the conduit usually came from the same sand spoils EM excavated from the trenches, and the record does not disclose any "unusual" instance where the backfill and sand bedding came from different sources. Ms. Fallon also opined that "backfill" constituted a "change of source" of material different from sand bedding. The Board accords no probative weight to such a lay opinion.

40. During contract performance, respondent directed EM to test each backfill lift for compaction every 400 feet. EM tested sand bedding and backfill compaction by "nuclear gauge." (Tr. 55-57, 200) Bob Taylor Engineering (BTE) performed and documented 67 soil compaction tests for EM (R4, tabs 191, 226). EM asserted that the contract did not require 55 of those compaction tests (R4, tabs 46, 48; tr. 288). The CO's 7 April 1997 letter denied EM's assertion (R4, tab 47).

DECISION

The parties agree that the contract specifications required EM to compact each lift of backfill placed in the trenches. They dispute whether those specifications required compaction testing of backfill lifts. EM argues that specification § 02225 required compaction testing only for each lift of sand bedding, and § 16765, ¶ 3.7.10, "limited testing of material to the sand bedding only" (app. br. at 17). Respondent argues that

"backfill" constitutes a different "source" of material than sand bedding, and EM's interpretation of ¶ 3.7.10 ignores its requirement to test "each change of source" of backfill (Gov't br. at 106).

Respondent's contention is unsound, because the trench bed and the backfill used to cover over the conduit usually came from the same sand spoils EM excavated from the trenches, and the record does not disclose any "unusual" instance where the backfill and sand bedding came from different sources (finding 39). It appears to the Board that respondent's approval of EM's QC plan which omitted testing under § 16765, ¶ 3.7.10 (finding 38), was not an inadvertent oversight, but reflected its original interpretation of ¶ 3.7.10 as duplicating the density test of sand bedding lifts required by specification § 02225, ¶ 3.8 (finding 36). We hold that there was no "change of source" of backfill and bedding at the contract site, respondent's interpretation of the specifications was unreasonable, EM's interpretation of the specifications was within the zone of reasonableness, and respondent's direction to perform compaction tests of each backfill lift exceeded the contract's requirements. We sustain this claim.

Concrete testing

41. Specification § 02514, "**Pavement With a Bituminous Concrete Surface**," ¶¶ 1.3.2, 1.3.3, 2.1, 3.4.2, required concrete pavement for vehicular traffic, including a "Portland Cement Concrete Base Course" in accordance with Maryland State Highway Administration (MSHA) § 918, Mix No. 7, and smoothness testing "with a straight edge" within maximum longitudinal and transverse variances (R4, tab 1 at 02514-3 to -5). MSHA § 918, Mix No. 7, required 350 psi "Split Tensile" strength, 1½-3" slump, and 6½ ± 1½% air content and flexural strength test data (R4, tab 108). We find that specification § 02514 required flexural strength testing.

42. Specification § 03302, "**Cast-In-Concrete (Minor Construction)**," specified, *inter alia*, duct bank concrete of contractor mix design having, "[u]nless indicated otherwise," 28-day compressive strength of 3,000 psi (without specifying any test therefor) and 2-4" slump (¶ 2.1.1); and an ASTM C 173 or ASTM C 231 air content test for air-entrained concrete and an ASTM C 143 slump test "at commencement of concrete placement and for each batch (minimum) or every 10 cubic yards (maximum) of concrete" (¶¶ 3.6.2.1; 3.6.2.2) (R4, tab 1 at 03302-5, -9).

43. Specification § 16765, "**Underground Communications Structure**," ¶ 3.2, specified concrete encasement of conduit, and required:

> **3.2.1 General Requirements**

> Concrete encasement is required on any conduit placement with an earth cover less than the [24"] minimum requirements set forth in Paragraph 3.1.2, "Earth Cover." [sic, ¶ 3.1.3]
>
> . . . .
>
> **3.2.3 Concrete Encasement Requirements**
>
> Concrete encasement is required when crossing other utilities, public or private . . . . Under roads and paved areas, encase ducts in concrete . . . .
>
> **3.2.4 Concrete**
>
> The concrete used shall be 2,500 psi and have a slump of 4 inches to 6 inches . . . .

EM knew at the outset that ¶ 3.2 contained no "Field Sampling and Testing" provision for slump and 2,500 psi compressive strength. (R4, tab 1 at 16765-18, -19; tr. 60)

44. A "compressive strength" test is used to determine if concrete meets the psi requirement. Concrete samples are poured into cylinders, taken to a testing laboratory, cured and hardened for specified times, and broken to measure their compressive strength. (Tr. 137-38, 382-84) A "flexural strength" test is used to determine the ability of concrete to withstand a beam-type load. Concrete is poured into a three-sided steel form ("beam") about three feet long and with a six-square inch cross-section, is cured, and is broken by a flexing device that measures its failure pressure. (Tr. 64, 153, 260-61) A "slump" test is used to determine if concrete meets the required water content. Concrete samples on site are poured into a cone-shaped mold, the mold is removed, and the sample height is measured from the top of the cone and compared to the slump requirement. (Tr. 138-39, 385-86)

45. The contract incorporated by reference the FAR 52.246-12 INSPECTION OF CONSTRUCTION (JUL 1986) clause, which provided in pertinent part:

> (b) The Contractor shall . . . perform such inspections as will ensure that the work performed under the contract conforms to contract requirements.

and the DFARS 252.236-7001 CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS (DEC 1991) clause, which provided in pertinent part:

> (d) Omissions from the . . . specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the . . . specifications . . . shall not relieve the contractor from performing such omitted or misdescribed details of the work.

(R4, tab 1).

46. On 5 May 1995, before bidding, EM sent the CO the following question:

> Section 16765.3.2.4 Concrete specifies 2,500 psi concrete for duct encasement. However Section 03302.2.1.1 requires 3,000 psi for duct banks. We interpret Section 16765 to be the governing specification for the concrete encasement around the communication ducts.

(R4, tab 169)

47. The CO's 8 June 1995, pre-bid opening response to EM's question stated:

> The entire sentence . . . in Section 03302.2.1.1 states "Unless indicated otherwise, concrete shall have a 28-day compressive strength of 3,000 psi for duct banks and 4,000 psi for equipment pads and foundations." Section 16765.3.2.4 states that strength shall be 2,500 psi and will govern for underground communication duct banks. [Emphasis in original.]

(R4, tab 171) We find that such response resolved only the 2,500 psi concrete compressive strength requirement for duct banks.

48. EM's approved "Testing Plan" included the following concrete tests:

Spec § & ¶	Item	Tests Required	Frequency
02514.3.4.1.1	Bituminous concrete	Smoothness	Each 10'
02514.3.4.2	Portland Cement Concrete Base	Smoothness	Each 12'
03302.3.6.2.1	Concrete	Slump	Per truckload

03302.3.6.2.2	Concrete	Air content	Per truckload

EM's "Testing Plan" included no testing under § 16765. (R4, tab 112 at 16; tr. 63-64)

49. During contract performance, Inspector Moschetto orally directed EM to perform slump, air entrainment, and flexure testing on paving concrete and slump, air entrainment, and compressive strength testing on duct encasement concrete (called "grout") (tr. 64-66, 137-38, 143, 151-54, 260-61). Mr. Moschetto did not testify about concrete testing or deny the oral directions attributed to him (tr. 416-30). The cylinder compressive strength test Mr. Moschetto required for duct encasement concrete, and the slump test he required for paving concrete, were standard tests (*see* finding 44).

50. From June 1996 to January 1997 BTE performed 71 tests on concrete delivered to EM, whose records allocated: (a) 13 slump, 13 air entrainment, and 11 flexural strength ("beam") tests to specification § 02514 (paving), (b) 1 each slump, air entrainment and compressive strength ("cylinder") tests to § 03302 (building, duct bank, equipment pads and foundations), and (c) 3 compressive strength, 11 air entrainment, and 17 slump tests to §§ 16765 (duct encasement) (R4, tabs 191, 241, 226; tr. 265-68).

51. EM's 21 February 1997 letter to the CO claimed that specification § 02514 required no slump, air entrainment or compressive strength tests, § 16765 required no concrete testing, and EM performed 79 tests not required by the contract (R4, tab 50; tr. 264-65). The CO's 3 April 1997 letter denied EM's concrete testing assertions (R4, tab 51). At the hearing, EM eliminated air entrainment testing from its claim (tr. 264).

DECISION

The parties dispute whether the contract required EM to perform tests to verify that concrete met flexural or compressive strength and slump criteria for paving repairs and for duct encasement. EM argues that the only test required for paving concrete was smoothness, and, by virtue of the CO's pre-bid answer to EM's question about conflicting compressive strength criteria for duct encasement concrete, it reasonably understood that specification § 16765, which included no test, controlled over § 03302. EM concludes that the contract required neither slump and flexural strength tests for paving nor slump and compressive strength tests for duct encasement concrete.

Respondent argues that: (1) EM's performance of flexural tests on paving concrete under specification § 02514 was "self-inflicted" and there is no written evidence that respondent ordered such tests. (2) EM's compressive strength and slump tests performed with respect to specification § 03302 were expressly required therein. (3) Specification § 16765 required concrete having 2,500 psi compressive strength and 4-6 inch slump. EM had pre-bid knowledge that § 16765 had compressive strength requirements, but did not

define test procedures or requirements therefor. Respondent continues, arguing the "omissions and misdescriptions" requirements of the DFARS 252.236-7001 CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS (DEC 1991) clause in the contract provided that a contractor is responsible for performing those tests manifestly necessary to meet the intent of such specification when its omission is obvious or the contractor had knowledge of the omission when bidding, citing *M. A. Mortenson Co.*, ASBCA Nos. 50716 *et al*., 99-1 BCA ¶ 30,270 at 149,692 and other precedents.

EM's argument that it interpreted the CO's pre-bid answer, that the § 16765 psi requirement "will govern" with respect to the inconsistent 2,500 and 3,000 psi duct bank compressive strength requirements in specification §§ 16765 and 03302, as in effect supplanting the § 03302, ¶ 3.6.2.1 slump test requirement, is not reasonable. The CO's statement resolved only the compressive strength inconsistency. (Finding 47) Therefore, the § 03302 slump test was required for duct encasement concrete. Specification § 02514 referenced MSHA § 918, Mix No. 7, which required flexural testing of pavement concrete (finding 41).

None of the precedents respondent cites, and none found in our research, applied the omissions and misdescriptions provision to require a contractor to perform a test omitted from Government specifications. Nevertheless, if, by Government oversight, a contract contains no specific test procedures, the Government may require the contractor to perform testing by "some reasonably standard test" by virtue of the contractor's quality assurance duties under the Inspection clause. *See Lamb Rubber Corp*., ASBCA No. 7928, 65-1 BCA ¶ 4616 at 22-035-36. Paragraph (b) of the FAR 52.236-12 INSPECTION OF CONSTRUCTION clause required EM to perform such inspections as would ensure that its work conformed to contract requirements (finding 45). The slump test the Government required for paving concrete, and the cylinder compressive strength test the Government required for duct encasement concrete, were standard tests (finding 49). We hold that the flexural, compressive strength, and slump tests were not additional to, but rather were required by, the contract's specifications and Inspection clause. We deny this concrete testing claim.

QC/Superintendent

52. Specification § 01401, ¶¶ 1.5.1 and 1.5.3, required the contractor to submit a quality control (QC) plan and to appoint a QC Manager, and gave the CO the right to change the contractor's QC plan and operations as needed to ensure the specified quality of work (R4, tab 1 at 01401-5, -6; tr. 216, 440-41).

53. EM interpreted specification § 01401 and the FAR 52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984) clause to permit one individual to perform as both QC and superintendent, and to perform other work (tr. 68, 117-19, 211-12, 215-16, 441).

54. EM's 11 October 1995 "Organization Chart" showed Gregory A. Stevens as "CQC Manager" and Robert G. Buckler as "Superintendent" (R4, tab 112; tr. 116).

55. Respondent became concerned that Mr. Stevens was performing work without a superintendent present, and so Mr. Herndon, the resident engineer, suggested that Stevens be designated both QC Manager and superintendent. At the request of Craig Stephens, EM's 22 January 1996 Submittal No. 1A, which respondent approved on 30 January 1996, included an "Organizational Chart" showing Gregory Stevens as "CQC Manager, Superintendent, Safety Officer," and Mr. Buckler as "Foreman" (R4, tabs 176, 113; tr. 66-68, 118, 151, 212-13, 433, 437-39).

56. Due to late DRIs and other required reports, and to performance at multiple locations on the job site, on 6 June 1996 Craig Stephens directed EM to separate the CQC and superintendent functions, and directed both to perform no other construction work (R4, tab 15; tr. 69, 213-14, 419, 435, 440-41).

57. Mr. Stevens continued as EM's QC Manager (tr. 439). After 7 June 1996 Mr. Buckler signed EM's DRIs as "superintendent" (R4, tabs 17, 100; tr. 291). EM's President Charles Pessagno testified that he performed Mr. Stevens' non-QC labor effort, and EM hired a foreman to perform Mr. Buckler's non-superintendent effort (tr. 214). Our review of EM's payroll records from 6 June 1996 to 22 January 1997 disclosed no new employee designated "foreman" (R4, tabs 250-55).

DECISION

EM argues that the contract gave the CO no right to forbid EM's QC Manager and its superintendent from performing other construction work, as it had bid and planned to perform the contract, and as EM's QC Manager and superintendent had done from mobilization until 6 June 1996, when ordered to discontinue that practice. Respondent argues that it ordered changes in EM's QC Manager and superintendent functions on account of deficient performances of those individuals, as it had the right to do under specification § 01401, ¶ 1.5.3, and that EM incurred no added cost as a result of its order for the QC Manager and superintendent to perform no construction work, because EM simply reassigned functions to persons already on its payroll, and did not hire any new employee to replace them.

Our review of EM's payroll records from 6 June 1996 to 22 January 1997 disclosed no new employee designated "foreman" (finding 57). We hold that EM has failed to substantiate any harm or incurrence of additional costs due to respondent's order that EM's QC Manager and superintendent perform no construction work. We deny the claim.

Conclusion

By way of summary, we sustain this appeal with respect to the (1) 83 excess PBTB entries under DOs 2 and 4-7 plus the cost of the tripod and safety harness for all entries under those DOs; (2) change from # 57 stones to # 6 crushed stone; (3) restocking charge for "A"-type manholes; and (4) backfill lift compaction testing, and we deny the balance of the appeal, and remand it to the parties to resolve quantum in accordance with the foregoing opinion.

Dated: 29 August 2001

DAVID W. JAMES, JR.
Administrative Judge
Armed Services Board
of Contract Appeals

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. 51782, Appeal of EM Systems, Inc., rendered in conformance with the Board's Charter.

Dated:

EDWARD S. ADAMKEWICZ
Recorder, Armed Services
Board of Contract Appeals