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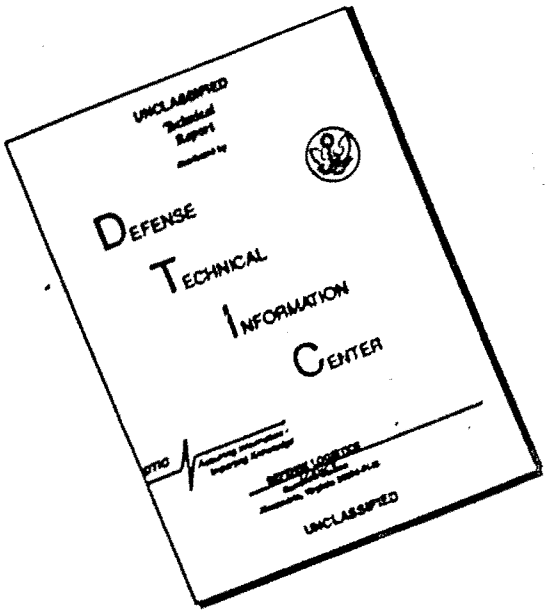

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AGDA (M) (8 Dec 70) FOR OT UT 702102 14 December 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 589th Engineer Battalion, Period Ending 30 April 1970

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 569TH ENGINEER BATTALION (CONSTRUCTION)
APO SAN FRANCISCO 96321

EGACEF-CO 30 April 1970

SUBJECT: Operational Report - Lessons Learned, 569th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65(R2)

THRU: Commanding Officer
35th Engineer Group (Const)
ATTN: EGA-3
APO 96312

Commanding General
18th Engineer Brigade
ATTN: AVBC-C
APO 96377

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
APO 96375

Commander in Chief
United States Army, Pacific
ATTN: GPOR-DT
APO 96558

TO: Assistant Chief of Staff for Force Development
Department of the Army (ACSFOR-DA)
Washington, D.C. 20310

FOR OT UT
702102

Inclosure 1

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EGACBF-CO 30 April 1970
SUBJECT: Operational Report - Lessons Learned, 569th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65(R2)

1. SECTION 1, OPERATIONS: Significant Activities

a. Headquarters and Headquarters Company (HHC)

(1) The company performed its normal mission of providing support to the battalion headquarters and line companies during the period of this report. Training was confined to the battalion master training schedule. Special classes were scheduled and conducted as task assignments dictated.

(2) The Utilities section continued to maintain the battalion headquarters area by performing light construction and minor repairs. All revetments in the company area were repaired and refilled with sand. Crossbracing was strengthened in bunkers and siding was repaired in revetments around billets.

(3) The water points at Song Pha (Co C, 569th) and Song Mao (2/1 Armored Cavalry and 5/27 Artillery) produced 372,000 and 267,000 gallons of water respectively, during the reporting period.

b. Company A

(1) Organization: The organizational structure of Company A, during the reportig period remained basically the same. However, the unit assumed responsibility for operation and maintenance of the Barber-Greene Batchpac asphalt plant at Phan Rang Air Base on 4 February 1970. No personnel space authorizations have been provided for the crew. Personnel running the plant are being carried as excess.

(2) Paving: The entire length of QL-11 from Tan My to Song Pha, 26km, was capped with a 2" lift of asphalt during the period. In addition, A Company paved 5.44 kilometers of double lane in the "Good View Pass", of QL-11.

(a) A company took over the operation of the asphalt plant from 554th Civil Engr Squadron (Red Horse) on 4 February 1970. The crew consists of one E-7 who is school trained, and five EM he is training on the job. Eighteen local nationals are used for dedrumming and clean-up. Red Horse personnel continued to provide technical assistance throughout the reporting period. The Air Force was provided 3002 tons of asphalt after the plant was taken over. Total asphalt Production for the period was 27,776 tons.

(b) The Barber-Greene SA35 paver which is on loan from the

547th Engr Bn was used for all of the paving. The only major problem with the paver was the failure of the main clutch and throw-out bearings. This caused the paver to be deadlined on 14 Mar and 15 Mar 1970.

(3) QUARRYING: During the reporting period the following amounts of aggregate were produced:

22595 cubic yards of base course (2½" minus)
8311 cubic yards of asphalt aggregate
10019 cubic yards of asphalt aggregate (½" minus)
40925 Total Production

The power take off problem continued during the reporting period. The PTO on the 54 secondary unit caused many problems. The lack of a pilot bearing allowed excessive vibration in the PTO, thus causing early failure. This problem was solved by obtaining a pilot bearing and rebuilding the PTO. The engine (V12) was placed on a pad beside the crusher to eliminate vibration caused by the shaker box.

The Stoody automatic welder is being used to build up a roll per week. The increased maintenance in roll bearing surface has increased the production of ½" minus aggregate.

Early in the reporting period the feeder clutch on the 153 primary unit was a source of much trouble and lost production time. This problem was solved by the replacement of the clutch adjusting ring and correct adjustment. Correct adjustment has been maintained through extensive operator training and supervision.

At the beginning of this period the operating schedule was 0730 to 1200 and 1245 to 1830. There was a 45 minute period at the beginning of the day for start-up and warm-up and then a 45 minute period for lunch and 45 minutes were allowed for after operations check and minor repair at the end of the day. On 6 March the shift was split to allow the operation of 153 and 54 unit through the noon period. The crew was fed in two shifts. This resulted in the additional production of approximately 12[illegible] CY per operational day.

(4) DIRECT SUPPORT: The Direct Support Maintenance Platoon completed 324 job orders of a total 358 job orders, leaving 34 jobs open at present. Again third shop resources were utilized extensively in repair of the crushing plant.

(5) ASL: The battalion ASL section now has 4174 authorized line items. Of that number 30.3% are at zero balance, and 581 are due out. 4121 fringe items are on hand. 209 rod ball requisitions have been submitted (a 100% increase over the last reporting period) with 76 filled, 85 due outs, and 48 cancelled.

c. Company B

(1) During the reporting period the company moved from Phan Rang to LZ Last Chance (near Vinh Hao) and began operating from their new location. Their effort was divided into three main areas: base camp construction, industrial area development and upgrading of highway QL-1. The company also assumed responsibility for the continuous repair of the Song Mao airfield and completed two Civic Action Projects.

(2) Effort within the cantonment area included construction of approximately 3,000 feet of berms 4 feet high and fifteen feet wide, fortified fighting positions, 11 bunkers, Mess Hall, one water tower, shower and latrine facilities, and maintenance tents. A total of 11 bunkers, which required 198 cubic yards of concrete, were completed. The total U.S. and Vietnamese man hours expended on the base camp were 26,830 and 6704 hours repectively. Equipment hours totaled 4,667.

(3) The location of the Asphalt Plant and Rock Crusher at LZ Last Chance was developed during the reporting period. The security fence was set in place, guard towers were constructed and the headwall and concrete pad for the 250 TPH crusher were built. The crusher was installed and began operation prior to the end of the reporting period. The installation of the asphalt plant pad has begun. U.S. man hours totaled 5,240, Vietnamese man hours totaled 508, and equipment hours totaled 1736 hours. 103 cubic yards of concrete were utilized in the industrial area development.

(4) The company began earthwork on highway QL-1 on 17 February 1970. The earthmoving platoon moved 70,750 cubic yards of select fill (11,287 U.S. and 271 Vietnamese man hours were utilized along with 6483 equipment hours). During the reporting period work was also started on the culverts and bridges. Thirty-two cubic yards of concrete were placed and one corrugated metal pipe culvert was completed during the period.

(5) During the month of March, the company was committed to the continual repair of Song Mao airfield. The repair consists of welding the deteriorated matting to preclude tire failure of the aircraft; 700 U.S. man hours were expended towards this effort. This mission will continue into the next reporting period.

(6) Two civic action projects consumed 180 equipment hours and 240 man hours. These jobs involved the minor repair of a village access road and site preparation for a local market place.

d. Company C

(1) During the reporting period Company C was engaged in upgrading the "Good View Pass" on QL-11 from Bridge #31.2 (BP 507075) to Bridge #38.26 (Bp 466097) and in maintenance on QL-11 from Bridge #16 (BN 619957) to Bridge #41 (BP 453084) (32 kilometers of roadway). Due to subbase failures of the completed roadway between Bridge #16 and Bridge #27, a small amount of effort was applied toward repairing the roadway. Recovery of disabled civilian vehicles in the AOR continued during this period. During the reporting period, Company C was also engaged in improvement of the base camp and reconstruction and maintenance of perimeter defenses. A facility was constructed at Song Pha to permit unloading of crushed rock from side-dump railroad cars. During the reporting period, "Mountain Movers" of Company C were involved in training and operations for a total of 89 days.

(2) During the reporting period 15,642 CY of select fill and 20,044 CY of base course was hauled, placed, graded and compacted. 33,124 CY of unsuitable material was removed and spoiled.

The recorded rainfall for the month of February 1970 was 0.00 inch, for March was 1.00 inch, and for April was 2.75 inch. The total rainfall from 1 February through 30 April was 3.75 inches.

(3) The vertical construction platoons installed a total of 34 culverts during the reporting period. These 34 culverts consisted of both entire culverts and many extensions of old French concrete culverts which were in good condition.

The majority of the culvert construction was done by the 1st Construction Platoon. The 2nd Construction Platoon, made up of Vietnamese permanent hire and US ingenuity, constructed massive stone-masonry retaining walls in the "Good View Pass". During this reporting period approximately 9,000 square feet of stone masonry retaining walls were constructed.

Efforts to widen the roadway in the "Good View Pass" by blasting large rock embankments continued during this reporting period. The blasted rock was then used to construct stone masonry retaining walls on the downhill side.

(4) Cantonment Area: Work in the cantonment area consisted of clearing the high grass and brush from around the perimeter using a dozer and daily hire civilian personnel. Also, reconstruction of bunkers and guard towers using 55 gallon drums filled with earth was completed during this reporting period.

(5) Maintenance of QL-11: Continuing maintenance is being employed to insure that QL-11 between Bridge #16 and Bridge #41 is kept

open to traffic. This maintenance program consisted of repairing soft spots in the already upgraded roadway, retrieving disabled U.S., ARVN, and civilian vehicles in Company C's AOR, and repairing pot holes in the "Good View Pass". Also, the timber bridge deck on Bridge #16 continued to be a constant maintenance problem during the reporting period; eight holes in the bridge deck had to be repaired.

(6) Construction of Railroad Off-Loading Site: On 25 March the First Construction Platoon completed construction of a railroad off-loading site at coordinates BF503077, adjacent to QL-11 at Bridge #27. On 3 April the Vietnamese National Railway System began hauling base course from Phan Rang to Song Pha. As a result, the amount of base course supplied to Company C doubled to 420 tons a day.

c. Company D

(1) Significant construction activities during this quarter have been the continuation of LOC upgrading on QL-1, completion of the Song Mao Operational Support Mission, and construction of railroad loading and off-loading facilities.

(2) The majority of the LOC upgrading effort was concentrated on QL-1 south Phu Quy (BN.738740 to BN.720694). Work has progressed slowly as this entire section consists of widening the road through rice paddie areas. Until recently sand had been hauled from the river, near Phan Rang, approximately 8 kilometers away. Cycle time amounted to over one hour, thus limiting average daily haul capability to approximately 400 cy. These 400 cy covered a linear distance of only 100 feet. This was entirely too slow and it was apparent that a new sand pit had to be located. Late in the period an area was discovered at BN724719. A pioneer road was constructed and cycle time was reduced to approximately 20 minutes.

As the sand fill proceeded south, cycle time for select material also increased. Earth moving and constructing platoons upgraded a haul road to open a new borrow pit for select materials. Cycle time was reduced from over one hour to approximately 25 minutes.

(3) During this report period, the Earthmoving Platoon placed and compacted 79,628 cy of select material. 8,492 cy of spoil material was excavated in the opening of new borrow pits. 23,004 cy of sand was hauled utilizing 5 ton dump trucks. A total of 3,512 cy of base course was hauled to the Phu Quy area, of which approximately 2,000 cy were placed on the road. The remainder was stockpiled.

The vertical construction effort on QL-1 consisted primarily of culvert extensions and headwall construction. 940 linear feet of culvert were assembled and placed. Concrete collars were placed to join corregated metal pipe culvert to the existing concrete box culverts. Seven headwalls were constructed on the culverts north of Phu Quy.

(4) The MER construction mission at Song Mao, which began last quarter was completed late in March. This consisted of three individual project directives; (1) MER Construction, B/5/22 ARTY. (2) MER Construction, C/2/1 Cavalry. (3) MER Construction, Artillery Fire Base. Maintenance of the Song Mao Airfield continues into the next reporting period. A combined total of 45,117 man hours, and 10,431 equipment hours were expended. A major problem involved in this particular mission was the lack of reliable communication between the element actually doing the work and the parent unit.

(5) In preparation for the rail haul of Base Course, D Company was assigned the jobs of building a railroad bed for spur line at the "On Load" facility on Phan Rang Air Base, and construction of two "Off Load" facilities at coordinates BN741751 and BN701616. 67 man hours and approximately 59 equipment hours were expended in preparing the "On Load" facility. This consisted primarily of an earthmoving task. No problems were encountered. The "Off Load" facility at coordinates BN741751 presented numerous problems. Initial design called for steel sheet piling to be driven on each side of the tracks. The first problem was attempting to thread the sheet piling into the conventional pile driving leads. Effective width of this particular piling was 24 inches. Inside width of the leads was only 25½ inches. After various attempts it became apparent that with conventional leads and a drop hammer the job would be extremely arduous and time consuming. Next, a diesel hammer was secured. It was planned that a single H pile would be utilized as a lead for the diesel hammer and a guide for the sheet piling. Here again, after several attempts, the attempt failed due to the weight and awkwardness of the entire system.

The off-load facility was redesigned and constructed utilizing reinforced concrete. 902 man hours were expended and 48 cy of concrete utilized in construction of the retaining walls. Construction of a similar facility at coordinates BN701616 has not begun.

f. 513th Engineer Co (DT)

(1) During the reporting period, the 513th Engineer Company (Dump Truck) provided haul support to the 589th Engineer Battalion (Construction), utilizing TOE 5 ton dump trucks and MCA 12 cy dump trucks.

(2) At the start of the period and up to 8 Feb 1970, the 513th Engr Co (DT) was involved in a mission in support of the 864th Engr Bn (Const). It involved sending thirty-five 5-ton dump trucks and the maintenance section to Hot Rocks on QL-21 near Ban Me Thuot. On 1 Feb the company had a one day maintenance standdown after four difficult days of hauling to the Special Forces camp at Duc Lap. On 2 Feb 1970, the company moved near Pha Trang where the 513th supported D/864th and the 610th Engr Co by hauling asphalt for 4 days along QL-21. On 8 Feb 1970 the 513th returned without incident to Phan Rang. On 9 Feb 1970, the 2nd Platoon went to Don Duong, with 19 trucks to support the 577th Engr Bn (Const). The first platoon remained in Phan Rang. During this reporting period 4 NCA 12 cy trucks from the 577th Engr Bn (Const) were attached to the 513th for work in the Phan Rang area. On 9 Feb 1970, 6 more NCA trucks came down from the 577th Engr Bn in support of the 589th Engr Bn in Phan Rang.

(3) At the end of this reporting period company headquarters, 1st platoon and part of maintenance continue in support of the 589th Engr Bn (Const) at Phan Rang. The 1st platoon consists of six 5 ton dump trucks, 15 organic NCA dump trucks, and 10 NCA dump trucks attached from the 577th Engr Bn (Const). The maintenance section consists of the maintenance officer, maintenance NCO, PLL clerk, dispatch-toolroom keeper, and two mechanics. The 2nd platoon, consisting of twenty-four 5-ton dump trucks with four mechanics, wrecker and welder continue in support of the 577th Engr Bn (Const). The 513th deadline rate for this reporting period started at 7%. It then dropped to 0% by mid February and rose to an average of 9% for the entire month of March. It then dropped to 0% by the beginning of April where it has remained ever since. The deadline rate is presently 0%.

(4) During this period the first platoon hauled approximately 32,000 tons of asphalt, 37,200 cys base course, and 6,000 cys of other materials while the second platoon hauled 12,000 tons of asphalt, 11,000 cys base course and 8,500 cys of other material. Over the entire reporting period, the 513th Engr Co (DT) has had six accidents, two with the 2nd platoon and four with the 1st platoon. The total number of miles driven are as follows:

1st platoon NCA trucks	90,150 miles
577th EBC NCA trucks attached	53,637 miles
1st platoon 5-ton dumps	18,202 miles
2nd platoon 5-ton dumps	109,880 miles
Total number of miles driven	271,869 miles

g. Personnel

(1) LTC Donald A. Ramsay remained as Battalion Commander throughout

the reporting period. 1LT Joseph A. Houck assumed command of A Co from CPT Robert W. Kyle on 19 March 70 and was promoted to Captain on 9 Apr 70. CPT Kyle became Engineer Equipment Maintenance Officer on 20 March 70. On 12 Feb 70 CPT Joseph Foast Jr. assumed command of B Co from CPT Daniel S. Quintard Jr., who rotated to CONUS on 16 February 1970. CPT Francis J. Lowe was replaced as Adjutant on 17 March by 1LT Russell Barnett, III who had previously been a platoon leader in D Co. On 22 March 70 CPT Lowe assumed command of the 513th Engr Co (DT) from CPT Richard A. Peace who departed for CONUS on 26 Mar 70.

(2) The major staff changes for the period are that Chaplain (MAJ) Arnold T. Ellsworth departed for CONUS on 5 Feb 70 and was replaced by Chaplain (CPT) W.T. Permenter on 13 Feb 70, 1LT Elmer C. Hoepker became Pipeline Engineer in the Operations Section on 9 March 70, CPT Edward D. Haggerty became the Civil Engineer of the Operations Section on 9 Apr 70. CPT David Darwin, former Civil Engineer, departed the Battalion on 6 Apr 70, reassigned to the 19th Engr Bn (Combat) and CPT Tod Bauer became Civilian Personnel Officer on 18 April 70.

(3) During the period 1 Feb 70 to 30 Apr 70 the average strength of the battalion decreased from 97.7% to 94.8% of authorized strength. The personnel losses/gains are attributed to:

a. The early DEROS Loss Program

b. The stepped-up flow of replacement personnel received from higher headquarters.

(4) The following critical MOS shortages continue to exist within the battalion:

MOS	AUTHORIZED	ASSIGNED
51H40	32	24
62N40	20	12
64B20	90	76

(5) Units were required to place additional emphasis on the OJT program since the MOS of replacements often did not match those of the losses.

h. Religious Activities

(1) During the report period, attendance at religious services for personnel of the 589th Engineer Battalion (Const) decreased over the previous reporting period - 85 opportunities for

worship showed 1310 men in the battalion attending.

(2) A weekly Catholic mass was conducted in the battalion chapel by a Catholic Chaplain from Phan Rang Air Base. Catholic coverage for the outlying units was scheduled weekly and increased opportunities for worship were greatly appreciated by the troops. Jewish services were conducted weekly at the Phan Rang Air Base by a lay leader of the Jewish Faith. Other denominational services which personnel of the 589th were encouraged to attend were held at the Phan Rang Air Base Chapel.

(3) In April, a new chapel bell was installed and dedicated. The The bell was a gift from the Congregation of the United Church of Christ, Edwardsville, Illinois and was arranged for by 1LT James West of A Company, who departed during this reporting period.

i. Intelligence and Security

(1) Enemy activity decreased significantly in all areas during the period except in the Company D area of Responsibility, which showed a slight increase. Rocket and mortar attacks on the Phan Rang (PRAB), where the battalion headquarters is located, also increased over the previous period. Battalion production was not significantly affected.

(2) Except for a peak of enemy activity during the night of 30 Mar - 1 Apr 1970, the overall activity was scattered over the period consisted basically of harrassment tactics and attempts to disrupt the LOC program.

(a) At 0045 hours in the morning of 11 February 1970, a six man VC force attempted to pentratrate the southern perimeter of PRAB. Base security engaged the enemy killing two VC and wounding and capturing another. Also captured were two AK rifles, seven hand grenades and numerous other items of military equipment including a bundle of medical supplies. There were negative friendly casualities.

(b) At 0711 hours, 11 February 1970, PRAB received two rounds of 107mm rocket. There was no damage or injury to personnel of this command.

(c) PRAB received nine rounds of 82mm mortar at 2350 hours, 16 Feb 1970 with negative results.

(d) On 27 Feb 70, three jeeps from Company C traveling east on QL-11 near Bridge #22 encountered what appeared to be a command detonated claymore type inc. Company C personnel

returned fire with a M-79. There were negative friendly casualties of damages.

(e) Nine rounds of 82mm mortar fell short of the Company D west perimeter at 0120 hours, 28 Feb 70. No casualities or damage resulted.

(f) At 0805 hours, 5 Mar 70, a Company D 2½ ton truck received moderate damage when it backed over a mine believed to be a 155mm round. The explosion damaged the left rear dual wheels and shattered a window on the vehicle. At 1020 hours, a Vietnamese child detonated another mine at the same location. The child received abdominal wounds. The incident occured approximately one Km south of the Company D Base Camp. There were negative casualties to members of this command.

(g) On 13 Mar 70, Company D Base Camp received small arms sniper fire along the west perimeter at 0113 hours with negative results.

(h) PRAB received one round of 107mm rocket fire at 0840 hours on 13 March 1970 and seven rounds of 82mm mortar at 2125 hrs, 14 Mar 70. There was no damage or injury to personnel of this command.

(i) Twelve rounds of 82mm mortar received by PRAB at 0024 hours was the first incident during a night of extensive enemy activity in the Battalion AOR on 1 April 1970. The mortar attack resulted in negative damage or casualties to this command.

(j) The Company D base camp received twenty rounds of 82mm mortar during two separate attacks at 0136 and 0300 hours, 1 April 1970. All rounds fell between the wire and berm with negative results.

(k) During the night of 30 March - 1 April 1970 the center pier of Bridge #63 on QL-1 was destroyed by enemy explosives. Company D constructed a one-lane by-pass on 1 April to maintain traffic flow.

(l) An enemy explosive placed on or under the surface of the road during the night of 30 March - 1 April created a 20' x 25' crater and damaged culvert 38.23 QL-11 and a retaining wall. Company C made repairs on 1 April to maintain traffic flow.

(m) At 0930 hours, 1 April 1970, PRAB received two rounds of 107mm rocket. There was no damage or injury to personnel of this command.

(n) On 5 April 1970 at 1515 hours, PRAB received one round of 107mm rocket. At 2325 hours, 7 April, PRAB received six rounds of 82mm mortar and again on 9 April received one round of 107 at 0830 hrs. None of the attacks resulted in damage or casualties to members of this command.

(o) While traveling north from their base camp, a Company D work party discovered a mine field on QL-1 at 0830 hrs, 9 April 1970. The field proved to be phony mines consisting of buried 20mm cartridges. In the same location, VC propaganda leaflets were found on both sides of the road. A mine sweep of the area found no mines.

(p) At 0845 hours on the morning of 10 April, Company D personnel found a 107mm rocket due west of their base camp. The rocket was aimed at MACV district headquarters in the adjacent compound. Explosive Ordnance Disposal personnel were notified and disarmed the rocket.

(q) At 1800 hours, 10 April 1970, a Company A five-ton tractor received one round of unknown type small arms fire through the radiator and into the power steering reservoir. The incident occurred approximately 15km north of PRAB on QL-1. Damage to vehicle was light and there was no injury to personnel.

(r) PRAB received one round of 107mm rocket at 0657 hours, 20 April 1970. Damage and casualties to the command were negative.

(s) D Company 5,000 gallon water tanker backed over a mine at 1030 hours, 21 April 1970 approximately 4½ km north of their base camp on QL-1. The mine was located on the shoulder of the road and believed to be a 105mm round. The spray bar and ladder were blown from the rear of the vehicle and a 2" x 6" hole was blown in the tank. There were no casualties.

(t) The only incident in the B Company AOR during the report period was the discovery of a mine on QL-1 approximately 4 km north of their base camp at 1130 hrs, 23 April 1970. The mine consisted of a 105mm round and was blown in place.

(3) By the close of the reporting period, enemy activity in the battalion AOR had decreased to the lowest point of the period.

j. Operations and training

(1) Battalion effort continued to be concentrated on the LOC program

during the period. The relocation of B Company to Vinh Hao, on QL-1, 70km south of Phan Rang air base was accomplished during the period, with obvious progress already evident on the road. The crusher became operational by the end of the reporting period and should greatly increase rock production for the next period, with subsequent gains in road construction.

(2) On 24 April 1970, all paving operations on QL-11 between Phan Rang and Song Pha were completed. Shoulder work and minor surface repairs remain for completion of the project. Paving operations in the "Good View Pass" were begun during this period, with a total of 5.4km completed by the end of the period. Paving operations are expected to begin on QL-1 early in the next reporting period.

(3) The Battalion's major operational support mission for the period, an artillery fire base in Song Mao was completed on on 26 March 1970, the same day the artillery pieces arrived.

(4) ARVN training continues at a steady pace. On 28 Feb 1970, 33 members of the 63d ARVN Engineer Battalion were graduated having completed OJT courses on various items of Engineer Equipment. From 2 Mar until 2 Apr, D Company trained 12 ARVN soldiers on the operation and maintenance of the 290-M wheeled tractor, and from 4 Apr until the end of the reporting period, 22 additional ARVN soldiers were training with the construction companies on various pieces of engineer equipment. They are expected to graduate from their OJT Training Courses in May.

(5) Normal training activities were carried out by units of the battalion during the reporting period. Emphasis and special instruction were given on weapons training and safety.

k. Maintenance

(1) The maintenance requirements throughout the battalion increased with the inception of the 18th Engineer Brigades' "Project Last Chance." The program was initiated 1 Jan and increased the daily operational time of all equipment. The increased equipment utilization has resulted in higher deadline rates on all types of equipment.

(2) The addition of equipment at industrial sites, without adding maintenance personnel proved to be a detrimental factor in keeping the deadline rate at an acceptable level. The importance and emphasis placed on this equipment required that the skilled mechanics available work many long hours to render these sites productive. This effort diverted capability from the regular maintenance effort. Additional mechanics and equipment have been requested to help solve this problem.

(3) A three man Dynalectron team is on site at LZ Last Chance to support the 250 TPH Crusher and other MCA items on hand at that site. Minor problems have been experienced in getting MCA repair parts to this site but this will be improved as convoy frequency increases. The 250 TPH Crusher has experienced problems inherent in any new plant and appears headed towards good reliable production. The established Dynalectron team at Phan Rang is still experiencing some difficulty in obtaining good supply from their logistic system. The MCA program has been operational long enough that their supply system should be functioning efficiently by this time. There is a great deal of command emphasis on this problem.

(4) A definite upward trend in the deadline rate has been noted in the last eight weeks of the period. The primary contributing factor is felt to be the unresponsiveness of the repair parts system. "Operation Last Chance" requires a much greater effort on the part of the men and equipment. Maintenance time has been increased (Preventive Maintenance - Motor Stables) to 1½ hours daily. This increased effort must be complemented by a steady flow of repair parts for critical equipment.

(a) Repair parts that were not obtainable during this reporting period were:

10 ton tractor	Engine	FSN 2815-910-8218
Ldr scoop, 645m	Injector pump	FSN 2910-111-2626

1. Medical Activities

(1) This Medical Section provided primary medical support for elements of HHC, A, B, C, and D Companies, the headquarters and one platoon of the 513th Engr Co (DT) and one platoon of the 73d Engr Co. This section also provided medical care for units in the Phan Rang area having no organic medical support; among these are D/35th Signal Bn and HHT 2/1 Cav.

The total number of outpatients seen during the period 1 Feb to 20 Apr was 1265. Of these 68 required hospital care or quarters to treat their illness.

During this reporting period there has been a turnover of greater than 50% of the personnel in this Aid Station. Many activities have taken place to improve the function of the Battalion Aid Station. The entire Aid Station was painted both inside and out. A suspense file has been started which lists all personnel in the Battalion requiring immunizations each month for the ensuing six months. To start this system properly it was necessary to bring every shot record in the Battalion up

to date. Also, a file of all Vietnamese personnel was started to insure adequate medical clearance at all times.

(2) The Army units in Phan Rang have become very dependent on facilities located at the 35th Air Force Dispensary on the Air Base. This dependency is mainly for such things as X-ray, Audiometry, Chemistry Lab and EKG. The Air Force has been very cooperative in this effort. However, an area which definitely requires improvement is that of Dental Care. At present all the dental work for the entire Air Base, including three army battalions located here, is carried out by overworked Air Force Dentists. It has been recommended to the 61st Med Bn that an Army Dentist be stationed here in Phan Rang. This dispensary has adequate room to set up a Dental Clinic and for providing quarters for those personnel.

The 8th Field Hospital in Nha Trang has been reduced in size and no longer is able to offer support to this area. As a result, the 589th Engr Bn is relying solely on the 12th AF Hospital in Cam Ranh Bay for its support.

(3) A program of Medical Civic action has been set up in the Hamlet of Bao Truc located off QL-1 about 6 miles South of Phan Rang. This program has been approved by the Province Medical Chief and by the MACV Advisors in Phan Rang. A weekly visit is made to the hamlet and patients selected by the hamlet medical worker are seen in the dispensary there.

Various projects such as building a fence around the dispensary, replacing worn out water tanks, and possibly digging a new well for drinking water have been initiated. D Company of the 589th Engr Bn has been helpful in pursuing these projects.

(4) Statistical figures for the reporting period are:

	FEB	MAR	APR	TOTAL
Outpatients	444	501	320	1265
Hosp Admissions and Quarters	25	23	20	68
Immunizations	364	104	295	763
Laboratory	251	347	242	940
Pharmacy	320	340	270	930
Vietnamese Patients	35	30	25	90

m. Communications

(1) During this period KY-8 Secure Voice systems were installed in the Battalion Communications Section and in the commo sections of B, C, and D Companies. This equipment gave the Battalion the capability of transmitting classified messages between the Battalion headquarters and the isolated companies without fear of the enemy being able to monitor the transmission. This capability has been invaluable in getting classified information such as convoy schedules, VIP schedules, SOI changes and spot reports to and from the battalion headquarters in a minimum amount of time.

(2) Overheating of electronics equipment has become a serious problem during the last of Mar and throughout the month of Apr. With the summer afternoon temperatures now averaging 94 degrees, insufficient ventilation and cooling caused breakdowns in several radios and teletypes in the Battalion Communications Section and at B Company, where the radio section is located in a CONEX container surrounded by several layers of sandbags. At the end of April the Battalion Commo Section obtained a refrigeration unit which was mounted on the side of the commo building. Ducts running from the blowers of the unit into the radio and teletype rooms have eliminated the ventilation and cooling problem almost entirely. Ventilation of the B Company commo bunker is currently being worked on.

(3) In general, the quality of communications within the battalion has been improved since the Brigade Signal Officer has allocated FM frequencies down to the Group level, where the Group Signal Officer assigns frequencies according to the recommendations of the Battalion Communications Officer. We now have clearer communications with all our outlying companies since the frequencies are allocated with regard to the terrain in which the companies operate and the distances involved.

n. Logistics

(1) For the reporting period, the main activities of the 589th Engineer Battalion (Const) S-4 section have been the logistical support of the five line companies of the battalion; procurement of construction materials for the newly built B Company base camp at Vinh Hao, and support of the 61st ARVN Engineer Battalion (Const).

(2) The procurement of supplies and materials has presented no difficulty other than sparse hauling capabilities. The continued use of an expediter based at Cam Ranh Bay has considerably

decreased the requisition-release time for materials and supplies. Equipment availability is high with critical shortages existing in only the following items: Boom, Crane 30' (FSN 3815-752-9022, 3 of 6 on hand); Boom, Extension, Crane (FSN 3815-197-7311, 4 of 7 on hand); Generator Set, Gas eng, 10kw (FSN 6115-792-8260, 5 of 9 on hand); Mixer, Concrete 16S (FSN 3895-835-4512, 2 of 6 on hand); Semi-trailer, 25 ton (FSN 2330-317-6448, 18 of 24 on hand); Welding shop, tlr mtd, 300 amp (FSN 3431-287-5404, 1 of 6 on hand). In the field of class IV supplies neither 24" nor 48" CMP culvert were available from the depot. Mosquito netting is another item in short supply.

(3) Prior to 1 Feb 1970, B Company, 589th Engr Bn, began construction of a new base camp located at Vinh Hao. The requisitioning and procurement of materials presented no insurmountable problems. Construction included the erection of 6 guard towers, 14 living-fighting bunkers, 1 Mess Hall, plus shower and latrine facilities. In addition, the new camp includes an industrial site to house a 250 TPH rock crusher and an asphalt plant. Acquisition of the asphalt plant components required close, constant coordination with the sending units. Many components are still not on site.

(4) Transportation of rations from Phan Rang to Vinh Hao was coordinated thru the 2/1 Cavalry, 5/22 Artillery, and the U.S. Air Force. The B Company element remaining at Phan Rang palletized the rations, after which a scheduled Air Force aircraft flew the rations to Song Mao. There, they were picked up by a CH 47 working for the 5/22 Arty and flown to Vinh Hao. POL products are delivered by transportation convoys, amounts being requested by this office based on daily consumption reports from B Company. Fuel storage was initially a problem but has been corrected.

(5) In accordance with MACV letter, AVHSM-SM, Subject: USARV Support for ARVN LOC Program, 14 March 70, the 589th Engr Bn (Const) was tasked by the 18th Engr Bde to provide logistical support (Class IV Construction Materials) for the 61st ARVN Engr Bn (Const). Initial meetings were held to determine and help alleviate possible obstacles that might arise. Representatives from 35th Engr Gp (Const), 589th Engr Bn (Const), 6th ARVN Group, and the 61st ARVN Engr Bn (Const) attended and discussed the bill of materials (BOM), the need for additional personnel, and the need for transportation for the materials once released from depot. After acquiring a translated BOM, the requisitioning began. The administrative work was accomplished by the S-4 personnel and three soldiers supplied by the 61st ARVN Bn, utilizing this organization's Unit Identification Code (UIC) and an 18th Engr Bde supplied Construction Directive number (CD 455-0309-0-01).

To expedite the requisitioning of the materials, a second expediter remains at Cam Ranh Bay, attached to and quartered by HHC, 35th Engr Gp (Const). The expediter's sole purpose is to speed up the release of ARVN construction materials. These materials are being released from the U.S. Army Depot, Cam Ranh Bay, and are transported to the 61st Bn by TCMD. This was necessitated due to a non-availability of sufficient tractor-trailers from this unit or the 61st Bn. Close coordination is maintained to insure a smooth running operation.

2. SECTION 2, LESSONS LEARNED: Commander's Observations, Evaluations, and Recommendations.

a. Personnel: None

b. Intelligence: None

c. Operations:

(1) Rock Crusher Dust Suppressive System

(a) OBSERVATION: Operation of rock crushers generates large volumes of dust. The dust increases maintenance problems, causes safety hazards by limiting visibility, and causes respiratory health problems.

(b) EVALUATIONS: Most industrial sites have attempted to design and install dust suppressive systems on their rock crushers. Results indicate that the best suppressive technique is a high pressure water system that will produce a suppressive fog over the dust generating areas. The suppressive systems have not been completely successful due to difficulty in obtaining the storage tanks, pumps, nozzles, valves, and other plumbing fixtures required to build an effective system.

(c) RECOMMENDATION: Current available dust suppressive systems should be evaluated and a system either purchased or designed that can be provided to industrial sites for installation.

(2) Traffic Control:

(a) OBSERVATION: Uncontrolled and undisciplined civilian and military traffic reduces road construction efficiency when roads must be kept open during construction.

(b) EVALUATION: Most roads being upgraded under the LOC program cannot be closed to traffic to obtain maximum efficiency of construction forces. Military traffic can be controlled by road guards and MP support can usually be obtained in conjested areas. These measures are often not effective in controlling VN traffic. Coordination at Province and District level often doesn't obtain continuous and effective police support.

(c) RECOMMENDATION: Coordination with VN authorities at all levels is required to obtain VN police support in controlling VN traffic. To be effective, the control must be bi-national when overseas.

(3) Cellular Teams for Major Industrial Site Components.

(a) OBSERVATION: Often major industrial site equipment such as rock crushers, asphalt plants, and soil stabilization plants are provided to units without adequate support equipment or operators.

(b) EVALUATION: TO&E 5-500C provides GB, GJ, and MP cellular teams for operating major industrial site equipment. When major equipment is added to a unit without an appropriate cellular team, the team must be formed from available resources. This decreases a unit's TO&E construction capability because operators must either be taken from TO&E equipment or from sections that provide vertical construction or maintenance capability. Under these circumstances, the receiving unit's capability is not increased so much as it is changed by trading capability in one area of construction for another.

(c) RECOMMENDATION: TO&E 5-500C GB, GJ and MP should be reviewed to fit the current types of equipment augmentation provided industrial sites. Cellular teams should be assigned to units to operate and support major industrial equipment concurrently with the equipment authorization.

(4) Continuous Maintenance Expedient Surfaced Airfields:

(a) OBSERVATION: Units are required to provide relatively long term support, usually welding, to airfields with expedient surfaces. This reduces the unit's maintenance capability.

(b) EVALUATION: Many airfields in Vietnam were originally built as forward area airfields; however, changed conditions have dictated their use beyond their designed life expectancy. Usage or operational considerations often prevent upgrading the airfields into more permanent installations. These considerations often mean that engineer units are

tasked to provide welding and other maintenance support to airfields in their area of operations. Assignment of a welding team, usually on a continuous basis, seriously detracts from the maintenance capability of the unit. TO&E 5-500C provides for a welding team that could adequately provide this support. These teams could either be assigned to the engineer unit that has airfield maintenance tasks or the team could be satellited on the headquarters that has operational control of the airfield to give them an organic maintenance capability.

(c) RECOMMENDATION: That TO&E 5-500C cellular teams be satellited on headquarters having operational control of expedient surfaced airfields to give them an organic maintenance capability.

(5) Obsolete References

(a) OBSERVATION: Construction unit book sets contain many outdated references.

(b) EVALUATION: Construction units are authorized Book Set, Combat GP, FSN 7610-664-0435 and Book Set, Construction GP, FSN 7610-664-0437. These book sets contain many outdated reference books without an effective means of updating individual texts. Current troop construction programs require the design and erection of modern structures such as pre-cast and prestressed concrete which dictates the use of current references. Specifications often reference civilian design and construction standards and practices which are not covered in the book set references.

(c) RECOMMENDATION: The book sets be reviewed to provide current texts. The book sets should also be expanded to cover all the design and construction fields of current engineer troop interest.

(d) Organization: See 2a(1) and 2b(1).

(e) Training:

(f) Logistics:

Pick-up of Material from Depot

(1) OBSERVATION: S4 sections frequently have difficulty in picking up released materials from depot due to a lack of vehicular transportation.

(2) EVALUATION: Individual battalions are constantly required to transport large quantities of materials from Depot to meet tight construction schedules. Much of this material cannot be TCMD'ed due to time delays caused by haul priorities or unacceptable pilferage and shipment damage. TO&E haul capability is required to support job production.

EGACBF-CO 30 April 1970
SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65(R2)

(3) RECOMMENDATION: In areas of central supply locations where unit pick-up is required, a transportation section of at least 5 ea 5T tractors with S & F trailers should be authorized as a TOE augmentation to the S-4 section.

(g) Communications: None.

(h) Material: None.

(i) Other: None.

Donald A. Ramsay
DONALD A. RAMSAY
LTC, CE
Commanding

1 inc-Organization

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AMA-CO (30 April 1970) 1st Ind
SUBJECT: Operational Report-Lessons Learned of the 589th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65 (R2)

DA, Headquarters, 35th Engineer Group (Const), APO 96312, 23 May 1970

TO: Commanding General, 18th Engineer Brigade, APO 96377

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from the 589th Engineer Battalion (Construction)and concurs with the comments and observations of the commander, with the following comments added:

2c(1) Concur: A dust suppression system to be included as a component of crusher systems would be beneficial from both the maintenance and operational point of view.

2c(2) Concur: Both battalion and group have participated in district and province coordination meetings with fairly good success on the policy level. The actual working level - that of local national civil police and U.S. and Vietnamese military police - however requires continued monitoring on the part of local field units to insure follow through is made by all concerned.

2c(3) Concur: The augmentation of construction units with MCA-LOC equipment has been most beneficial to the LOC program. The failure to augment units with additional personnel either through augmented MTOE or by attachment of TOE 5-500C teams to major pieces of equipment such as crusher complexes has diluted the effectiveness of the MCA buy of construction equipment and has required ad hoc organizational changes. Coordination between various staff sections to provide both equipment and personnel to run the equipment would have enhanced the program considerably and would have provided a much higher return on the investment make in MCA equipment.

2f Concur: Augmentation of a construction unit by addition of a construction material haul capability is a worthwhile consideration. It would be especially valuable where haul requirements are needed for projects which are off of the normally travelled MSR convoy routes.

RICHARD A. CHIDLAW
COL, CE
Commanding

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AVBC-CG (30 Apr 70) 2nd Ind
SUBJECT: Operational Report of the 589th Engineer Battalion (Construction) for the period ending 30 April 1970, RCS CSFOR (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 19 JUN 1970

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 589th Engineer Battalion (Construction), as indorsed by the 35th Engineer Group (Construction). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders with the following comments added:

a. Reference: Section 2, item c(3). Concur. Either vertical construction personnel must be placed upon the MCA-LOC equipment or TOE equipment must be allowed to sit idle in order to provide operators for MCA-LOC equipment. Neither case is desireable.

b. Reference: Section 2, item c(4). There are presently only two airfields - Song Mao Afld (VA 2-18) and Phan Thiet Afld (VA 2-11) - which receive continual welding effort. These are both M8A1 airfields which are classified as Type II, C-130 airfields. M8A1 is not a Type II surface IAW MACV Dir 415-9. After repeated C-130 loading, the connecting flanges of some of the pieces of M8A1 matting will break, requiring continual welding to prevent the edges of the matting from curling and presenting a hazard to air traffic. If the airfield is on Installation Property Records, PA&E should assume maintenance responsibility. Otherwise, until upgrade of the airfield surface with either aluminum matting or a concrete or asphalt surface, the welding will have to be continuous. Where this exists, the nearest engineer unit must either station a welder on site or make scheduled repair visits. If the airfield is controlled, such a TOE 5-500 C cellular unit could be attached to the control headquarters.

c. Reference: Section 2, item c(5). If construction unit book sets are not updated with current texts or expanded to cover current engineer design requirements, the engineer unit must requisition required texts individually from SC 7610/40 IL, Books, Maps, and Other Publications, dated June 1967.

d. Reference: Section 2, item f. There are few engineer battalions in the 18th Brigade AO which have their companies located adjacent to the Battalion Headquarters. Construction requirements dictate the establishment of separate company base camps located at some distance from the Battalion Headquarters. Augmentation of the Battalion S-4 Section with S and P tractor-trailers is necessary if tie-up of organic TCE construction haul assets is to be precluded. USARV Letter, AVHGC-FDU, dated 12

AVSC-CG
SUBJECT: Operational Report of the 589th Engineer Battalion (Construction) for the period ending 30 April 1970, RCS CSFOR-65 (R2)

October 1969, subject: Moratorium on Processing of TDA, MTDA, and MTOE, has placed a moratorium until further notice of all such actions except under critical circumstances.

H.C. SCHRADER
Brigadier General, USA
Commanding

CF:
CO, 35th Engr Gp
CO, 589th Engr En

AVHGC-DST (30 April 1970) 3d Ind
SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65 (R2)

Headquarters, United States Army Vietnam, APO San Francisco 96375 13 JUL 1970

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-DT, APO 96558

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from Headquarters, 589th Engineer Battalion (Construction) and concurs with comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Maintenance," page 14, paragraph k(4): concur. Injector pumps for AC 645M scooploaders are currently at zero balance in-country, but 185 of these pumps are due in. Ten ton truck tractor engines are normally provided by a non-funded repair program under AMC. ICCV indicates that a few Red Ball requisitions for these engines are filled by CONUS procurements, but that there is no known solution to the overall engine shortage. Action by USARPAC or DA is recommended.

b. Reference item concerning "Rock Crusher Dust Suppressive System," page 18, paragraph c(1): concur. A dust suppression system should be incorporated in rock crusher designs and should allow for field modification. Action by USARPAC or DA is recommended.

c. Reference item concerning "Cellular Teams for Major Industrial Site Components," page 19, paragraph 2c(3): concur. However, the present ceiling on military spaces within the Engineer Command will not permit the organization of cellular teams without the inactivation of another unit to obtain the spaces. All contemplated inactivations in the foreseeable future will be to remove spaces from the Engineer Command in accordance with the troop reduction program. Recommend DA review the structure of the cellular teams to insure adequate support for the different requirements throughout all engineer units.

FOR THE COMMANDER:

D. J. Winter
CPT, AGC
Assistant Adjutant General

Cy furn:
18th Engr Bde
589th Engr Bn

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GPOP-DT (30 Apr 70) 4th Ind
SUBJECT: Operational Report of HQ, 589th Engineer Battalion (Const) for Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 21 AUG 1970

TO: Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

1. This headquarters concurs in subject report as indorsed with the following comments.

2. Reference paragraph 1k(4)(a), page 14: Twenty-six engines were released via Red Ball requisitions during June and July 1970. Fifty per month (July - November 1970) are due in from rebuild for a total of 250. A total of 150 is due in from procurement, 100 in October and 50 in November 1970. In regards to injector pumps, quantities on requisitions AT87FV-0148-6601 and AT87FV-0140-6002 were shipped via air freight from CONUS on 2 July 1970.

3. Reference paragraph 2c(1), page 18: Concur. Rock crusher dust suppressive devices are utilized in some commercial operations and should therefore be available for use with Army equipment. Recommend USAMC investigate cost and feasibility of providing these devices both for equipment in use and from procurement.

4. Reference 2c(3), page 19: Concur in the need for additional personnel. It should be noted, however, that actions taken by the 589th Engineer Battalion in providing personnel to operate industrial sites are in consonance with the original USARV plan of operating the MCA LOC equipment. The plan noted that within the existing TOE structure, there are sufficient operators with necessary skills to operate and maintain most of the additional equipment. Assistant operators provided in the TOE for two shift operation of non-LOC critical equipment, skilled vertical construction personnel and/or direct hire local nationals could be trained to be operators on equipment where there is a net increase to TOE amounts.

FOR THE COMMANDER IN CHIEF:

G. R. McLAUGHLIN
COL, AGC
Adjutant General

Cy furn:
CG USARV

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EGACBF-CO 30 April 1970
SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65(R2)

ORGANIZATION

The following units were either assigned or attached as indicated to the 589th Engineer Battalion (Const) during the report period.

a. Assigned

1. Headquarters and Headquarters Company
2. Company A
3. Company B
4. Company C
5. Company D

b. Attached

1. 513th Engineer Company (Dump Truck)
2. Quarry Platoon, 73rd Engineer Company (Cobstruction Support)

Incl 1

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CO, 589th Engineer Battalion

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