Subject report is forwarded for review and evaluation in accordance with paragraph 4b, AR 525-15. Information of actions initiated as a result of subject report should be forwarded to ACFOR OT UT within 90 days of receipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

KENNETH G. WICKHAM
Major General, USA
The Adjutant General
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Chief of Engineers
Commandant of the Marine Corps
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US Army Construction Engineering Research Laboratory
US Army Limited War Laboratory
US Army Logistics, Doctrine Systems & Readiness Agency
US Army Mobility Equipment Research & Development Center
588th Engineer Battalion
EGEE-3

SUBJECT: Operational Report - Lessons Learned (588th Engineer Battalion) for the Quarterly Period Ending 31 April 1970
RCS-CSFOR 65 (R2)

THRU: Commanding Officer
79th Engineer Group
APO San Francisco 96491

Commanding General
20th Engineer Brigade
APO San Francisco 96491

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DH
APO San Francisco 96307

Commander - In - Chief
United States Army, Pacific
ATTN: GPOP-OP
APO San Francisco 96588

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

Section I, Operations: Significant Activities

1. General:

a. The 588th Engineer Battalion (Combat Army) is organized under TO&E 5-35G. The Battalion has a Headquarters and Headquarters Company and four line lettered companies. The 362d Engineer Company (Light Equipment) is attached for all purposes and is organized under TO&E 5-58G.

FOR OT UT
702038
Inclosure 1
b. The Battalion is assigned to the 79th Engineer Group, which is located at Long Binh, RVN.

c. During the first part of the reporting period, Headquarters and Headquarters Company, Company B, Company D, and the 362d Engineer Company (LE) were located at Tay Ninh Base Camp, RVN (XT 143518), with Company A and Company C located at Cu Chi Base Camp, RVN (XT 659152). On 17 March 1970 D Company was directed and did move to Cu Chi Base Camp, RVN (XT 143518). On 28 March 1970, Headquarters and Headquarters Company moved to Cu Chi followed by the 362d Engineer Company (LE) on 4 April 1970.

d. From 15 March 1970 until 2 April 1970, the 595th Engineer Company (LE) was attached to the Battalion. The company was organized under TO&E 5-58G and located at Cu Chi Base Camp, RVN. On 2 April 1970 the 595th Engineer Company (LE) was transferred to the 554th Engineer Battalion (Construction).

e. Throughout the quarter, the Battalion conducted Combat and Operational Support Missions for the 25th Infantry Division and the 1st Cavalry Division (Airmobile). The most significant project during the period was the MACV Advisory Facility at Go Dau Ha. The project consisted of an enlisted mens billets with mess, a commo center, water tower and distributor system, and complete sewer system and bunkers and revetments for security. The project was completed on schedule with the exception of the ceiling fans which were not received by the 15th of March, 1970, the completion date. Other projects worked on during the reporting period were the restoration of QL-1 and QL-22, Ap Phu Ninh Barge Site, rehabilitation of Fire Base Hull, rehabilitation of Prek Klok and Katum Airfield, five Secondary Roads and several minimum essential requirements for the relocation of units of the 1st Brigade, 1st Air Cav Division and the 25th Infantry Division. The final week of the report period found the Battalion performing its primary mission of Combat Support. Five missions were in support of the Artillery and one was equipment and bridge for the 30th ARVN Engineer Group.

2. Command: The 588th Engineer Battalion was under the command of LTC Thomas A. Stumm during the entire reporting period. The Battalion SGM from the beginning of the reporting period until 12 March 1970 was CSM Daniel N. Tucker. The Battalion was without a SGM until 27 March 1970 when SGM Melvin L. Bryant arrived from the deactivated 168th Engineer Battalion (C) (A). Other command assignments were as follows:
**SUBJECT:** Operational Report - Lessons Learned

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<td>Bn XO</td>
<td>MAJ Raymond A. Spunzo</td>
<td>1 Feb 70 - 30 Apr 70</td>
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<td>CO, HHC</td>
<td>ILT David Elmore</td>
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<td>CPT James Reed</td>
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<td>CPT Andrew Perkins</td>
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<td>CPT David Pierce</td>
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<tr>
<td>CO, Co D</td>
<td>CPT Lynn Partington</td>
<td>1 Feb 70 - 30 Apr 70</td>
</tr>
<tr>
<td>CO, 362d</td>
<td>CPT James Williams</td>
<td>1 Feb 70 - 30 Apr 70</td>
</tr>
<tr>
<td>CO, 595th</td>
<td>CPT Donald Nance</td>
<td>15 Mar 70 - 2 Apr 70</td>
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### 3. Personnel, Administration, Morale and Discipline

A. At the end of this reporting period the Battalion was four Officers short of our authorized strength; three in Headquarters and one in Company A. During the coming quarter, twelve Officers are scheduled to DEROS; three in May, six in June, and three in July. The average EM strength for this reporting period was 925 (93%). A total of 134 EM are scheduled for rotation during the coming quarter.

During the quarter the following awards were presented:

- Silver Star: 0
- Soldier's Medal: 0
- Bronze Star w/V device: 0
- Bronze Star: 31
- ACM w/V device: 0
- Army Commendation Medal: 222
- Air Medal: 0
- Purple Heart: 7
- 79th Group Certificate: 45
- 20th Brigade Certificate: 103

b. During the reporting period, as has already been noted, the Battalion Headquarters, Company D, and the 362d Engineer Company moved to Cu Chi Base Camp during the week of 28 March 1970 to 4 April 1970. This move has considerably eased the problem that was being experienced with distribution with higher Headquarters (79th Engineer Group). We are now able to send a vehicle down every day to deliver and pick-up distribution.
SUBJECT: Operational Report - Lessons Learned

As might be expected, telephone communication was very limited immediately following the relocation, but by the end of the reporting period, 95% of the telephones requested had been installed providing good Class A and Class C service.

C. As a result of the move to Cu Chi, Other Sundry Funds 011 (HQ's NCO Club), 012 (HQ's EM Club), 015 (Co C EM Club), and 017 (362d Deuce Club) have been dissolved due to the fact that the Battalion has joined the 25th Infantry Division Club System. Both the EM and NCO Clubs are providing approximately three floor shows per month and other various types of entertainment. They are very adequately replacing the dissolved Sundry Funds. B and C Companies Sundry Funds (OSF's - 14 and 16) are continuing due to the fact that both companies are separated from the main Battalion area. Mail deliveries to the Battalion were hampered to a significant degree due to the mail strike which occurred during the end of March and the beginning of April, but since then has returned to almost normal. We held two mail calls per day during the last month of the reporting period allowing the troops to receive their mail as quickly as possible and as was expected, this contributed materially to the high state of morale. Church attendance held steady between 36-35% as Chaplain Itokazu increased the number of services held. Maximum use was made of R&R allocations and seven day leaves as 205 men took advantage of this excellent program.

d. There were zero general, 10 special and zero summary courts-martials during the quarter. There were 6 Field Grade and 57 Company Grade Article 15's during the reporting period.

4. Intelligence and Counter-Intelligence

a. The 588th Engineer Battalion received daily intelligence summaries from 1st Brigade, 25th Infantry Division at Tay Ninh and the 25th Infantry Division at Cu Chi. Intelligence and operations briefings at 1st Brigade, 25th Infantry Division are attended daily by the S-2 officer or his representative. Weekly intelligence update briefings are attended at MACV. Tay Ninh Province, since 29 March 1970, the S-2 has attended intelligence briefings at the 25th Infantry Division, Cu Chi and MACV briefing at Bao Trai. Intelligence summaries, terrain studies and related materials are received from Headquarters, II Field Forces.

b. Engineer reconnaissance of roads, bridges, culverts, airfields and natural construction materials is performed regularly by the Battalion Intelligence Section. Information derived from reconnaissance is compiled and forwarded to 79th Engineer Group, the ADE of the 25th Infantry Division and the MACV (Tay Ninh) Province Engineer.
c. Engineer Base Camps and work sites received small arms fire and RPG 31 x 122mm rockets, and 46 x 82mm mortars for a total of 77 hostile rounds received during the period, Tay Ninh Base Camp received on ground probe during this period, 16 vehicles hit mines, and 15 mines were located and destroyed by Battalion sweep teams.

d. The Battalion provides one officer and 41 enlisted men per night for perimeter security at Cu Chi Base Camp (normal condition) and one officer and 13 enlisted men at Tay Ninh Base Camp.

5. Plans, Operations, and Training

a. Combat Support: During the quarter, the 588th Engineer Battalion has completed a number of Combat Support Missions. The rehabilitation of the Prek Klok Airfield, to include the recompaction, shaping and placing of matting on the runway, a helicopter landing pad and a staging area were completed 11 February 1970 for the 1st Cavalry Division. Seven additional Support Missions were completed for the Artillery. At the end of the period, the entire Battalion effort was directed toward Combat Support.

b. Operational Support: The average Battalion effort was directed toward Operational Support Missions, was 60% of the available effort during the quarter. The weekly percent varied from 33% to 78%. Some of the missions were a barge site, two airfields, five secondary roads, numerous bunkers, an ASP, perimeter lighting and water supply.

c. The 588th Engineer Battalion is involved in the repair of QL-1 and QL-22 from Cu Chi to Tay Ninh. An average of 12% of the available effort was expended for upgrade of these projects during February, March and April. The project consists of patch work, overlay and widening of shoulders to MACV standards. The weekly effort varied from 3% to 21%. LOC effort expanded for maintenance and repair of the roads in the AOR consists of grading and shaping the road surfaces and repairing craters and culverts destroyed by enemy action.

d. Base Construction: The Battalion effort on base camp construction varied from 0% to 16%. The only project carried as base camp construction was the MACV Facility at Go Dau Ha.

e. Training: The continued use of an extensive program in weapons familiarization has improved our ability to provide our own security when necessary. Special classes have been conducted for vehicle and equipment operator with the intent to lower the equipment deadline rate, and raise production.
SUBJECT: Operational Report - Lessons Learned

6. Civic Action: During the reporting period, the Battalion surgeon held MEDCAPS in many of the villages through which we have constructed roads. The Battalion Chaplain made weekly visits to local orphanages.

7. Logistics:

   a. Due to the move from Tay Ninh to Cu Chi, the Battalion had supply accounts with both the 228th S&S Company in Tay Ninh and the 758th S&S Company in Phu Loi. The 758th S&S Company is the only DSU for the Battalion now the move is complete. Repair parts are requested through the 94th Maintenance Company.

   b. Most supplies are delivered with transportation organic to the S-4 section. Class IV materials are delivered by the 48th Transportation Group and are now being delivered to Cu Chi.

   c. Two operational water points, one at FSB Buell and one at FSB St Barbara, produced a total of 647,000 gallons of potable water.

8. Force Development: None.

9. Command Management:

   a. Projects and missions assigned to the Battalion are supervised by the Battalion Commander, under the staff supervision of the Operations Officer. The Intelligence and Operations Sections operate together to plan and manage projects and missions. Equipment resources of organic and attached companies are allocated daily to insure efficient utilization.

   b. Base construction policies are established by a Base Development Planning Board, under the supervision of the Post Commander. This Headquarters implements the policy within the framework of Military Construction Army and Operations and Maintenance Army funded project directives. Management of projects in progress which are constructed on a self-help basis is further implemented by strict control of issued materials. All self-help construction is supervised by engineer personnel. When projects are assigned to the Battalion's Units, a meeting is held by the S-3 and the constructing unit commander to discuss the project. Before initiation of construction, a preconstruction conference is held by the Battalion Commander with the Operations Officer, Construction Unit Commander, the Platoon Leader assigned to the project, and the using agency. On all major projects, a representative from the 79th Engineer Group also attends. This briefing is to discuss completely all aspects of the proposed construction and to permit comments to be made prior to the initiation of construction.
Operational Report - Lessons Learned

After construction actually begins, the senior person present at the job site is prepared to brief visitors on construction progress.

c. Daily operations meetings are held to discuss construction for the coming day. Management indicators used in committing effort and controlling progress include Daily Troop Disposition Reports, Equipment Deadline Reports, and After Action Reports.

Section II, Commander's Observations, Evaluations, and Recommendations:


   a. Observation: During the quarter an excessive amount of personnel have been lost because of the large rotation factor experienced in Viet Nam.

   b. Evaluation: Infusion Programs are not always the best solution and at certain times are not practical. However, excessive losses in specific MOS can sometimes be replaced by non-engineer personnel.

   c. Recommendation: When there is an excessive loss of personnel in any MOS of a generally lesser skilled category (i.e., Pioneer Engineer), the vacancy can be successfully filled by non-engineer personnel (i.e., Infantry-11B).

2. Intelligence: Information given by Vietnamese Civilians

   a. Observation: While conducting reconnaissance throughout the AOR, the S-2 Section has found that local civilians are very reliable sources of information.

   b. Evaluation: Conditions of roads during all seasons as well as the use of the road and type of traffic the road has supported, can be determined by questioning local residents.

   c. Recommendation: While operating in unfamiliar areas, the use of bona fide information given by civilians is valuable.

   d. During this reporting period, civilians have been very helpful in location of mines on roads.
1. Operations:

a. Upgrading an Existing Bailey Bridge

(1) Observation: When upgrading existing Bailey Bridge it becomes increasingly more difficult, over a long span, to insert the cord bolts which couple the second tier of panels to the first. As the second tier of panels were added, the additional weight caused the bridge to sag much more, and the holes for the insertion of cord bolts grew more out of alignment. This problem was compounded by the fact that many of the cord bolts were still coated with cosmoline. This coating made the bolts even harder to drive into the holes in the panels.

(2) Recommendation: It was found that the best solution to keeping the cord bolt holes in the panels aligned is to insure that the cord bolts in each subsequent panel added be completely tightened as work progresses. This tends to pull the sag out of the span as the panels are added from the center to the far and near shores. As the addition of panels approaches the ends of the bridge, the cord bolts must again be tightened to assure that all sag is taken out of the bridge. To aid in the insertion of new cord bolts with cosmoline coating, a light coat of grease should be applied to each bolt before insertion.

b. Prevention of Damage to Culvert Headwalls

(1) Observation: After completion of culvert headwalls, a recurring problem was encountered as trucks and track vehicles continuously struck the headwalls, causing partial damage or complete destruction.

(2) Recommendation: To aid drivers of wheeled and track vehicles in recognizing the location of headwalls, brightly colored U-shaped pickets were placed at either end of each headwall. These easily visible markers serve as suitable warning devices.

c. Anchoring and Bending M8A1 Matting for an Airfield

(1) Observation: While building an airfield out of M8A1 matting, the method of cutting a slot trench along the edge of the airfield and then bending the overlaying sections of M8A1 matting into the trench was used. However, each time we attempted to bend the matting, it would shear off into the runway lane rather than the desired point.
SUBJECT: Operational Report - Lessons Learned

(2) Recommendation: Four foot lengths of 2" x 4" lumber were inserted under the section to be bent. A loaded five ton dump truck was then backed from the runway lane over the overlapped matting and down into the trench. Using this technique, the weight of the dump truck was distributed equally over the complete stressed area, thereby causing the matting to bend at only the point where the 2" x 4" piece of lumber was inserted rather than shearing off into the runway.

d. Attaching Military Explosives to Trees

(1) Observation: While blowing trees for a recent land clearing mission, we used the method of cutting a slot in the trunk of the trees with a chain saw.

(2) Evaluation: Process was too time consuming.

(3) Recommendation: Sixteen penny nails were used. They were driven directly into the C-4 block and provided good contact with the trees. The efficiency was increased by 100%.

e. Sub-base for Secondary Roads

(1) Observation: The sub-base of native fill was turning to powder before it could be capped with laterite.

(2) Evaluation: Method was needed for stabilizing sub-base prior to capping with laterite.

(3) Recommendation: It was found that diesel fuel would turn the powder into a compactable substance that would resist wear long enough to cap it with laterite. The sub-base was shot with a heavy coat of water and then shot with diesel fuel. This kept the water from evaporating too fast and the diesel acted as a substitute for a soil under. A sheepsfoot roller gave the sub-base its initial compaction. The grader was then used to shape the road and a wobbly wheeled roller provided the final compaction. Using this method, the sub-base was able to keep its bearing capacity until the laterite cap was laid. Because diesel fuel was much more readily available than pentaprime, it was also used on the laterite surface to help preserve it until it could be shot with pentaprime.

4. Organization: Motor Stables
SUBJECT: Operational Report - Lessons Learned

a. Observation: It was found that during motor stables that only major deficiencies were given attention and that many things that could be done, weren't due to lack of effective use of time allotted.

b. Evaluation: A system was needed to implement command control without actually doing the maintenance for each operator.

c. Recommendation: Each unit conducted motor stables "by the numbers" in platoon size units. Each squad leader will call out the various items to be checked during, before and after the inspections. By strict supervision by the platoon leaders and platoon sergeants, the maintenance period will become very effective and productive.

5. Training: Radio Operations

a. Observation: It was noted that it might become necessary for personnel unfamiliar with the use of radios to call for medical evacuation, artillery and air strikes, or infantry assistance.

b. Evaluation: A scheduled form of instructions is necessary to insure that all personnel be familiar with the use and operation of radios and their nets.

c. Recommendation: Instruction in the use of various radio equipment, correct radio procedures, proper procedure for calling for air or artillery strikes, and procedures for calling medical evacuation helicopters, should be scheduled.


a. Observation: Due to the extreme climatic conditions experienced in Viet Nam, a large amount of lumber is wasted because of open storage. Rain and heat combine to cause the lumber to water rot.

b. Evaluation: There is a need for extensive research in this area to find an effective method for protecting materials from weather deterioration.

c. Recommendation: That dunnage between bundles of materials be elevated one inch on one side so that the lumber is stacked at an angle to allow the water to run off freely and to promote immediate drying of the material.

7. Communication: None.
SUBJECT: Operational Report - Lessons Learned

8. Materiel: None

9. Other:

   a. Maintenance: It was found that inadequate securing of battery box on 5 ton dump trucks allowed the box to fall out during operation of the vehicle. Thus, proper instruction of operators and supervisors about the need to check periodically all fasteners with increased attention to vital parts was emphasized.

   b. Chaplain: None.

   c. Medical:

      (1) This Battalion had a VD rate of 350 cases/1000/annum. The Battalion Surgeon did coordinate a class in VD jointly with the Battalion Chaplain.

      (2) There have been several cases of drug abuse in the Battalion. The Battalion Surgeon, the Battalion Chaplain, and legal officer conducted a joint seminar on the danger of drug abuse. Seminars were conducted for each company.

   d. Safety: While in convoys, many personnel have thrown candy and food stuff from moving vehicles, endangering civilians. In the ensuing scrambles, many Vietnamese have been injured. A training procedure must be set up to insure that every soldier is aware of the dangers in following practices such as this. Each commander should orient all incoming personnel immediately upon arrival in country. Periodic briefings should be given to all personnel.

FOR THE COMMANDER:

22 Incl - After Action and Project Completion Reports

Incls 1 & 3 - 22 wd HQ, DA

MICHAEL P. FITZGERALD

GPT, CE
adjutant
SUBJECT: Operational Report - Lessons Learned (588th Engineer Battalion) for the Quarterly Period Ending 31 April 1970 (RCS-CSFOR-65)

DA, HEADQUARTERS, 79TH ENGINEER GROUP, APO 96491 19 May 1970

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

This Operational Report - Lessons Learned has been reviewed and is considered to be an adequate summary of the battalion's operational experience during the report period.

FOR THE COMMANDER:

ROBERT V. SUCCS, XII
CPT, CE
Adjutant
2nd Ind

SC/SSII: Operational report - Lessons Learned of 530th Engineer Battalion (Combat) for period ending 30 April 1970, HQ 63801-39 (nc)

DAU: H-401, Box 90491, APO 96491 14 JUN 1970

TO: Commanding General, United States Army Vietnam, H-6: H-63-30-12, APO 50575


2. This headquarters concurs with the submitted report with the following comment: Section II, paragraph 1, page 7: Concur. However, in IV, there is also a shortage of 100 ILE personnel. USARV will assist 100 ILE personnel to engineer units if they are excess.

For the Commanding:

[Signature]

McBean

S/L: 13-0930
HQ, US
Assistant Adjutant

Copies Furnished:

CO, 79th Eng Co
CO, 530th Eng Co

13
AVHGC-DST (15 May 70) 3d Ind
SUBJECT: Operational Report-Lessons Learned (588th Engineer Battalion) for the Quarterly Period Ending 30 April 1970. (RCS CSFOR-65)

Headquarters, United States Army Vietnam, APO San Francisco 96375 28 JUN 1970

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

This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from Headquarters, 588th Engineer Battalion and concurs with comments of indorsing headquarters.

FOR THE COMMANDER:

Cy furn:
20th Engr Bde
588th Engr Bn
SUBJECT: Operational Report of HQ, 588th Engineer Battalion for Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 16 JUN 70

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D.D. CLINE
2LT, AGO
Asst A6
Inclosure #2 (Organization) to ORLL, HQ 588th Engineer Battalion
Dated 15 May 1970
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<td>CO, 588th Engineer Battalion</td>
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