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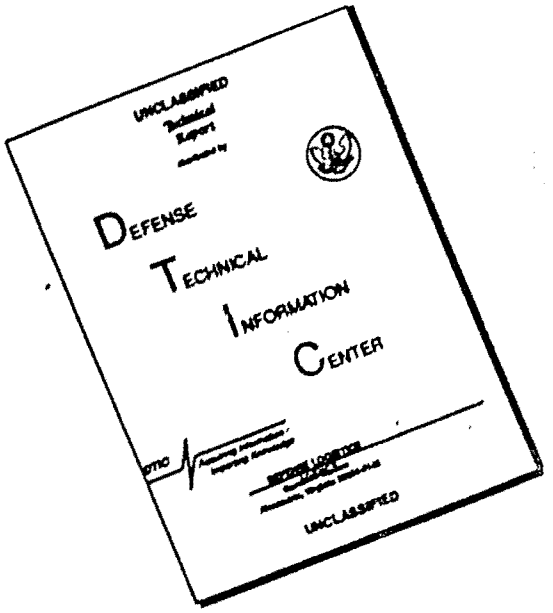

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DEPARTMENT OF THE ARMY
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IN REPLY REFER TO

AGAM-P (M) (17 Feb 69) FOR OT UT 684184 20 February 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 20th Engineer Battalion (Combat), Period Ending 31 October 1968

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Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 20TH ENGINEER BATTALION (COMBAT)
APO SAN FRANCISCO 96318

EGCB-OP 31 October 1968

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), of Quarterly Period 1 August 1968 thru 31 October 1968

Commanding Officer
937th Engineer Group (Combat)
APO 96318

Commanding General
18th Engineer Brigade
APO 96377

Commanding General
US Army Vietnam
ATTN: AVHGC (DST)
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US Army Pacific
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Section I, Operations: Significant Activities

1. At the beginning of the report period the Battalion Headquarters,. Headquarters Company, Company B, Company C (-) and Company D, were located at the 4th Infantry Division Base Camp, Camp Enari. Company A, and the 584th Engineer Company (LE) were located at Wooly Bully Quarry (ZA057315). The first platoon of company. C was located at Phu Tuc, Special Forces Camp (BQ504598).

A. Company B was engaged in the operation of a rock quarry at the base of Dragon Mountain (AR980368) and the operation of the Battalion Pre-Fab Yard and Batch Plant at Camp Enari. Company B was also engaged in the construction of a 4th Division Theater and Post Engineer Facility complex at Camp Enari. Company C (-) was engaged in the upgrading and maintenance of QL-14S, the construction of the 1/10th Cavalry Maintenance Ares at Camp Enari, and construction of 3 Artillery Gun Pads for The Artillery Fire Base at Oasis. Company D was engaged in a maintenance stand-down of equipment used in the road paving effort north of Kontum.

Inclosure

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B. Company A, and the 584th Engineer Company (LE) were located at Wooly Bully Quarry (ZA057315) with the mission of upgrading and paving of QL-19W. Company A, was paving from Dragon Mountain (AR774368) west to Edap Enang (ZA001299). The 584th had the mission of maintaining a parellel Tank Trail along QL-19W and providing the 20th Engineer Battalion with engineer equipment to augment the line companies. The quarry operations of the 584th involved drilling, blasting and crushing rock to produce 4" (-) and 3/4" (-) rock to support LOC upgrading, provide concrete aggregate, and to furnish rock for other customers.

C. The first platoon of Company C was located at the Phu Tuc Special Forces Camp, repairing the 3600' airstrip which had failed.

2. On 1 August 1968, Company A started the project of road maintenance of route 14B from intersection 14B and QL-19W north to route 509; then from the intersection at route 14B and route 509 to Plei Djereng Fire Base. The work done included placing and crowning of rock and laterite fill on roads, and repairing bridge 14B-1 to include repair of one span and putting new treadway on the entire bridge. Security was obtained from the 1/10th and 2/8th Cavalry. Completed 17 Sep 68.

3. On 1 August 1968, Company D. was engaged in a maintenance stand-down of equipment used in the road paving effort north of Kontum. After 7 days of controlled maintenance, work was resumed on assigned projects. On 5 August the Company was relieved of its responsibility to provide convoy security with the Bn "War Wagons". The mission was taken over by the 3rd plt of Co C. The "War Wagons" are: four 2½ ton trucks with M8A1 side panels and 3/8" armor sheets welded to the doors of the cab, with mounted .50 caliber machine guns; two 3/4 ton trucks with 3/8" armor siding and doors, with mounted M-60 machine guns. Company D then began construction of the aircraft maintenance hangar for the 7/17th Cavalry at Camp Enari. The mission included construction of a 80' X 140' standard wood modular building with a 12" reinforced concrete pad.

4. Company C completed construction of an Artillery Fire Base at Oasis on 6 August. The mission consisted of clearing debris, constructing a road net with drainage ditches and placing culverts where necessary. After this had been accomplished work was began on the construction of four 175mm gun pads, each of which took the form of a 10 sided, 6" reinforced concrete pad 40' in diameter, with 3 layers of 2" lumber placed on top to act as shock absorbers and to allow for replacement of the surface if damaged. The revetment around each location consisted of a 5' high berm of 4" (-) rock and laterite with artillery cannisters connected and placed at the base of the berm for drainage. Work proceeded at the same time on a 15' X 30' fire direction control bunker, a 15' X 30' command post bunker and a 10' X 25' executive officer's bunker, and eight ammunition storage bunkers. Each bunker was constructed upon a 6" reinforced concrete pad.

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5. Company D, was assigned the mission of repairing the shoulder slopes of the Ban Blech Airfield (AQ998598) on 13 August 1968. On 15 August, a squad from the 3rd platoon convoyed to Ban Blech with three 5 ton dump trucks, one D7-E, one bucket loader, two 5 ton tractors with trailers, and a maintenance truck. Work was begun the same day. The mission involved the building of 2 retaining walls constructed of 2" X 8" lumber secured by u-pickets, driven at 4' intervals. The eroded ditches were filled and the area re-shaped to its original contour. 120 sq meters of sod were placed. The project was completed on 26 Aug 68 and the squad returned to Camp Enari on the 27th.

6. Company B completed construction of the by-pass at bridge 19-38. The work involved building an AVLB Abutment bypass with 12' high walls to accomp-date the swollen waters of the monsoons. The abutments were constructed using 12" diameter poles with 36" diameter logs used as deadmen for headwalls and wing walls. The project was completed on 19 August 1968.

7. On 6 September 1Lt Casper led a 12 man ambush patrol in the vicinity of village 8 southeast of Camp Enari. The patrol was to set up an ambush on the night of the 6th and return to camp on the morning of the 7th. The patrol made negative contact with any enemy forces.

8. From 8 Sep to 15 Sep Company B was engaged in several activities with constant changes in job priorities which resulted in intermitent construction of assigned projects. On 5 September operation of the battalion Batch Plant was discontinued. From the beginning of this reporting period until 8 Sep, 283 cu yds of concrete were mixed. This unit completed the pouring of 20' X 50' concrete pads for the Supply/Orderly Room complex for HHC, B, and D Company's building. On 14 Sep a 40' X 100' concrete pad was poured for an Electrical/Communications Maintenance Building for 704th Maintenance Battalion at Camp Enari. At Camp Enari, on 15 September construction began on the rebuilding of a 40' X 130' snack bar for the 4th Division PX Concessionaire which was destroyed by fire. The project was completed on 10 October.

9. The First Platoon of Company C completed the repair of Special Forces Camp Airstrip at Phu Tuc on 12 September after which they began to convoy back to base camp on 13 September. One vehicle became mired in the mud at coordinates AR914084, preventing movement of other vehicles in the convoy. The platoon stayed at that location overnight until a recovery vehicle could be brought out to recover the stuck vehicle. The convoy closed into base camp at 1730 hours 15 September 1968.

10. On 14 September, Company C was given the emergency mission of repairing the road at the base of Dragon Mountain (QL-14S). Vehicular traffic there was practically at a stand still due to deep mud. All available 5 ton dump trucks from the 20th Engineer Battalion were utilized to haul rock and fill for the repair. Work was halted at approximately 2400 hours due to heavy rains and lack of suitable fill. Work resumed at 0600 hours 15 September

and at 1700 hours 15 September, the road was opened to all traffic. Work on the Battalion TOC by Company C was discontinued due to preparations for the move to Engineer Hill which was accomplished 18 September.

11. On 17 September a rock recon team from the 3rd and support platoons of the 584th Engineer Company (LE) departed for Kontum with the mission of locating a suitable rock source to support a crusher operation which would be in support of an asphalt plant operation. Security was provided by the 3d platoon of Company C with two War Wagons with mounted machine guns. After reconing several area, a suitable rock source was located and the team returned on 21 September.

12. On 18 September a convoy from the 584th Engineer Company (LE) departed for Ban Me Thuot transporting a rock crushing plant, which was to be laterally transferred to the 70th Engineer Battalion. Due to the rough road and the length of the trip, several items of equipment became damaged and had to be left. One conveyor had to be left at Camp Enari and two other conveyors were dropped at Phu Nhon. On the last day of the three-day convoy, and within ten miles of their destination, the convoy was attacked by enemy forces. The only result was that an enery rocket destroyed the primary crusher. Consequently, the only equipment to arrive at the 70th Engineer Battalion was a track drill, secondary crushing unit, and 100 kw generator. On 18 September the first platoon of Company A was given the mission of completing an aircraft control tower at Camp Holloway. The tower was a project of the 70th Engineer Battalion (Combat). Due to the operational move of the 70th to another area of responsibility, the tower was left approximately 70% complete when turned over to Company A. The cab remained to be completed. The placing of guard rails on roof of the cabin, plexiglass windows and 3 air conditioners was accomplished by the first platoon. Six inch reinforced concrete pads were poured to accomodate a generator shed (14' X 17') and FAA Communication Vans (24' X 30').

13. On 20 September the second platoon of Company C was assigned the mission of conducting a daily minesweep of QL-14N from coordinates ZA190640 to ZA197688 where they were to meet the minesweep team from Kontum. On 4 October Company C obtained and began using a vehicular mounted mine detector which proved effective in speeding up the operation considerably. Upon encountering any metalic object, the brakes on the vehicle automatically lock preventing any forward movement until the object has been investigated. On 20 September, a team from the 584th Engineer Company (LE), departed for An Khe to pick up a crusher plant. The plant included one primary, one secondary, and three conveyors. The team returned on 21 September with out incident and the equipment is presently on hand with the exception of one primary crucher which was sent to Ban Me Thuot to replace the one that was destroyed.

14. On 21 September Company A began "Project Yellow Bird" (ZA220465) southwest of Pleiku City, RVN. The project was acquired from the 70th Engineer Battalion.

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The project entails the construction of an under ground psychlogical operations radio station of 50,000 watts which will house vans containing radio equipment, with room to accomodate the crew. The project was 90% completed by the 70th Engineer Battalion when the structure began to fail. The building was buried under 6 feet of dirt, causing it to shift forward about 6" from vertical. The structure was uncovered and torn down to the concrete slab. Company A made the following changes in the design: Eliminate though w[illegible] walls; use 12" X 24" X 3/8" steel anchor plates tied to existing rebar of u-pickets; use 12" X 12" dimensional timber instead of 10" diameter p[illegible] for columns; use 12" X 12" X 5/8" steel bearing plates between the columns and caps; add 16" X 16" deadmen to roof vents to prevent sabotage; redesign excape hatch and allow for grenade sump in same; extend elecrtical conduit to generator shed; water proof entire building wirh overlayed T-17 membrane; delete use of 55 gallon drums in front of movable blast wall and use an earth berm; rebuild stairway leading from bunker to generator shed with concrete; and swale drainage to both sides of the bunker upon completion. At the end of this reporting period the project was 51% complete.

15. On 23 September the first platoon of Company C was assigned the mission of construction security fenceing and guard towers for the 815th Engineer Battalion's quarry site at OP-10 (ZA220465). The project consisted of the placement of approximately 6,000 meters of triple concertina fencing, 2,500 meters of cyclone fence, and the construction and placement of ten guard towers around the perimeter.

16. Company A completed the mission of construction of an AVLB abutment of pile construction at Bridge QL-19-37 on 23 September with the use of supporting equipment of HHC, 20th Engineer Battalion and a pile driver assembly from the 815th Engineer Battalion (Const). The project consisted of driving 12" to 14" diameter poles, 25' to 30' in length to a depth of 20' to 25' in front of the existing abutments. One side required a wing wall which was also of pile construction. Along with the bridges, Bridge QL-19-37 and Bridge QL-19-38. Sway braces were tightened on Bridge QL-19-37, a double double bailey, and treadway was replaced on both bridges. Bridge QL-19-38 is an old reinforced concrete T-Beam bridge of french vintage.

17. On 25 September the 3rd platoon of Company A was given the 283rd Dust Off Project. The scope of the work included the construction of two 19 foot high guard towers, a 50 man protection bunker, 10 each 3 man fighting bunkers, and five 30' X 50' aircraft revetments which were to be constructed to protect VH-1H helicopters. To expedite construction, a self propelled earth auger was used to bore 6' holes to accomodate the 12" diameter, 25' long poles. Earthmoving equipment was used to build a gently sloping ramp at each aircraft revetment to ease the towing disabled aircraft from the revetments to the maintenance shop. At the end of this reporting period the project was 33% complete. On 11 Oct Company C completed the construction of 3 each 155mm gun pads for the 5/16th Arty at Camp Enari. The project was accomplished with self-help of personnel of the 5/16th Arty. Company C proveded super-

visory personnel and technical assistance. HHC provided surveyors and earthmoving equipment with operators. The mission included the pouring of 3 each irregular shaped, 6" reinforced concrete pads with a u-shaped opening in the front which was filled with 20" of 4" (-) crushed rock to provide a gun rest for the 155mm guns. On the rear portion of each pad was a projected bunker, a powder bunker, and a fuse bunker. At the rear of the guns pads a 5' X 9' concrete pad was poured to accomodate a fire cracker bunker.

18. On 13 October, the second platoon of Company C began clearing 330 acres of regrowth and new growth along QL-14N from ZA1E0640 to ZA194673. This was accomplished by using dozers and blasting large trees with dynamite. The project was completed on 30 October.

19. On 20 October, the first and third platoons of Company B were committed to repair of Bridge QL-19-30 (BR145535). Their mission was to prevent its wash out by flood waters. This was an alert mission which was accomplished on the same day.

20. BOD)Beneficial Occuppancy Date) was 20 October for the Aircraft Control Tower at Camp Holloway which is being completed by Company A. The tower was approximately 70% complete when the project was transferred to Co B, from the 70th Engineer Battalion. The remaining work consisted of: Completing the cab; placing guard rails, plexiglass and air conditioners; and pouring of concrete pads to accomodate a generator shed and FAA communication van. At the end of this reporting period the tower was 99.8% complete and is being used to control both Camp Holloway Airfield and Christmas Tree Heliport.

21. Work was discontinued on the six 155mm gun pads for the 3/6th Artillery at Artillery Hill on 23 Oct. The project was initiated under a self-help program with Company C providing supervisory personnel, necessary materials, and equipment, and techinical assistance. The project was discontinued because of lack of personnel from the 3/6th Artillery to accomplish the required work. The project consisted of evacuation and leveling of the sites and placing 4" (-) gravel around timber track rests. The track rest were pre-fabricated of laminated 2" lumber to dimensions of 8" X 16" X 24'.

22. On 24 October the 584th Engineer Company (LE) relocated from Wooly Bully Quarry (ZA057315) to Kontum (ZA765813). The relocation was accomplished in a series of moves beginning 22 Sep. At the end of this report period the unit was engaged in the process of setting up the new quarry and crusher site. The 1st platoon has been committed to stripping and backfilling the motor pool area. The second platoon has been utilized to develop access roads into the camp and quarry area. The 3rd platoon was given the mission of constructing the main headwall, and the support platoon has been utilized to remove overburden and to open the quarry.

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23. On 26 October the 1ts squad of the 2nd platoon, of Company A returned from Plei Djereng Fire Base after completing the mission of improving the existing ammunition bunkers, and constructiong two new under ground powder and shell magazines. The project was started on 12 August and scoduled to be completed in two weeks. However, due to constant heavy rains, the project took 2½ months to complete. The site preparation called for the excavation of a large trench in which two magazines were to be placed with an access road to facilitate unloading of supply vehicles. As a result of heavy rains and soil disturbed by excavation the work site was rendered a large mud hole. Prior to the rains, one bunker was completed but became a sagging "salt Box after heavy rains. The bearing capacity of the soil deteriorated overnight. The problem caused by water in the trench was solved by the construction of a "French Drain" of 18' culvert and 4" (-) quarried basalt rock. Materials were convoyed in when possible and also airlifted by helicopeter.

24. At the end of this reporting period the units of this battalion were performing their mission at the following locations:

A. Battalion Headquarters was located at Engineer Hill after having moved from Camp Enari on 22 September.

B. Headquarters Company was located at Engineer Hill continuing to support all units and staff sections within the battalion. Headquarters Company completed the relocation from Camp Enari to Engineer Hill on 22 September with no significant problems encountered.

C. Company A was at Engineer Hill working on Project Yellow Bird (Radio Bunker), concrete pads at Wooly Bully Quarry #2, and an aircraft control tower at Camp Holloway.

D. Company B, the only company to remain at Camp Enari when the remainder of the battalion relocated to Engineer Hill, was engaged in: Preparations for construction of the Camp Enari Theater/Gymnasium, a project which had been started and then suspended during the last report period due to funding problems; The construction of a Post Engineer Facility Complex which consisted of a 40' X 100' Repair and Utilities shop with standard 8 foot ceiling, a 20' X 80' Entomology Building, a 40' X 100' Maintenance Building, and a 40' X 100' Warehouse. Additionally, Company B had the mission of operating the battalion Pre-Fab Yard at Camp Enari, which utilized indigenous personnel to produce 11 each 20' X 80' troops billets, 3 each 16' X 32' WABTOC'S, 27 doors, 12 each 4 man latrines, 160 trusses, and 70 box beams during this period. B Co is also assigned the mission of maintaining the DBST (Double Bituminous Surface Treatement) on QL-19W.

E. Company C was continuing the assigned missions of construction of a defensive perimeter at OP-10, providing daily convoy security for the 585th Engineer Company's sand haul from Kontum to Pleiku, and conducting a daily minesweep along QL-14N from ZA190640 to ZA197688.

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F. Company D was continuing work on the construction of the 144' X 80' maintenance hangar for the 7/17th Cavalry, a WABTOC for BNO to be used as a generator shed, and the 1/10th Cavalry Maintenance Hangar Apron.

G. The 584th Engineer Company (LE) was involved in the setting up of a new quarry and crusher site in Kontum.

25. Inclosure I is an organizational chart of the battalion during the report period.

26. During the reporting period the battalion was engaged in 5 battalion days of training, 3 battalion days of troop movements, and 84 battalion days of operation.

27. Personnel:

A. During the reporting period, this unit was operating at approximately 80% strength, and for the first two months of the period, replacements were at a minimum. Therefore, on many occasions replacement personnel were being cross trained into a more critical MOS, utilizing previous civilian experience as a guide line as much as possible. Each individual involved was made aware of the situation and afforded the opportunity to express his re-training desires. The most critical shortages were in the NCO grades. It was found that many personnel recommended for promotion in a specialist grade could possibly be considered for promotion in an NCO grade. This was brought to the attention of all company commanders for future action. Several battalion regulations were rewritten to implement most recent changes in policies by DA and other higher headquarters.

B. During this reporting period, personnel of this battalion have been officially recognized by receipt of 4 Purple Hearts, 29 Army Commendation Medals for Meritorious Service, 5 Army Commendation Medals with "V" Device, 2 Bronze Star Medals with "V" Device, 27 Bronze Star Medals for Meritorious Service, 2 Silver Stars and 1 Legion of Merit.

C. The battalion was without a Chaplain from 12 July until the arrival of the new Chaplain on 8 August. During this time the Chaplain's Assistant coordinated with the 4th Infantry Division Chaplain for coverage and religious services in the battalion area. Until the new Battalion Chapel was opened on 20 October, Chapel Services were conducted out-of-doors in the battalion staging area. This was done from 22 September to 20 October because of the lack of Chapel facilities in the New Battalion Area at Engineer Hill. The Chaplain gave nine character guidance instruction classes to troops in the command during this quarter. The subjects covered were "Group Living" and "Prejudice". Significant progress has been made during the quarter in enlisting the support of Battalion Officers and NCO's for the religious program.

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28. Intelligence and Civil Affairs:

A. During this reporting period the battalion intelligence section continued to maintain contact with the various intelligence collecting agencies in the battalions area of operations. Because of the move from Camp Enari to Engineer Hill, the S-2 Section has lost immediate access to the 4th Infantry Divisions Intelligence Network, which is the battalion's chief source of timely information. A trip is made daily to the DTOC (Division Tactical Operations Center) to acquire a summary for the previous 24 hour period. The move has caused the section to use more collecting agencies for obtaining intelligence data. Generally, enemy activity has been light to moderate during the period.

B. The section has continued the mine study during the reporting period. Mining incidents are at a low level on Routes 19W, and 19E, but mining picked up considerably on Route 509. The mining on QL-14N continued to be moderate and scattered between Pleiku and Kontum. The Soviet made TM-41 anti-tank mine proved to be the mine most often used by the enemy. There seems to be no set patters for enemy mining and resupply procedures.

C. The "Buy a Mine Program" initiated in January experienced a severe drop during this reporting period. There were no munitions turned in during the entire reporting period. This decline could be caused by a lack of informed indigenous personnel. When informing local nationals, the "Face to Face" method, with an interpreter has proven to be the most effective method in the past and should be used more often in the future. To date 5,600 piasters have been paid to Local Nationals.

D. The Civic Action Team has had many problems during the past reporting period. The drastic change of personnel and the relocation of the battalion has caused the team to make new acquaintance and gain the confidence of their newly acquired village. It has been learned that the new village is ambitious and works on projects with expectations of improving their village and way of life. So far, the villagers have not supplied this battalion with any intelligence information.

E. The base camp defenses are in the process of being upgraded. Several faults in the construction of the bunker line have been noticed. Machine gun bunkers will be rebuilt so that they allow grazing fire from inside the bunkers. The wire between light posts in front of bunkers will be buried so that small arms fires will not cut it, and M-79 grenade launcher fire will not

hit the wire, causing the round to explode prematurely. The battalion will produce an OPORD (Operations Order) for its' assigned sector to allow the Battalion Commander operational control during any type of attack.

F. The S-2 Section plans to widen its scope of responsibility in the furture.

29. Logistics:

A. Resupply of units in forward areas:

(1) Resupply of the 1st platoon of Company C, located at Phu Tuc continued to be a problem from the beginning of the reporting period until their return to base camp on 12 September. Contributing factors effecting resupply by convoy were, lack of convoy security, low classification of several bridges along LTL-7B, and difficulty in by-passing these bridges because of seasonal rains. Air resupply was also difficult because of weather conditions and aircraft were not always readily available when needed. Resupply was accomplished by air whenever possible and by convoy if air resupply was not feasible. Portable water supply was another problem encountered by the 1st platoon of Company C. This was solved by sending a 600 gallon per hour purification set and two water point specialists to Phu Tuc. No other major problems were encountered in resupply of units located at Camp Enari or the Wooly Bully Quarry. However, a problem has arisen with the relocation of the 584th Engineer Company (LE) from Wooly Bully Quarry to Wooly Bully Quarry #2 at Kontum. Presently this company has to draw diesel and mogas from Company C of the 299th Engineer Battalion in Kontum, utilizing 500 gallon fuel pods. Current daily usage is approximately 2,000 gallons of diesel and 500 gallons of mogas. It is anticipated that once the quarry becomes operation all fuel consumptions will jump to 5,000 gallons of diesel and 1,000 gallons of mogas daily. Efforts have been initiated to obtain a 10,000 gallon bladder for the 584th Engineer Company (LE) and to begin daily POL runs from Pleiku to their location at Kontum.

B. Supplies and Equipment:

(1) In the field of general supplies and TOE equipment, critical shortages continue to exist in the field of generators, AM Radios and maintenance support equipment. Typical of this situation is the fact that of a total of 56 generators authorized the battalion, 20 are currently on hand. All of these items are on requisition, some for as long as 8 months. Construction that remains in short supply are electrical supplies, particularly incandesent fixtures, duplex receptaces, and toggle switches. Roofing tin also remained in short supply. During this quarter, construction material requisitions, with the exception of cement, again surpassed previous quarters. Requisitions were submitted for 39,512 pounds of nails, 11,641 bags of cement, 1,154,950 board feet of lumber and 13,458 sheets of galvanized corrugated roofing.

(2) A problem exists in the fact that the S-4 Section is not authorized any construction material yard personnel under TOE 5-35E. Yet the magnitude of battalion projects requires that we maintain a yard foreman and yard personnel to facilitate the receipt, proper storage and issue of construction material.

C. During this reporting period the battalion water point teams supplied the Wooly Bully Quarry, BlackHawk Fire Base, and the new Wooly Bully Quarry at Kontum. Combined, these units have produced 156,950 gallons of water.

D. During the period 22 August to 24 September, the S-4 Section operated a Battalion Ration Breakdown Point. Prior to 22 August the companies located at Camp Enari had been drawing rations from the 88th S&S Battalion located west of Pleiku. This resulted in the companies having to make long hauls daily to pick up perishables and other rations with a loss of time and manpower. Arrangements were made with the S-4 Section to draw rations directly from the 4th Infantry Division located at Camp Enari. This effectively eliminated the loss of time and man power to the line companies. The Battalion Ration break-down Point was discontinued upon the completion of the battalion move to Engineer Hill because of the close proximity to the 88th S&S Battalion and the desire of the companies to return to individual company pick-up from the Class I pick-up point.

E. From 29 September to 2 October, the General Supplies and CIF portion of the S-4 Section was involved in moving from Camp Enari to Engineer Hill with only a minimum stoppage of issue of supplies and organizational clothing and equipment.

F. The construction material yard remained at Camp Enari for several reasons. First, the magnitude of construction material makes the transfer a difficult task. Also considered was the limited space at Engineer Hill and the fact that much of the material on hand is scheduled for base camp construction at Camp Enari.

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

1. Personnel: None

2. Operations:

a. ITEM: Bridge Bypasses

OBSERVATION: The construction of bridge bypasses is a logical step in plan to insure the uninterrupted flow of supplies from one area to another. In the case of sites which are prepared for the possible insertion of an AVLB, much attention is given to the construction of strong abutments. However, it

has been noted that approach roads on either side of the bypass abutments receive inadequate emphasis.

EVALUATION: Experience has shown that bridge bypass abutments with inadequate approach roads should be fully upgraded, adequately drained and sufficiently wide to maintain a continuous flow of traffic during the most adverse weather. Bypass approach roads should be built with the same lifespan intended for the bypass abutments.

RECOMMENDATIONS: None.

b. ITEM: Equipment Conservation in Quarry Operations

OBSERVATION: During the operation of the quarry a bucket loader was used for loading the 5-ton dump trucks. Due to the sharp contour of the rock extracted, the wear on equipment tires was excessive.

EVALUATION: One solution of the problem would be to obtain commercially made chainlink protective covers for the tires. Another would be to use tracked scoop loaders. A third solution would be to build a chinaman.

RECOMMENDATIONS: Consideration should be given to changing the TO&E to include tracked scoop loader or protective covers for the tires. If possible and practical, a chinaman should be built.

c. ITEM: Concrete Mixing Facility

OBSERVATION: Several job directives were received with high priorities within the same period of time involving concrete pouring. Efficient utilization of man and equipment hours was a necessity because the unit was understrength and completion dates were given an ASAP.

EVALUATION: A trailer mounted set-up permits more actual manpower to be expended on the construction site thus reducing the time normally spent to move concrete mixer and support items to new job sites.

RECOMMENDATION: To have consolidated concrete mixing facility with mobility and flexibility, it was determined to mount mixer and a water storage tank on a 26/ton trailer to facilitate moving and site preparation. With demands from two job sites during the same time, the concrete mixing facility supported several job sites and still maintained control measures to achieve effective results.

d. ITEM: Glass Indicator Tube

OBSERVATION: During normal operations the tube has a tendency to

vibrate loose and is susceptible to breakage.

EVALUATION: The tube is used to show the level and condition of water The concrete mixer can not operate properly without observing water. This is not readily available when breakage occurs.

RECOMMENDATION: A polyethlene plastic tube, the same diameter as the glass tube should be used to eliminate breakage susceptibility.

e. ITEM: Screeds for Concrete Pads

OBSERVATION: When using a wood screed the lumber would wear away in the area it had contact with the forms. This constant wearing caused the center of the template to gradually drop leaving the center of the pad lower than the edges.

EVALUATION: To correct this situation it was determined to alter the screed by utilizing a more resistant material. The most and readily available material was steel.

RECOMMENDATION: In order to improve the level of the pad a screed must be used which produces a level, smooth finish. Due to the lack of wear on steel it is recommended to design and construct screeds from steel.

f. ITEM: Bending Tin for Roof Ridges

OBSERVATION: It is necessary when placing the final row of tin on a roof of a building to bend the corrugated tin.

EVALUATION: A tin bending machine was not always available and it became necessary to improvise. It was necessary to make a tin bender out of materials on hand and have something that worked fast and was easy to build.

RECOMMENDATION: A drawing of the machine made entirely of wood and nails is enclosed (enclosure 2). This maching was effective and easy to construct.

g. ITEM: Gravel and Sand Proportion When Pouring Pads

OBSERVATION: While construction the battalion orderly rooms on Camp Enari it was necessary to form the pad for concrete four (4) feet above the normal ground level. Since it was monsoon season, as soon as the fill was brought to the job site it turned to mud. This mud prevented the pad from being compacted and also when rolling the pad the mud would stick to the roller thus leaving ruts in the pad.

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EVALUATION: It was realized that after trying to keep the pad covered with scrap canvas, it was not possible to keep the fill dry and workable. It was then decided a one inch layer of sand every eight inches would enable the roller to function so that the pad could be compacted.

RECOMMENDATION: It is recommended that concrete pads be poured prior to the monsoon season and during monsoon season the units go vertical on buildings. If this is not possible, then a one inch layer of sand should be placed on the new fill just prior to rolling.

h. ITEM: Use of Pene-Prime as a surface material on airstrip.

OBSERVATION: Peneprime, when used on an airstrip as the surface material did not stabilize the surface enough to take the impact of heavy aircraft.

EVALUATION: Spraying peneprime on the strip is ineffective. The peneprime forms a crust and cracks under heavy weight. Rain causes it to become spongy.

RECOMMENDATIONS: When using peneprime on an airstrip, it should be used as a road mix.

i. ITEM: Battalion TOC Construction

OBSERVATION: The utility pools used for the roof were irregular in size resulting in use of decking.

EVALUATION: The utility pools had to be notched and cut to allow for irregularity in size. A decking of 2" x 12" material had to be placed on top to eliminate gaps in the roof.

RECOMMENDATIONS: The use of 12" x 12" material would eliminate the gaps and excessive cutting and notching of the utility poles. The use of manufactured material would eliminate the need for an additional decking.

j. ITEM: Erection of Cyclone Fence

OBSERVATION: Cyclone fence is too heavy and bulky for individuals to stretch using a single vehicle.

EVALUATION: Individuals cannot stretch cyclone fencing. A single vehicle puts too much tension on a specific area thus causing the fabricated stretcher to break.

RECOMMENDATION: One vehicle should have a snatch block attached. A second vehicle can pull and stretch the fencing, eliminating the great tension on the fencing.

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k. ITEM: Using D7E Dozers for Land Clearing Operations.

OBSERVATION: The D7E Dozer without the protective cab cannot be utilized in the downing of large trees.

EVALUATION: The D7E Dozers without the protective cab are not able to push down and clear the large trees in the area being cleared.

RECOMMENDATION: The larger trees in the area have to be eliminated by the use of demolition to eliminate the danger of the tree falling back over the dozer and injuring the operator.

l. ITEM: Mine Sweep Operation

OBSERVATION: Mine Sweep Teams become lax and bored after a few days.

EVALUATION: After a few days, the same personnel on the mine sweep team become careless about checking suspected mines.

RECOMMENDATIONS: The mine sweep team should be rotated regularly with other personnel in the unit.

m. ITEM: Compaction of parking areas between revetments

OBSERVATION: Uncompacted fill became unuseable after being saturated by sudden rains.

EVALUATION: While preparing parking areas for helicopters during the monsoon season, loads of fill had to be removed when saturated by rain. It was necessary to compact fill in small lifts immediately after placement.

RECOMMENDATION: Compaction equipment should be immediately available to units compacting fill during the monsoon season.

n. ITEM: Seeding of terraced airfield shoulders.

OBSERVATION: The original plan for the Ban Blech airfield called for the seeding of the terraces. Continued rainfall washed away most of the seed before it could germinate.

EVALUATION: The terraces were capped with sandbags, filled and placed by CIDG personnel. The placing of snadbags progressed upward from the bottom of the terrace, creating the effect of waterproof shingles. The sandbags were then covered by a heavy coat of peneprime.

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RECOMMENDATION: Erosion terraces can be constructed to withstand heavy rain if capped with peneprime coated sandbags.

o. ITEM: Placement of U-type pickets

OBSERVATION: During the construction of the terraces at the Ban Blech airfield, a front loader was used to place 8' U-pickets in the airfield shoulder.

EVALUATION: The pickets were pushed into the ground by the weight of the bucket as it was slowly lowered by the operator. This procedure prevented breaking the top ends of the pickets with the sledge hammer and greatly increased the rate at which pickets could be implaced.

RECOMMENDATION: Front loaders should be used whenever available to quickly emplace U-pickets.

p. ITEM: Prefabricated wall panels.

OBSERVATION: 24 prefabricated wall panels were built for the first floor of a 80' x 144' maintenance facility. Once the foundation was poured, these panels were erected at the work site.

EVALUATION: It was initially felt that already built panels would be faster and easier to use. The panels did not fit exactly and had to be fitted to the poured concrete. This resulted in additional time spent. All the second floor panels were built in place which proved to be faster than using prefabricated panels.

RECOMMENDATION: The feasibility of using prefabricated panels should be studied by the project officer on projects requiring large amounts of vertical construction.

q. ITEM: Screeting concrete pads with two adjacent walls closed

OBSERVATION: During the construction of the hangar floor, two 20' x 20' pads were enclosed by two adjacent walls. Screeting the pads was impossible by the usual method.

EVALUATION: A form was placed parallel to and 3 feet from one of the adjacent walls. Personnel were able to screet a large pad using this off-set form. After the pad cured for one day, the form was removed and the unscreeted area filled with concrete and formed with hand trowels.

RECOMMENDATION: Off-set forms should be used when screeting pads with two adjacent sides closed.

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r. ITEM: Preparation of foundations in the monsoon season

OBSERVATION: It was necessary to prepare a large concrete pad (144' x 80') during the monsoon season. It was decided to pour an initial L-shaped pad which would support the first and second story wall frames. The survey of the site was made to ensure that no fill would be needed.

EVALUATION: When using areas of cut for the foundation, the usual problems encountered with emplacing fill during the monsoon season were avoided. The final pads whcih required fill were poured only after adequate roofing had been built. This step saved a great amount of time while constructing the vertical phase during the monsoons.

RECOMMENDATION: Site survey should be designed to use maximum amount of cut when preparing for concrete pours in the monsoon season.

s. ITEM: Transporting Conveyors

OBSERVATION: When pulling a conveyor behind another piece of equipment, over rough roads for a long distance, failure is likely to occur in the frame structure over the wheel base.

EVALUATION: Conveyors are not designed to be pulled long distances over rough roads. The excessive vibration will eventually cause the relatively weak frame to fail. When conveyors are transported, they must be protected from excessive vibration.

RECOMMENDATIONS: If a conveyor is loaded on a 25-ton trailer with the wheels just behind the goosoneck, front end extended over the tractor cab, and rear braced with a heavy timber extending off the rear of the trailer, no problems or failures will occur.

t. ITEM: Building Bunker Billets

OBSERVATION: The tactical situation sometimes makes it desirable to build underground bunkers for the troops to live in.

EVALUATION: The timber trestle bent lends itself well to underground bunker construction.

RECOMMENDATION: Calculate the bearing load caused by sandbags or fill used on top of the bunker and then design a timber trestle bent to support their load. Using PSP or a suitable substitute, cover, the sides and top and then back fill.

Section III Survival, Escape and Evasion:

1. Techniques: None

31 October 1968

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), of Quarterly Period 1 August 1968 thru 31 October 1968

JOHN F. WALL
LTC, CE
Commanding

2 Incl
1-Tin Bender
1-Organizational Chart

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EGC-CO (31 Oct 68) 1st Ind
SUBJECT: Operational Report on Lessons Learned for the Period 1 August to 31 October 1968

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 25 November 1968

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

1. The subject report, submitted by the 20th Engineer Battalion (Combat), has been reviewed and is considered a well compiled report of organizational activities.

2. I concur with the observation and recommendations of the Battalion Commander, with the following additional comment:

Page 10, item B (1): The critical shortage of generators mentioned is widespread through out the 937th Engineer Group. The shortage of electrical supplies has been eased; electrical supplies are presently being received in large quantities. AM radios are being received and distributed to the Battalions.

Jesse L. Fishback

JESSE L. FISHBACK
Colonel, CE
Commanding

AVBC-CS (31 Oct 68) 2nd Ind
SUBJECT: Operational Report of the 20th Engineer Battalion (Combat) for the Period Ending 31 October 1968, RCS CSFOR - 65 (R1)

DA, Headquarters, 18th Engineer Brigade, APO 96377 19 DEC

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

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 20th Engineer Battalion (Combat) as indorsed by the 937th Engineer Group. The report is considered to be an excellent account of the Battalion's activities for the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders, with the following comment added: Reference: Section II paragraph 2(b). Rock scoop loaders specifically designed for quarry work have been purchased for this brigade in a recent MCA equipment buy.

Douglas K Blue

DOUGLAS K. BLUE
Colonel, CE
Acting Commander

AVHGC-DST (31 October 1968) 3d Ind
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65), of Quarterly Period 1 August 1968 thru 31 October 1968

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 1 JAN 1969

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 31 October 1968 from Headquarters, 20th Engineer Battalion (Combat).

2. Reference item concerning screeds for concrete pads, page 13, paragraph 2e. Nonconcur. A more practical solution to the screed problem would be that of reinforcing a timber screed with sheet aluminum. The aluminum can be easily bent around the timber and results in a lighter screed than one constructed of steel.

FOR THE COMMANDER:

A.R. GUENTHER
CPT. AGC
ASST. ADJUTANT GENERAL

GPOP-DT (31 Oct 68) 4th Ind (U)
SUBJECT: Operational Report of HQ, 20th Engr Bn (Cbt) for Period Ending 31 October 1968, RCS CSFOR-65 (R1)

HQ, US Army, Pacific, APO San Francisco 96558 14 JAN 1969

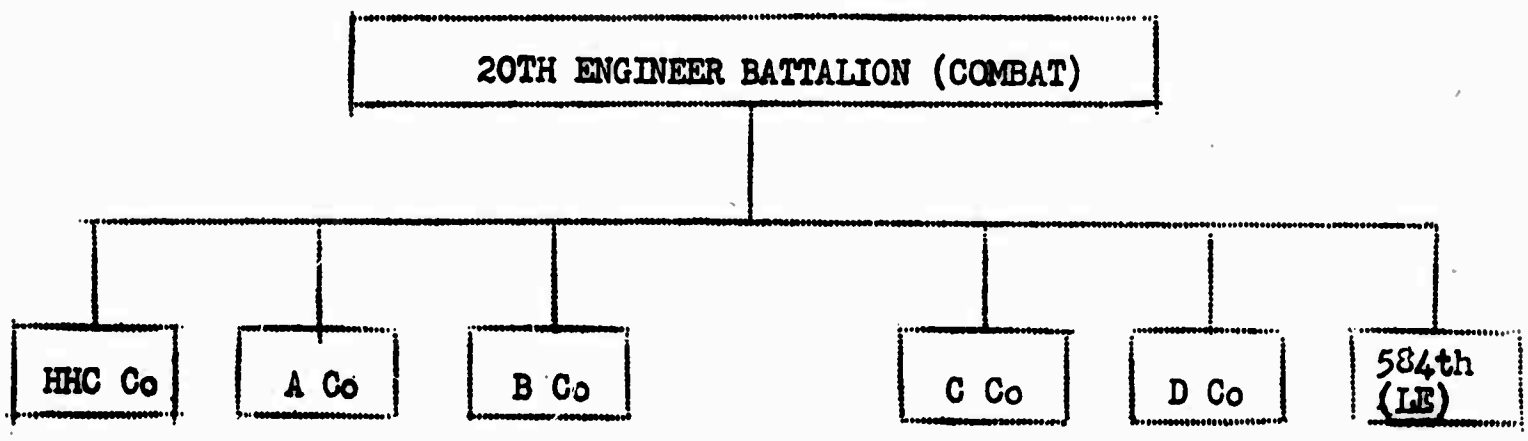
TO: Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

C. L. SHORTT
CPT, AGC
Asst AG

ORGANIZATIONAL CHART 20TH ENGINEER BATTALION (COMBAT)



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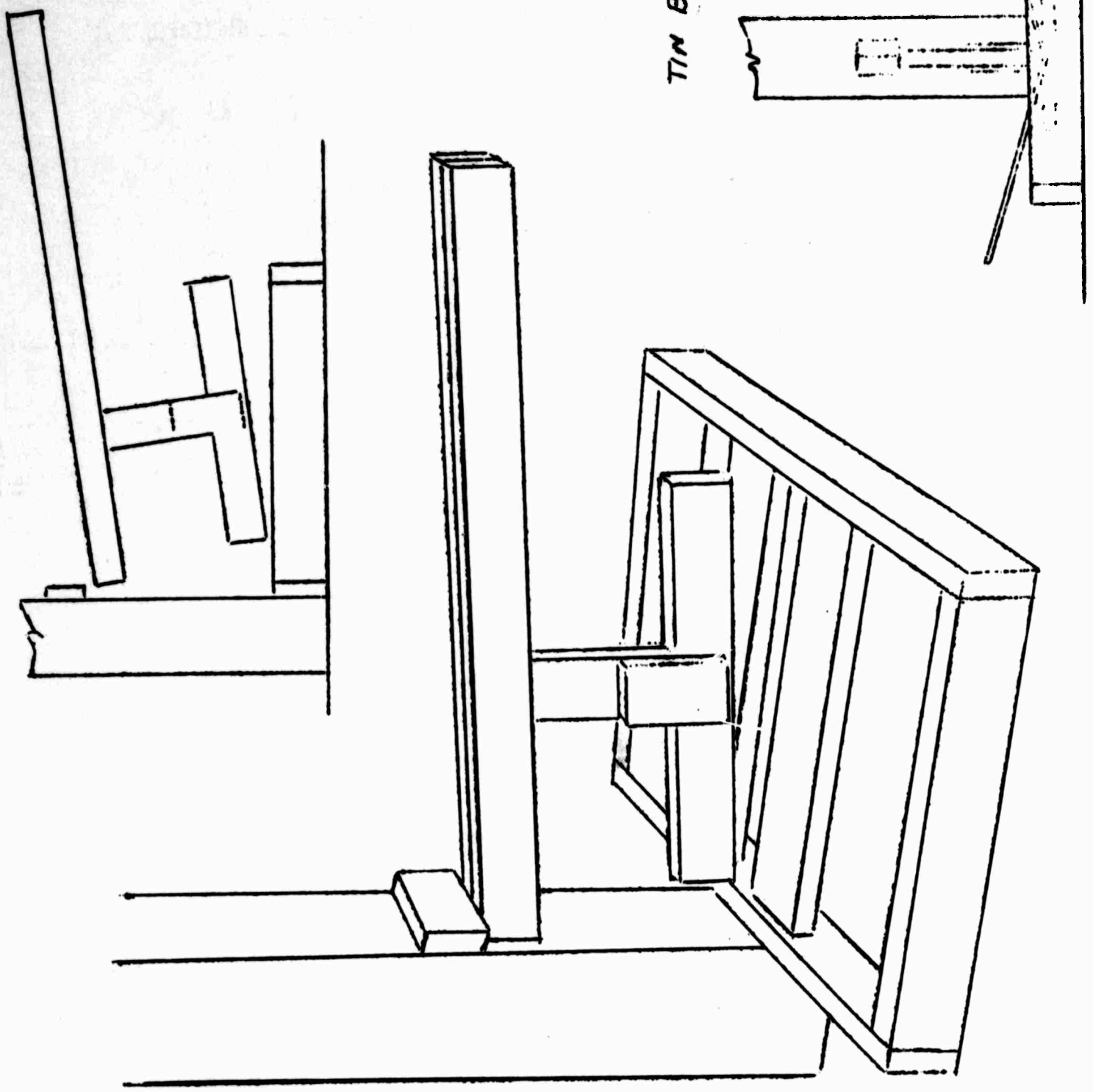

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CO, 20th Engineer Battalion (Combat)

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