~~CONFIDENTIAL~~

DEPARTMENT OF THE ARMY
HEADQUARTERS
39TH ENGINEER BATTALION (COMBAT)
APO San Francisco 96325

EGD-BA-3

8 August 1968

SUBJECT: Operational Report of 39th Engineer Battalion (Combat) for Period Ending 31 July 1968, RCS CSFOR-65 (RI)

THRU: Commanding Officer
45th Engineer Group
ATTN: S-3
APO 96337

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: GPOP-DT
APO 96558

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

OPS-05-009

Classified by EGD — BA-3
SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652 AUTOMATICALLY DOWNGRADED AT TWO YEAR INTERVALS DECLASSIFIED ON DECEMBER 31 1974

~~DOWNGRADED AT 3 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS~~
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1. Section 1. Operations: Significant Activities.

a. GENERAL:

(U) (1) Command. The 39th Engineer Battalion (Cbt) remained under the command of Commanding Officer, 45th Engineer Group. The battalion remained in support of the Americal Division throughout the reporting period, with Hq and Hq Co at the same location within the CHU LAI Base perimeter (BT 533037). Incumbent commanders at the close of the reporting period are as follows:

CO, 39th Engineer Battalion	-	LTC Tenho R. Hukkala
CO, Co A, 39th Engr Bn	-	CPT Richard S. Waldrop
CO, Co B, 39th Engr Bn	-	CPT Torrence M. Wilson
CO, Co C, 39th Engr Bn	-	CPT Phillips H. Izard
CO, Co D, 39th Engr Bn	-	CPT David R. Tanner
CO, HHC, 39th Engr Bn (Cbt)	-	1LT Coleman C. Knott

(C) (2) Major Activities. In addition to LOC minesweeping and maintenance missions on Rte QL-1, major activities during the reporting period included: the opening of Rte 533 from TAM KY to TIEN PHUOC in support of Operation Burlington Trail; the upgrading of Rte QL-1 from BS 695635 to BS 733543 to MACV standards; the lengthening of drainage structures and upgrading of bridges on QL-1 from BS 601920 to BS 695635; construction of CH-47 revetments and hardstand areas at CHU LAI; and the construction of 1200 lineal feet of fixed wing aircraft revetments. Both of the revetment projects were at the CHU LAI Airfield.

(a) The opening of Rte 533 from TAM KY (BT 306204) to TIEN PHUOC (BT 118139) in support of Operation Burlington Trail continued during this reporting period. The purpose of opening the road is to allow access for civilian traffic into the TIEN PHUOC valley and to contribute to the propaganda campaign of the RVN since the road has not been open since 1962. Security has been provided by the 2d ARVN Division and elements of the 198th Brigade, Americal Division. The 39th Engr Bn has been supporting the operation by repairing and upgrading the road to Class 50, single lane, limited all-weather standard, to include replacing inadequate existing drainage structures and constructing additional structures as required. Company D completed Phase I of the upgrading of Rte 533 from TAM KY (BT 306204) to BT 221170 on 14 July 1968. Company A resumed upgrading operations on 25 June 1968 by continuing west on Phase II. By the end of the reporting period upgrading had been completed to BT 178138.

(b) Company C continued to lengthen culverts and widen bridges on QL-1 from BS 695635 to BS 653711 to accommodate a two-lane road to be constructed to MACV Standards. Company C continued widening QL-1 to MACV standards between BS 737530 and BS 733543.

(c) Company B continued to lengthen culverts and widen bridges on QL-1 from BS 642747 to BS 601922 to accommodate a two-lane road to be constructed to MACV standards.

(d) Company D completed construction of eighteen CH-47 helicopter protective revetments and adjacent hardstand parking areas at CHU LAI. Each revetment was a sand filled plywood wall 60 feet long. The project was originally started by Company A on 12 May 1968. On 28 June 1968 Company D started construction of 1,200 feet of fixed wing aircraft protective revetment wall of the same basic design.

(6) (3) Activities of Headquarters and Headquarters Company:

During the reporting period the Heavy Equipment Section and the Construction Section had the mission to provide support to the line companies and to accomplish engineer tasks in CHU LAI assigned by the Americal Division. Typical of the tasks completed for the Americal Division were:

(a) Relocation and rehabilitation of 12 WABTOC buildings for the 23d Admin Company.

(b) Repair and penepriming a laterite helipad for F Troop, 8th Cav.

(c) Clearing perimeter and hauling fill for a road for the 8th Support Bn.

(d) Emergency road maintenance of Rte QL-1 from CHU LAI (BT 525038) to BINH SON (BS 597927)

(C)(4) Activities of Company A: At the beginning of the reporting period, Company A was located at the Battalion CP at CHU LAI (BT 533037) and remained there until 14 June 1968 when the unit moved to LZ YOUNG (BT 189159). While at CHU LAI, the mission of the company was to provide engineer support in the headquarters area of the Americal Division. Included in the mission was the requirment to conduct a daily minesweep iron CHU LAI (BT 5382027) to BINH SON (BS 596927), a distance of 11.4 km. The mission of the company at LZ YOUNG was to upgrade Rte 533 from BT 230172 to TIEN PHUOC (BT 118139) to a Class 50, limited all-weather, single land read. The primary mission in the Americal Division headquarters area was the construction of 18 common wall, minimum protection, revetments and associated hardstand and maintenance areas for CH-47 aircraft at the east runway on the CHU LAI Airfield. The mission was assigned on 1 May 1968. The basic design of the revetment wall consisted of a 60 foot double plywood wall braced with 2x4 inch studs and 4x4 inch walers. Each wall was to be filled with sand and capped with sandbags to prevent erosion of the fill. By 9 May 1968, prefabrication of all the wall frames had been completed. The original estimate indicated a requirement for 10,000 cy of laterite fill for the maintenance hardstand and parking areas. A borrow pit was located and opened at BT 524090. Before the laterite fill could be placed and compacted, 300 cy of unsuitable fill and 16,020 sq ft of M8A1 and AM-2 matting had to be removed from the existing maintenance area. By 31 May 1968. the construction of the CH-47 helicopter area was progressing at a satisfactory rate. Fill had been placed for the maintenance hardstands, parking areas, and a taxiway between the two rows

of revetments. The maintenance areas had been capped with a total of 715 cy of 4 inch minus rock to provide the required stabilization. AM-2 and M8A1 matting were layed on the taxiway and parking areas. A mixture of MC250/ diesel at a ratio of five to one was spread on the completed stabilized areas to seal the surface and to control dust. At this time a total of eight revetment walls had been completed and filled with sand. An additional mission completed by Company A during the month of May was the installation of 800 meters of double apron tactical wire and the construction of two eight by ten foot bunkers to improve the battalion perimeter defenses. During the first week of June, Company A was alerted to prepare to assume responsibility for opening Phase II of Rte 533. On 8 June 1968, the 3rd Platoon moved north to TAM KY (BT 290233) to load bunker materials and await further deployment to LZ YOUNG (BT 189159). On 9 June 1968 the 2nd Platoon of Company D was placed under the operational control of Company A to assist in minesweep operations and construction of the CH-47 area. On 12 June 1968, the 3rd Platoon of Company A conducted a reconnaissance of Rte 533 from BT 307204 to BT 220169. During this reconnaissance Company A found its first mine on Rte 533 when a local Vietnamese pointed out an anti-vehicular mine which was removed and destroyed. The 3rd Platoon deployed to LZ YOUNG from TAM KY on 11 June 1968 in a 12 vehicle convoy, set up defensive positions, and started construction of protective personnel bunkers. Company A (-) was relieved of responsibility for the CH-47 project on 13 June 1968. At that time the following work had been completed: fourteen revetment walls constructed and filled with sand, 14,065 cy of laterite placed and compacted, 42,460 sq ft of M8A1 matting and 8,200 Sq Ft of AM-2 matting layed, and 18,750 gal of MC250;diesel mixture was spread. Company D was assigned responsibility for completion of the CH-47 project. On 14 June 1968, Company A (-) convoyed to TAM KY (BT 290233) and started to dismantle the bunkers in the old Company D area. Loading of the bunker material was completed on 15 June 1968 and on 16 June 1968 Company A (-) mineswept Rte 533 from TAM KY into LZ YOUNG. With all elements of the company closed into LZ YOUNG, the primary effort was directed towards construction of protective bunkers and a defensive perimeter. Construction of the base area at LZ YOUNG continued between 17 and 22 June 1968. On 23 June 1968, upgrading of the assigned section of Rte 533 to a 16 foot wide limited all weather road from BT 230172 to TIEN PHUOC (BT 118139) was started. The initial effort was directed towards the section of road between LZ YOUNG and the end of the Phase I section at BT 230172. Enemy activity increased in the vicinity of LZ YOUNG after Company A started work on Rte 533. On 25 June 1968 the 1st Platoon minesweep team received sniper fire, however, there were no casualties. On 26 June 1968 three rounds of mortar fire were received within the perimeter of LZ YOUNG with negative casualties or equipment damage. By 31 June 1968 the road had been upgraded east to BT 198161. A total of 22 protective bunkers had been completed and installation of the perimeter tactical wire continued. Due to enemy mining activity on Rte 533, it was necessary to conduct a minesweep of the section of road which was worked on each day. The requirement also existed to open the road east to TAM KY every four to five days to allow resupply convoys to reach LZ YOUNG. On 1 July 1968, when opening the road toward TAM KY, Company A detected a total of six mines. By 9 July 1968 the road work east from LZ YOUNG had progressed to the extent that work could be started to the west. Enemy activity continued to increase during July. In addition to almost daily mining of Rte 533, LZ YOUNG was again mortared on 20 July 1968. Thirty rounds of 82mm mortar fire hit inside the perimeter resulting in one

of revetments. The maintenance areas had been capped with a total of 715 cy of 4 inch minus rock to provide the required stabilization. AM-2 and M8A1 matting were layed on the taxiway and parking areas. A mixture of MC250/ diesel at a ratio of five to one was spread on the completed stabilized areas to seal the surface and to control dust. At this time a total of eight revetment walls had been completed and filled with sand. An additional mission completed by Company A during the month of May was the installation of 800 meters of double apron tactical wire and the construction of two eight by ten foot bunkers to improve the battalion perimeter defenses. During the first week of June, Company A was alerted to prepare to assume responsibility for opening Phase II of Rte 533. On 8 June 1968, the 3rd Platoon moved north to TAM KY (BT 290233) to load bunker materials and await further deployment to LZ YOUNG (BT 189159). On 9 June 1968 the 2nd Platoon of Company D was placed under the operational control of Company A to assist in minesweep operations and construction of the CH-47 area. On 12 June 1968, the 3rd Platoon of Company A conducted a reconnaissance of Rte 533 from BT 307204 to BT 220169. During this reconnaissance Company A found its first mine on Rte 533 when a local Vietnamese pointed out an anti-vehicular mine which was removed and destroyed. The 3rd Platoon deployed to LZ YOUNG from TAM KY on 11 June 1968 in a 12 vehicle convoy, set up defensive positions, and started construction of protective personnel bunkers. Company A (-) was relieved of responsibility for the CH-47 project on 13 June 1968. At that time the following work had been completed: fourteen revetment walls constructed and filled with sand, 14,065 cy of laterite placed and compacted, 42,460 sq ft of M8A1 matting and 8,200 Sq Ft of AM-2 matting layed, and 18,750 gal of MC250;diesel mixture was spread. Company D was assigned responsibility for completion of the CH-47 project. On 14 June 1968, Company A (-) convoyed to TAM KY (BT 290233) and started to dismantle the bunkers in the old Company D area. Loading of the bunker material was completed on 15 June 1968 and on 16 June 1968 Company A (-) mineswept Rte 533 from TAM KY into LZ YOUNG. With all elements of the company closed into LZ YOUNG, the primary effort was directed towards construction of protective bunkers and a defensive perimeter. Construction of the base area at LZ YOUNG continued between 17 and 22 June 1968. On 23 June 1968, upgrading of the assigned section of Rte 533 to a 16 foot wide limited all weather road from BT 230172 to TIEN PHUOC (BT 118139) was started. The initial effort was directed towards the section of road between LZ YOUNG and the end of the Phase I section at BT 230172. Enemy activity increased in the vicinity of LZ YOUNG after Company A started work on Rte 533. On 25 June 1968 the 1st Platoon minesweep team received sniper fire, however, there were no casualties. On 26 June 1968 three rounds of mortar fire were received within the perimeter of LZ YOUNG with negative casualties or equipment damage. By 31 June 1968 the road had been upgraded east to BT 198161. A total of 22 protective bunkers had been completed and installation of the perimeter tactical wire continued. Due to enemy mining activity on Rte 533, it was necessary to conduct a minesweep of the section of road which was worked on each day. The requirement also existed to open the road east to TAM KY every four to five days to allow resupply convoys to reach LZ YOUNG. On 1 July 1968, when opening the road toward TAM KY, Company A detected a total of six mines. By 9 July 1968 the road work east from LZ YOUNG had progressed to the extent that work could be started to the west. Enemy activity continued to increase during July. In addition to almost daily mining of Rte 533, LZ YOUNG was again mortared on 20 July 1968. Thirty rounds of 82mm mortar fire hit inside the perimeter resulting in one

individual lightly wounded and minor damage to a road grader and a 5 ton dump truck. On 22 July, a Viet Cong flag was observed on a hill at BT 177142. Elements of Company A searched and cleared the area and captured the flag. On 23 July 1968 the forward security for the west minesweep ran into a Viet Cong platoon size ambush. The enemy force was repelled with one lightly wounded casualty suffered by the security element of the 2nd Battalion, 6th ARVN Regiment. On the same day, a work party was attacked and sustained one casualty requiring evacuation and five lightly wounded before the element was able to withdraw. The ARVN security element suffered two wounded requiring evacuation and one lightly wounded. By the end of the reporting period, Company A had completed upgrading operations on 5 kilometers of road from BT 210165 and BT 173138. 15,342 cy of fill were hauled and compacted; and 76 feet of 60 inch culvert were installed. A total of 29 mines were detected and destroyed by Company A minesweep teams.

(C) (5) Activities of Company B: During the reporting period Company B remained at LZ DOTTIE (BS 628857). The assigned mission included the routine maintenance and upgrading of drainage structures and bridges to MACV standards of 18 km of QL-1 from BINH SON (BS 601922) to QUANG NGAI (BS 642747). A requirement also existed for a daily minesweep of QL-1 from BS 601922 to BS 633811, a distance of 12 km. The primary effort was directed toward replacing inadequate and destroyed bridges and the extension and improvement of culverts to include construction of reinforced concrete headwalls. The 72 foot timber pile pier bridge at BS 623864 was blown by the Viet Cong on 13 May 1968. The charge destroyed the south abutment, the two south spans, and severely damaged the north abutment. Since the majority of the pilings were not damaged, a decision was made to shorten the bridge span to 60 feet and rebuild the bridge from the piles up using as much salvaged material as possible. Removal of the decking, stringers, and pile caps was started immediately. On 18 May 1968, site preparation was started for construction of an 80 foot, four span, timber pile pier bridge at BS 638757 to replace a Bailey bridge which was removed. On 23 May 1968 an antipersonnel mine was pointed out to the minesweep team by a Vietnamese civilian at BS 604913. The mine was destroyed in place, and the civilian was rewarded under the Volunteer Informant Program. On 25 May 1968 construction was started on two concrete sand bag headwalls 9 feet high and 45 feet long for a multiple culvert site at BS602918. Installation of four 60 inch culverts was required. Pieces of reinforcing steel were driven vertically through successive layers of the concrete-filled sandbags to obtain the necessary reinforcement. By 31 May 1968 both abutment pilings had been driven and the abutment caps placed on the 80 foot bridge at BS 638757. On the bridge at BS 623864, four damaged piles had been removed and excavation completed for the deadman on the south abutment. Two hundred and sixteen feet of 60 inch culvert had been placed, 158 cy of reinforced concrete poured for headwalls, and 3,425 cy of backfill placed and compacted. On 15 June 1968 the concrete sandbag headwalls at BS 602918 were completed. A total of 8,000 sandbags were used in the construction. The 80 foot pile pier bridge at BS 638757 was completed on 19 June 1968; the work being completed one day ahead of schedule. An existing 80 foot Eiffel bridge at BS 639781 was removed on 20 June 1968. The decision was made to replace the bridge with multiple 60 inch culverts due to the insecure location. A total of six 60 inch culverts were selected to give a cross-sectional area approximately equal to the original waterway area. On 24 June 1968 the rebuilt 60 foot timber pile pier bridge at BS 623864 was completed. For the month of June, 159 cy of reinforced concrete had been poured for headwalls and 1,629 cy of backfill had been placed and compacted. During early July, problems were

encountered with subsurface conditions at the multiple culvert site at BS 639781. The subsurface material consisted of large quantities of clay and silt which had to be removed. Three hundred and twenty cy of rock had to be placed in the excavation until sufficient stability was obtained to support the weight of the culverts; 200 cy of sand were placed on top of the rock to act as a bed and to protect the culverts. On 6 July 1968, the AOR of Company B was extended 96 km from BINH SON (BS 596927) to CHU LAI (BT 538027). The additional mission included the routine maintenance and upgrading of drainage structures to MACV standards. On 24 July 1968 the Viet Cong demolished the concrete T beam bridge and bypass at BS 633811. The bypass was reopened and carried traffic one hour after the incident was reported. Plans were immediately made to complete demolition of the concrete bridge and remove the debris. A decision was made to replace the bridge with a two span, 40 foot long, pile pier bridge. On 25 July 1968 the minesweep team detected a mine in QL-1 at BS 620877. The mine consisted of an M-14 antipersonnel mine with one and one-half pounds of TNT attached, set for trip wire detonation. During the month of July, 76 cy of reinforced concrete was poured for headwalls, 384 feet of 60 inch culvert was placed, and 650 cy of backfill was placed and compacted. By the end of the reporting period, three sets of culvert headwalls remained to be completed out of an original requirement for 43 headwalls.

(C)(6) Activities of Company C: At the beginning of the reporting period, Company C was located at LZ DRAGON (BS 734524). The assigned mission included the widening of QL-1 to MACV standards from MO DUC (BS 733543) to the SONG VE (BS 695635) and the upgrading of bridges and drainage structures to MACV standards between the SONG VE and QUANG NGAI (BS 646723). The total length of road responsibility was 18.2 km. Company C also conducted a daily minesweep between BS 695635 to BS 760485, a distance of 17.6 km. The Earth Moving Platoon, Company D, 84th Engineer Battalion (Combstruction) remained attached to Company C until 16 June 1968 when it returned to the control of its parent unit. On 16 July 1968 the 3rd Platoon, 630th Light Equipment Company was assigned to Company C.

The widening of QL-1 from 20 feet to a total width of 32 feet between MO DUC and the SONG VE was divided into roughly equal segments of 4.2, 4.2, and 4 km. The widening of segment I north of MO DUC had been started during the previous reporting period. By 18 May 1968, segment I had been completed. At this time, Company C relocated its CP to LZ SNOOPY at NUI DEP (BS 708608). This relocation placed the unit directly between segments II and III. Company C dismantled its base area at LZ DRAGON and reconstructed it at LZ SNOOPY between 18 and 22 May 1968. When the unit relocated, the minesweep responsibility was shortened to 13.6 kms with the southern limit of the sweep stopping at LZ DRAGON. An excellent source of laterite was found at BS 705600, and a borrow pit was opened. Widening of QL-1 south from LZ SNOOPY on segment I commenced. Concurrently with the above operation, upgrading of the drainage structures and bridges between the SONG VE and QUANG NGAI continued. On 8 June 1968 a four span, eighty foot timber pile bridge was completed at BS 674677. The south masonry and Bailey panel pier on the 590 foot SONG VE Bailey bridge at BS 695635 showed extensive damage as a result of the previous monsoon season. A new twelve pile pier was designed to replace the failing pier. By 17 June 1968, an earth fill bypass and 100 foot triple single Bailey bridge had been constructed in the river bed of the SONG VE. The two south spans, 210 foot total length, were jacked up and

encountered with subsurface conditions at the multiple culvert site at BS 639781. The subsurface material consisted of large quantities of clay and silt which had to be removed. Three hundred and twenty cy of rock had to be placed in the excavation until sufficient stability was obtained to support the weight of the culverts; 200 cy of sand were placed on top of the rock to act as a bed and to protect the culverts. On 6 July 1968, the AOR of Company B was extended 96 km from BINH SON (BS 596927) to CHU LAI (BT 538027). The additional mission included the routine maintenance and upgrading of drainage structures to MACV standards. On 24 July 1968 the Viet Cong demolished the concrete T beam bridge and bypass at BS 633811. The bypass was reopened and carried traffic one hour after the incident was reported. Plans were immediately made to complete demolition of the concrete bridge and remove the debris. A decision was made to replace the bridge with a two span, 40 foot long, pile pier bridge. On 25 July 1968 the minesweep team detected a mine in QL-1 at BS 620877. The mine consisted of an M-14 antipersonnel mine with one and one-half pounds of TNT attached, set for trip wire detonation. During the month of July, 76 cy of reinforced concrete was poured for headwalls, 384 feet of 60 inch culvert was placed, and 650 cy of backfill was placed and compacted. By the end of the reporting period, three sets of culvert headwalls remained to be completed out of an original requirement for 43 headwalls.

(C)(6) Activities of Company C: At the beginning of the reporting period, Company C was located at LZ DRAGON (BS 734524). The assigned mission included the widening of QL-1 to MACV standards from MO DUC (BS 733543) to the SONG VE (BS 695635) and the upgrading of bridges and drainage structures to MACV standards between th SONG VE and QUANG NGAI (BS 646723). The total length of road responsibility was 18.2 km. Company C also conducted a daily minesweep between BS 695635 to BS 760485, a distance of 17.6 km. The Earth Moving Platoon, Company D, 84th Engineer Battalion (Combstruction) remained attached to Company C until 16 June 1968 when it returned to the control of its parent unit. On 16 July 1968 the 3rd Platoon, 630th Light Equipment Company was assigned to Company C.

The widening of QL-1 from 20 feet to a total width of 32 feet between MO DUC and the SONG VE was divided into roughly equal segments of 4.2, 4.2, and 4 km. The widening of segment I north of MO DUC had been started during the previous reporting period. By 18 May 1968, segment I had been completed. At this time, Company C relocated its CP to LZ SNOOPY at NUI DEP (BS 708608). This relocation placed the unit directly between segments II and III. Company C dismantled its base area at LZ DRAGON and reconstructed it at LZ SNOOPY between 18 and 22 May 1968. When the unit relocated, the minesweep responsibility was shortened to 13.6 kms with the southern limit of the sweep stopping at LZ DRAGON. An excellent source of laterite was found at BS 705600, and a borrow pit was opened. Widening of QL-1 south from LZ SNOOPY on segment I commenced. Concurrently with the above operation, upgrading of the drainage structures and bridges between the SONG VE and QUANG NGAI continued. On 8 June 1968 a four span, eighty foot timber pile bridge was completed at BS 674677. The south masonry and Bailey panel pier on the 590 foot SONG VE Bailey bridge at BS 695635 showed extensive damage as a result of the previous monsoon season. A new twelve pile pier was designed to replace the failing pier. By 17 June 1968, an earth fill bypass and 100 foot triple single Bailey bridge had been constructed in the river bed of the SONG VE. The two south spans, 210 foot total length, were jacked up and

connected to give a continuous span. The decking and stringers above the new pier location directly to the south of the old pier were removed, and six of the piles were driven through the bridge. The remaining six piles were driven over the sides of the bridge. After the pier was completed, the bridge was jacked down and the old pier was removed. Final work on this project was completed with installation of new treadway on 24 July 1968. A multiple culvert site containing four 60 inch culverts failed at BS 704572 due to unsuitable subbase material. Removal of the existing culverts began on 11 July 1968. Examination of the excavated site indicated that an excessive quantity of rock would be required to stabilize the area. Four pile piers running perpendicular to the culvert center line were designed to give the required support. When the pile piers were completed a two foot lift of rock was placed flush with the top of the pile caps to insure uniform support for the culverts. On 9 July 1968, Company C was assigned the mission of rehabilitating the DUC PHO Airfield (BS 812385). The 1st Platoon, Company D was placed under the operational control of Company C for this mission. The existing 3800 foot airfield had an MX-19 matting wearing surface which had failed in numerous places. The failure had been caused by water penetrating the surface and subsequently being pumped out with the subbase material. This created holes under the matting. A decision was made to remove the matting and repair the subbase. Instead of replacing the matting, the surface would be treated with three coats of peneprime to act as a dust palliative. One requirment that existed was that at least 1900 feet of the airfield remain open for C7A aircraft at all times. The matting on the south half of the airfield was lifted and three inches of unsuitable surface material removed. In several areas, large pockets of sand were found. These were removed and replaced with laterite. After required compaction was obtained, the surface was treated with three applications of peneprime cut with diesel at a ratio of 70/30. The south half of the strip was opened and the same procedure was repeated for the north half. The airfield was completed and opened for traffic on 26 July 1968. By 31 July 1968, 125,891 cy of fill had been placed and compacted on Rte QL-1 from MO DUC north and from LZ SNOOPY south. Approximately one kilometer remains to be widened to close the gap between segments I and II. Thirty seven hundred cy of three-inch minus rock has been hauled and stockpiled along the shoulders of segment I. This material is to be spread and compacted as a base course prior to the monsoon season. All of the drainage structures, with the exception of the 60 inch multiple culvert site at BS 704572, between MO DUC and the SONG VE were completed. During minesweep operations for this reporting period Company C detected a total of eight out of nine mines emplaced by the Viet Cong.

(C)(7) Activities of Company D: At the beginning of the reporting period, Company D was located at TAM KY (BT 293229). The assigned mission of Company D was to complete upgrading Phase I of Rte 533, the TAM KY - TIEN PHUOC Road, between BT 307204 and BT 221170 to a single lane class 50, limited all weather road with turnouts. The existing roadway was widened from six feet to an average width of eighteen feet. Existing inadequate drainage structures were replaced and additional drainage structures were installed as required. The 10 km of road was completed on 14 June 1968. A total of 34,234 cy of fill had been hauled and compacted, 1,424 feet of culvert installed, and 21,187 sandbags placed for culvert headwalls for the construction of this section of road. Enemy activity remained at a moderate level during construction

of the road. Eight culverts were blown by the Viet Cong. Minesweep teams detected and destroyed six anti-personnel and seven anti-vehicular mines. Six individuals were wounded during mining or sniping incidents. Three 5 ton dump trucks and one 25 ton trailer were damaged by enemy mines. On 15 June 1968 Company D moved from TAM KY to the battalion CP at CHU LAI (BT 533037). Company D was assigned the mission of providing engineer support in the Americal Division headquarters area. Also included in the mission was the requirement for a daily minesweep of QL-1 from CHU LAI (BT 538027) to BINH SON (BS 596927), a distance of 11.4 km. The first support task undertaken by Company D was the completion of four common wall, minimum protection, revetments for CH-47 aircraft, originally started by Company A. The project was completed by the end of the reporting period. In addition to completing the four 60 foot long revetments, 26,256 cy of laterite were placed and compacted for hardstand areas, 2,288 gallons of paneprime were used for dust control, and 15,547 sq ft of M8A1 matting was layed for taxiways and parking areas. An additional mission assigned to Company D consisted of the construction of 1,200 feet of double wall, sand filled, protective revetments for the 21st Reconnaissance Airplane Company of CHU LAI Airfield. The basic design of the revetment wall was the same as that used for the revetment walls constructed for the CH-47 aircraft. However, the wall was constructed in one continuous length with sand filled panels placed perpendicular to the wall to provide individual aircraft protection. By the end of the reporting period, 838 feet of the total 1,200 feet had been constructed. Two other projects started shortly before the end of the reporting period were the construction of two 35 foot observation towers for Chu Lai Defense Command and the construction of three 16 by 32 foot buildings for the Americal Military Intelligence Detachment. Both of these projects will be completed within one month. During the reporting period, Company D also detached its 1st Platoon to the operational control of Company C during 9 - 26 July on the Duc Pho Airfield project.

(C)b. INTELLIGENCE. During the reporting period, the Battalion Reconnaissance Section gathered the necessary route information as a basis for planning future route maintenance and upgrade programs. The section conducted daily aerial reconnaissance of QL-1 from CHU LAI (BT 522043) to MO DUC (BS 733543) to check road conditions and any damage to bridges or drainage structures. This reconnaissance was conducted as early in the day as possible so that information on any observed damage could be relayed to the battalion headquarters and immediate action taken to initiate required repairs. Prior to the battalion undertaking a road repair project or major upgrade mission, both an aerial reconnaissance, and if the tactical situation permitted, a ground reconnaissance was conducted of the proposed route. Three major ground reconnaissances were made of the road and area between TAM KY (BT 307203) and TIEN PHUOC (BT 117139). A total of eleven other ground reconnaissance missions were conducted during the period, to include a survey of alternate crossing sites across the three major rivers in the battalion's AOR along Rte QL-1, the Song Tra Khuc (BS 642746), Song Tra Bong (BS 596927), and Song Ve (BS 695635).

(C)c. OPERATIONS AND TRAINING: (1) During the reporting period, the battalion worked seven days a week. Mandatory training, maintenance of equipment, and religious services were normally provided for on Sunday. A total of 23 hours of mandatory training was conducted for this battalion during the reporting period. Nineteen potential career NCO's attended the Combat Leadership Course conducted by the Americal Division Combat Center, and 21 new in-country personnel attended the Americal Replacement Training Center during the quarter.

(2) During the reporting period, units from this battalion were engaged in 91 company-days of direct combat support operations. The remaining time was spent on construction tasks not directly related to combat operations.

(C)d. MOVEMENT: On 21 May 1968, Company C moved from LZ DRAGON (BS 734524) to LZ SNOOPY (BS 708609). On 14, 15, and 16 June 1968, Company A moved from the battalion CP (BT 532037) to LZ YOUNG (BT 189159). On 15 June 1968, Company D moved from TAM KY (BT 292229) to the battalion CP (BT 532037). On 21 June 1968, 1st Platoon, Company D moved from company CP to DUC PHO (BS 812385). A total of 5 1/3 company-days were used in moving units of this battalion.

(C)e. SUPPLY: (1) General: During the entire reporting period the battalion supply section remained with the battalion HQ at CHU LAI (BT 532037). All supply support for Companies A, B, and D was provided through the battalion supply section. Company C continued to be supported by the FSA at DUC PHO (BS 814383) for Class I and III items. The remaining classes of supply were provided to Company C from the battalion supply section. Acquisition of LOC construction materials was greatly improved during this period due to support obtained from the Third Naval Construction Brigade located at DA NANG. However, difficulties encountered in shipping major items of construction materials from DA NANG to CHU LAI continued to hamper operations.

(2) The battalion operated four water points with a total daily output of approximately 36,000 gallons.

(3) During the reporting period logistics support excluding maintenance and repair parts was received from the following organizations:

(a) Task Force MacDonald, located at DUC PHO; a 1st Logistical Command FSA.

(b) Task Force Brown, located at DUC PHO, a 1st Logistical Command FSA (replaced Task Force MacDonald in June 1968.

(c) 23d Supply and Transportation Battalion, located at Chu Lai.

(d) 3d Naval Construction Brigade, located at DA NANG, provided materials for LOC construction.

(4) A number of major equipment shortages decreased the operational capability of the battalion during the reporting period. The critical shortages were:

(a) Loader, scoop 4 ea

(b) Compressor, air, 250 CFM 4 ea

(c) Tank and pump unit, trk mtd 3 ea

(d) Crane, 20 ton, trk mtd 1 ea

(U) f. MEDICAL:

(1) The battalion medical section was responsible for: providing medical support to the men of the battalion; maintaining an aid station at the battalion headquarters; supervising medical aidmen at each line company; conducting inspections of sanitary facilities, water points, and mess halls; conducting medcaps; and advising the commander on matters pertaining to the health of the battalion.

(2) The two major medical problems during the report period were malaria and diarrheal disease. Two epidemics of amebic dysentary were traced to consumption of non-potable water: the first was attributed to a company using its neighboring SeaBee detachment's water point (inspection demonstrated completely inadequate chlorination), and the second resulted from contamination of a squad's water can. Although there was only minimal time lost as a result of these outbreaks of diarrhea, the potential for suddenly incapacitating a squad, platoon or entire company was readily appreciated and corrective action taken. A more significant problem regarding lost time proved to be malaria. During the report period there were 33 cases with hospitalization averaging 3 weeks per individual. Both types of malaria, vivax and falciprium, were seen in almost equal numbers. In retrospect, many of the cases were attributed to lapses in strict malaria discipline. Several cases occurred in men who were assigned TDY to another company and whose names were not promptly listed on the malaria roster. Ten cases of malaria occurred a few weeks after Company A had moved to a new location, and it was then discovered that most of the company missed taking the weekly and daily pills during the initial resettlement.

(U) g. MAINTENANCE:

(1) General: During the reporting period, there has been an improvement in maintenance operations due to an increased command emphasis on the maintenance program. Steps were taken to develop accurate PLL's and timely processing of requisitions at unit level to increase levels of repair parts on hand. A formal motor stable program was initiated, stressing before, during, and after operation checks. Positive results from a more efficient maintenance program are anticipated in the next quarter.

(2) Support: The 588th Direct Support Company has continued to provide excellent ordnance support to this battalion. This has been evidenced by the fact that major assembly replacements on wheeled vehicles average four to five days for completion. The recently installed NCR 500 automated supply system has resulted in a considerable improvement in the receipt of repair parts. Problems still exist regarding engineer repair parts due to the lead

time required to build up a responsive ASL for these items.

(c) h. CIVIC ACTION: Continued emphasis was placed on civic affairs by the battalion during this reporting period. A total of 70 man-days assistance was rendered. The projects included hauling fill for the market place at DONG CAT (BS 734543, repair of the village school at MO DUC (BS 719542), hauling fill for the village of NUI DEP (BS 713607), and the installation of four 60 inch culverts at BS 621681). Forty eight hundred pounds of cement, 7,793 board feet of lumber, 75 pieces of roofing tin, one barrel of asphalt, 25 lbs of nails, and 100 feet of 60 inch culvert were contributed to these projects. During the reporting period, the following munitions were turned in by Vietnamese civilians through the Volunteer Informant Program:

MINES	GRENADES	40mm	60mm	81mm	90mm	105mm
93	419	273	260	69	3	145

155mm	175mm-8"	3.5 Rkts	4.2"	Rkts	Small Arms Ammo	TNT
29	11	4	13	25	6765	43#

Piasters paid out for the above munitions totaled 271,975 $VN for the quarter.

(C) i. CASUALTIES:

	WHA	KHA	KNH
HHC	0	1	0
A	7	0	0
B	0	0	1
C	4	0	0
D	9	0	0
TOTAL	20	1	1

(U) j. MINES: During the reporting period this battalion discovered 51 mines within its AOR. The majority of these mines employed bamboo firing devices with explosive charges varying in quantity from 15 to 40 lbs. In several cases, Viet Cong directional fragmentation mines were employed with an explosive charge placed on top. The following is a breakdown of mines detected/detonated by month:

MONTH	DETECTED	DETONATED	TOTAL
May	3	3	6
June	18	4	22
July	21	2	23

(U) k. BOOBY TRAPS: During the reporting period, this battalion discovered 6 booby traps. The majority of these consisted of hand grenades attached to trip wires. The following is a breakdown by month:

MONTH	DETECTED	DETONATED	TOTAL
May	2	0	2
June	2	0	2
July	1	1	2

2. Section 2. Lessons Learned: Commander's Observations, Evaluations, and Recommendations

a. PERSONNEL: None

b. OPERATIONS.

(U) (1) Inadequate Subbase Support for Culverts.

(a) OBSERVATION. In many cases, culverts placed in dry or rice paddy type soil found in RVN have failed due to the limited bearing capacity of the subbase material.

(b) EVALUATION. Utilization of four pile piers with 12" x 12" caps spaced evenly across the length of the culvert and placed parallel to the road center line will provide the required support for the culverts. Additional stability can be obtained by placing a two-foot lift of rock flush with the top of the pile caps. The number of piles required for each pier should be equal to the number of culverts in a multiple culvert structure with a minimum of two piles being used for a single culvert.

RTP

(c) RECOMMENDATION. That this method of culvert support be employed when culverts must be placed in areas containing soils of high clay content or other unsuitable subbase material.

(U)(2) Procedure for Culvert Installation.

(a) OBSERVATIONS. During backfilling operations while compacting replacing culverts, problems have been experienced with culverts rolling a few degrees which places the seam out of the horizontal plane. This condition makes the culvert more susceptible to crushing.

RTP

(b) EVALUATION. The displacement of culverts during backfilling can be precluded by driving "U" shaped pickets along both sides of the culvert and by insuring proper compaction of the backfill in successive lifts along the culvert. The compaction also increases the active soil pressure along the sides of the culvert which decreases the probability of the culvert being crushed by the weight of the fill and by traffic.

(c) RECOMMENDATION. That commanders consider using the above construction techniques to obtain a higher quality culvert installation.

(U) (3) Procedure for Placing Multiple Culverts and Headwalls.

(a) OBSERVATIONS. When attempting to construct reinforced concrete headwalls on previously installed multiple culverts, it has been found that the ends of each section of culvert are not always at the same elevation.

(b) EVALUATION. The unequal elevation of the end of each culvert section makes construction of the headwall forms very difficult and time consuming.

(c) RECOMMENDATION. That headwall footers be installed prior to placing the culvert. Each culvert section is then placed on the footer thereby precluding any possibility of unequal elevation of the culvert ends.

RTP

(U) (4) Procedure for Driving Piles.

(a) OBSERVATIONS. While driving piles for bridge piers, it is imperative that proper alignment be obtained on all piles. Many times, subsurface objects such as rocks or parts of previously damaged bridges will deflect or halt pile pentration.

(b) EVALUATION. The use of issue shaped charges or improvised shaped charges using C-4 in a can will greatly assist pile driving operations. When a pile is deflected during driving, the pile should be removed and the obstruction removed with a shaped charge. If the hole created by the charge is not large enough, additional explosives can be lowered into the hole and detonated.

(c) RECOMMENDATION. That the above techniques be employed whenever difficulty is encountered during pile driving operations. When using this procedure, care must be taken to insure that adequate load bearing strength is obtained.

RTP

(U) (5) Technique for Protecting Sandbag Headwalls from Pilferage.

(a) OBSERVATION. When sandbag culvert headwalls were constructed in unguarded areas, a high rate of pilferage of the sandbags occurred.

(b) EVALUATION. Vietnamese civilians remove the sandbags from completed headwalls, empty the sandbags and sell them. Poneprime, diesel or used oil spread over the sandbags make them unserviceable for local civilian use. This technique stopped all further pilferage.

(c) RECOMMENDATION. That commanders utilize the above techniques to cut down pilferage of sandbags from culvert headwalls.

(U) (6) Technique for Clearing Anti-Personnel mines.

(a) OBSERVATION. During road widening operations on Rte QL-1, it became necessary to clear a 100 meter anti-personnel minefield located parallel to the roadway. The minefield contained only M-14 anti-personnel mines; however, no records had been made by the ARVN when the minefield was installed.

(b) EVALUATION. Since standard mine detectors will not pick up the M-14 mine, and probing would prove too time consuming, some mechanical means had to be devised to detonate the mines. A roller consisting of three concrete filled 55 gallon drums on an axle was constructed. The roller was winched back and forth across the minefield with vehicle winches until all the anti-personnel mines had been detonated.

(c) RECOMMENDATION. That commanders consider utilizing the above technique for clearing minefields containing anti-personnel mines.

c. Training: None

d. Intelligence: None

e. Logistics: None

f. Organization: None

g. Other.

(U) (1) Development of New Base Areas.

(a) OBSERVATION. Due to the disruption of routine and scheduled issue of malaria pills during unit displacement to remote new fire bases, the incidence of malaria is likely to increase during the first few weeks after a move.

(b) EVALUATION. Although extraordinary measures can be taken through the chain of command, the probability of some people missing daily or weekly malaria pills is relatively high. Coordination with the Americal Division Preventive Medicine Section indicates that aerial spraying of specified areas is extremely effective in reducing mosquito populations.

(c) RECOMMENDATION. That aerial spray of newly developed fire bases be scheduled prior to the movement of troop units into the area, and that re-application be scheduled bi-weekly thereafter.

Tenho R. Hukkala

TENHO R. HUKKALA
LTC, CE
Commanding

DISTRIBUTION:
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EGD-3 (20 August 1968) 1st Ind
SUBJECT: Operational Report - Lessons Learned, Headquarters, 39th Engineer Battalion (Combat) for Period Ending 31 July 1968, RCS CSFOR-65 (RI)

DA, HEADQUARTERS 45TH ENGINEER GROUP (CONSTRUCTION), APO 96337

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

1. (U) This Headquarters has reviewed the Operational Report - Lessons Learned for the 39th Engineer Battalion and considers it an accurate description of activities and accomplishments during the reporting period ending 31 July 1968.

2. (U) Concur with the Battalion Commander's observations and recommendations.

3. (U) The following corrections to section I are required:

Page 6, paragraph a(6), lines 9, 10.
Delete: "June"
Add: "July"
Justification: 45th Engineer Group G.O. 42 dated 19 July 1968.

Page 6, paragraph a(6), line 11.
Delete: "70th Engineer Battalion (Construction)"
Add: Omit
Justification: 18th Engineer Brigade G.O. 614 dated 11 July 1968 as ammended by G.O. 619 dated 11 July 1968.

4. (C) A list to reflect organic or assigned units, attached units, and units under the operational control of the reporting organization was omitted from the basic report. This information is as follows:

Organization of 39th Engineer Battalion (Combat)(as of 31 July 1968)

a. Headquarters and Headquarters Company

b. Four Engineer Companies (A, B, C, D)

c. 3rd Platoon, 630th Engineer Company (-)(Light Equipment)

JOHN G. WAGGENER
COL, CE
Commanding

AVBC-C (31 Jul 68) 2nd Ind
SUBJECT: (U) Operational Report of the 39th Engineer Battalion (Combat) for the Period Ending 31 July 1968, RCS CSFOR - (R1)

DA, Headquarters, 18th Engineer Brigade, APO 96377 6 SEP

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

1. (U) This headquarters has reviewed the Operational Report - Lessons Learned for the 39th Engineer Battalion (Combat) as indorsed by the 45th Engineer Group (Const). The report is considered to be an excellent account of the Battalion's activities for the reporting period.

2. (U) This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders with the following comment added: Reference Section 2 paragraph g(1). Spraying for mosquitos is admittedly effective in reducing the mosquito population, however, it must be recognized that malaria prevention remains a command responsibility. Commanders should insure personnel have sufficient malaria prophylaxis to sustain them during extended operations in the field or during unit moves.

Douglas K Blue

DOUGLAS K. BLUE
Colonel, CE
Acting Commander

ENGMT-OR 11 February 1969

LTC Tenho R. Hukkala
Commanding Officer
39th Engineer Battalion (Combat)
APO San Francisco 96325

Dear Colonel Hukkala:

We have just reviewed your Operational Report - Lessons Learned covering the period ending 31 July 1968 for the Chief of Staff.

The report of Engineer activities is quite informative and descriptive of your Battalion's activities during the reporting period. Evaluation of Section 2, Observations, Evaluations, and Recommendations, indicates that the following comments and suggestions might be of assistance:

From Page 12, Inadequate Subbase Supporting for Culverts. The evaluation regarding placement of piles is not clear. It is believed the piles are placed horizontally below the culverts as shown in Inclosure 1. If this was the method of placement, it appears the piles might act as a knife edge and crack or bend the culverts with a relatively small application of traffic. If this occurs suggest using a cradle under the culverts as shown on pages 6-42, 43, and 44, TM 5-330, Planning and Design of Roads, Airbases and Heliports in the Theater of Operations.

From Page 12, Procedures for Culvert Installation. The problem you describe has been experienced by other organizations, particularly when installation must be accomplished in a flowing stream bed and time precludes deliberate preparation of the installation site. Your solution has proven effective. Poor compaction of the material supporting the lower half of the pipe is probably as great a cause of culvert deformation as shifting of the pipe. Proper compaction procedures are described on pages 6-43 and 44 of TM 5-330. Naturally adherence to good compaction procedures requires more time and expenditure of human effort, thus requires command emphasis and supervision.

Mr. Patania/sm/74616

ENGME-OR
LTC Tenho R. Hukkala

11 February 1969

From Page 13, Procedure for Placing Multiple Culverts and Headwalls. Recommendation is good where needed. Naturally the required double-stage construction of the headwall requires proper attention to all the factors that go into creating an adequate bond between the footer and headwall. Particular care should be given to insuring the removal of all dirt, sawdust, loose rust and laitance from the footer joint area and rebars just prior to pouring the headwalls.

From Page 13, Procedure for Driving Piles. The use of explosives as described could have a detrimental effect on the stability of the soil surrounding piles already driven in the vicinity. Also, these adjacent piles could be structurally damaged. Accordingly it is recommended that explosives not be used for this purpose. A recommended alternative is to drive another pile next to the deflected one, and cut it off and use it after it has been driven to refusal.

In addition, you will find inclosed one copy of the latest DA Pamphlet 525-3-1, Military Operations - Lessons Learned - Military Engineering, for your information and files.

Sincerely,

ORIGINAL SIGNED BY
/S/

2 Incl
as

COLEMAN C. CLEMENT, JR.
LTC, Corps of Engineers
Acting Chief, Operations Support Div.
Directorate of Military Engineering

P.S. I recognise that some of the answers and suggestions above appear not to take into account the local conditions.