<table>
<thead>
<tr>
<th>UNCLASSIFIED</th>
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</thead>
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<td><strong>AD NUMBER</strong></td>
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<tr>
<td>AD866092</td>
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<td><strong>LIMITATION CHANGES</strong></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th><strong>FROM:</strong></th>
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</table>

<table>
<thead>
<tr>
<th><strong>AUTHORITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>AGO ltr 29 Apr 1980</td>
</tr>
</tbody>
</table>

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SUBJECT: Operational Report - Lessons Learned, Headquarters, 31st Engineer Battalion, Period Ending 31 October 1969

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 31ST ENGINEER BATTALION (C)(A)
APO San Francisco 96490

EGE-3 13 November 1969

SUBJECT: Operational Report Lessons Learned - HQ, 31st Engineer Battalion (C)(A) for the period ending 31 Oct 1969 RCS CSFOR-65 (R2)

THRU: Commanding Officer
79th Engineer Group (Const)
ATTN: EGE-3
APO 96491

Commanding General
20th Engineer Brigade
ATTN: AVSL-08
APO 96491

Commanding General
US Army Vietnam
ATTN: AVSL-03T
APO 96375

TO: Command-in-Chief
US Army Pacific
ATTN: GPOP-T
APO 96550

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SECTION I: OPERATIONS: SIGNIFICANT ACTIVITIES:


b. Personnel, Administration, Morale, and Discipline:

(1) At the end of the reporting period the strength of the battalion, including attached units, was 94% of that authorized. The monthly strength figures for the quarter are shown below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Strength</th>
<th>OFF</th>
<th>WD</th>
<th>EM</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 Aug 69</td>
<td>AUTH</td>
<td>42</td>
<td>4</td>
<td>948</td>
<td>994</td>
</tr>
<tr>
<td></td>
<td>ASGD</td>
<td>34</td>
<td>4</td>
<td>968</td>
<td>998</td>
</tr>
<tr>
<td>30 Sep 69</td>
<td>AUTH</td>
<td>42</td>
<td>4</td>
<td>948</td>
<td>994</td>
</tr>
<tr>
<td></td>
<td>ASGD</td>
<td>42</td>
<td>4</td>
<td>968</td>
<td>1014</td>
</tr>
<tr>
<td>31 Oct 69</td>
<td>AUTH</td>
<td>42</td>
<td>4</td>
<td>948</td>
<td>994</td>
</tr>
<tr>
<td></td>
<td>ASGD</td>
<td>40</td>
<td>4</td>
<td>890</td>
<td>934</td>
</tr>
</tbody>
</table>

(2) Shortages by MOS in the Battalion this reporting period are indicated in the following charts:

<table>
<thead>
<tr>
<th>MOS</th>
<th>AUTH</th>
<th>ASGD(AUG)</th>
<th>ASGD(JEP)</th>
<th>ASGD(Oct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12B40</td>
<td>38</td>
<td>63</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>12250</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>63C40</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>94B40</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

(3) The following charts list losses and gains during the quarter:

<table>
<thead>
<tr>
<th>LOSSES</th>
<th>OFF</th>
<th>WD</th>
<th>EM</th>
<th>ASGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONUS Rotation</td>
<td>14</td>
<td>0</td>
<td>122</td>
<td>136</td>
</tr>
<tr>
<td>Infusion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1</td>
<td>0</td>
<td>76</td>
<td>77</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15</td>
<td>0</td>
<td>198</td>
<td>213</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GAINS</th>
<th>OFF</th>
<th>WD</th>
<th>EM</th>
<th>ASGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONUS Replacements</td>
<td>15</td>
<td>0</td>
<td>42</td>
<td>57</td>
</tr>
<tr>
<td>Infusion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>In-country Rgs</td>
<td>5</td>
<td>0</td>
<td>72</td>
<td>78</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>0</td>
<td>115</td>
<td>135</td>
</tr>
</tbody>
</table>

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(4) The following awards were presented to 31st Engineer Battalion personnel:

<table>
<thead>
<tr>
<th>Awards</th>
<th>OFF</th>
<th>MO</th>
<th>EN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Star</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bronze Star</td>
<td>15</td>
<td>1</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>Bronze Star (valor)</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Army Commendation</td>
<td>3</td>
<td>0</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Purple Heart</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>

(5) The following enlisted promotions were made to the grade indicated:

<table>
<thead>
<tr>
<th>Month</th>
<th>E4</th>
<th>E5</th>
<th>E6</th>
<th>E7</th>
<th>E8</th>
<th>E9</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug</td>
<td>93</td>
<td>63</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>159</td>
</tr>
<tr>
<td>Sep</td>
<td>39</td>
<td>22</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>Oct</td>
<td>17</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41</td>
</tr>
</tbody>
</table>

(6) Disciplinary Cases:

<table>
<thead>
<tr>
<th>Month</th>
<th>ART 15</th>
<th>S-M</th>
<th>SP-SH</th>
<th>GOLPH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>12</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>September</td>
<td>29</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>October</td>
<td>25</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>27</td>
</tr>
</tbody>
</table>

(7) Reenlistment during this period was:

<table>
<thead>
<tr>
<th>Term</th>
<th>AUGUST</th>
<th>SEPTEMBER</th>
<th>OCT BER</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Career</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

(8) Allocations for R&R received and filled by personnel of the Battalion are shown below:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>Bangkok</td>
<td>13</td>
<td>12</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Hawaii</td>
<td>18</td>
<td>15</td>
<td>15</td>
<td>48</td>
</tr>
<tr>
<td>Manila</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Taipei</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Singapore</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Tokyo</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>7</td>
<td>6</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Penang</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>64</td>
<td>62</td>
<td>63</td>
<td>189</td>
</tr>
</tbody>
</table>

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c. Intelligence and Counterintelligence:

(1) All intelligence data is received from G2 1st Cav Div (AK) and III IV intelligence summaries.

(2) During this quarter the S-2 Section's activities consisted of a daily minesweep of LTL-IA from Phuoc Vinh to the Song Bo Bridge. Reconnaissance was made for suitable sources of laterite to fulfill the 31st Engineer Battalion earthwork requirements. In addition, the S-2 section conducted security inspections within the Battalion and provided security for convoys and job sites in the vicinity of Phuoc Vinh.

d. Operations and Training:

(1) During this reporting period the Battalion's effort was utilized in the following areas:

- Combat Support: 10%
- Operational Support: 30%
- Base Construction: 40%
- Lines of Communication (LOC): 1%
- Maintenance: 13%
- Security: 6%

(2) Base construction effort has increased this quarter due to greater effort on MACV projects and the construction of helicopter hangers for decentralized aircraft maintenance for the 1st Air Cavalry Division.

(3) The 31st Engineer Battalion places great emphasis on good construction management techniques. Critical paths and main task schedules are minimum requirements for all project work involving more than one platoon week's effort. Quality control is emphasized throughout the chain of command.

(4) Despite the intense project workload of the 31st Engineer Battalion, all training requirements were satisfied. Additional training was given in the field of preventive maintenance in an effort to attain better maintenance procedures. All replacements to the 31st continue to receive a three day orientation training course at the 1st ACD training center in Bien Hoa. During this reporting period the Battalion was engaged in operations for a total of 90 days and training for 2 days.
o. Maintenance and Logistics:

(1) Maintenance: This quarter, the 31st Engineer Battalion maintained an average of 12.9% delinquency for critical equipment and 11.2% overall, as shown below:

<table>
<thead>
<tr>
<th></th>
<th>CRITICAL</th>
<th>OVERALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>9.6%</td>
<td>8.7%</td>
</tr>
<tr>
<td>September</td>
<td>13.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>October</td>
<td>15.8%</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

(2) Supply: There were only minor problems in the supply system this period. Construction materials were provided on a timely basis with few exceptions. The most critical shortages during this period were cement and plumbing items. Major materials issued during this period were:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x12 lumber</td>
<td>34,130 BF</td>
</tr>
<tr>
<td>3x lumber</td>
<td>24,659 BF</td>
</tr>
<tr>
<td>2x4 lumber</td>
<td>53,776 BF</td>
</tr>
<tr>
<td>Cement</td>
<td>18,169 BGS</td>
</tr>
</tbody>
</table>

f. Command Management:

(1) During this reporting period the 31st Engineer Battalion has undertaken several large scale operations. One project, involving most of the Battalion, consisted of a combat support mission for emergency repairs to Route LTL-1A, the MSR for the 1st ACR at Phuoc Vinh which had been heavily damaged by rain, including complete washout in some areas. By exercising good command management techniques the mission was accomplished and the road reopened in minimum time. All equipment was pooled and each company was designated a specific task. One company was responsible for all haul requirements, another devoted its efforts to prefabrication of culvert and a third concentrated on manual work on the site. The Light Equipment Company supervised all equipment and pit operations. Team work such as this has added immeasurably to the "Esprit de Corps" for the 31st Engineer Battalion. Other missions requiring the bulk of this unit's resources have been four convoys to Song Be in support of the expansion of FSB Buttons and the MACV Advisory Housing Project. The route to Song Be passes through very insecure areas. Initially, each convoy had to be as large as possible to take maximum advantage of the available security. As a result of this unit's efforts to open the road, convoys are now run on a frequent basis by many other units. The organization of the convoy, as well as the immediate command and control and coordination with 1st ACR security forces, was provided by the 31st. Experience gained by officers and men of the 31st from such Battalion-sized missions is invaluable.
(2) Summary of Major Construction Projects:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>SCOPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0Q4 Hangars</td>
<td>Two 30x144 hangars were disassembled at Dong Tam and reassembled at Phuoc Vinh. One 40x96 Pascoo hangar was erected. Project complete.</td>
</tr>
<tr>
<td>QL-13</td>
<td>One platoon from 557th maintained this road from Chon Thanh to Quan Loi throughout the reporting period.</td>
</tr>
<tr>
<td>1/9 Mess Hall</td>
<td>Two 40x96 Pascoo buildings were erected for a mess hall at Phuoc Vinh.</td>
</tr>
<tr>
<td>371st TOC</td>
<td>One 40x48 bunker was completed.</td>
</tr>
<tr>
<td>MACV Song Be</td>
<td>Work continued throughout the period on extensive living and working facilities.</td>
</tr>
<tr>
<td>MACV Duo Phong</td>
<td>Hardened billet area with electrical and plumbing facilities was completed.</td>
</tr>
<tr>
<td>FSB Buttons</td>
<td>Work started in October on extensive base facilities for brigade headquarters area.</td>
</tr>
<tr>
<td>LTL-IA</td>
<td>Battalion-sized effort committed for five days to open a severely damaged MSR.</td>
</tr>
</tbody>
</table>

(3) Members of this battalion feel that the keynote to this unit's success has been responsiveness. The bulk of the battalion's effort is allocated to support of the 1st Air Cavalry Division. In order to keep pace with this vibrant, fast-moving Combat Division and lend proper engineer support, operations have to be flexible and rapid. This attitude has been inoculated throughout the ranks. As a matter of routine, combat support missions are often assigned which require immediate reaction. Good planning, swift mobilisation and rapid execution have done much to create a good image of this unit throughout the area of operations.

(4) Command management is hampered due to lack of necessary aircraft support. The area of operations for the 31st Engineer Battalion is extensive (approximately 100km x 100km). The majority of the project sites are in remote insecure areas which are inaccessible by roads. Therefore, some type of aircraft is required for command and control on a continual basis. Additionally, present plans in the 79th Group call for an intensive program of upgrading forward airfields. It is expected that the 31st will be tasked for the bulk of this work. Without increased aircraft support, the program will be in danger of unnecessary delays due to a paucity of command and staff visits by this headquarters as well as normal resupply. The problem has been recognized by higher headquarters, however, the availability of aircraft remains virtually unchanged.

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g. Civil Affairs:

(1) The Battalion continued its program of Medcaps in the villages surrounding Phuoc Vinh. Medcaps are held approximately once every other week with an average of 30 patients per visit. Each Medcap employs the Battalion Surgeon, 2-3 medics and 4 EM for security.

(2) The Battalion was able to utilize dump trucks in a "back-haul" from a convoy to Song Be to transport 75 tons of rice in support of the MACV Advisory program. The rice was delivered to Dong Xoai from the Phuoc Binh Province in Song Be.

h. Civilian Personnel Affairs: The continued use of local nationals for prefab operations and KP has been without incident. Daily Hires have been utilized as the need requires for use in filling sandbags, grass cutting, etc. This operation has also been conducted without incident.

i. Headquarters & Headquarters Company, 31st Engineer Battalion (C)(A):

(1) Command: Cpt. Michael A. Smith replaced 1st Lt. James C. Hamm as Company Commander on 1 Sep 69.

(2) Operations: Headquarters Company continued its mission to support the line companies with heavy equipment and maintenance assistance. The HQ Company's efforts were directed towards project work at Duc Phong MACV, Dong Xoai, and Phuoc Vinh. One platoon remained at Duc Phong until late October for construction of MACV Housing consisting of a 20x50 hardened billet complete with latrine facilities. Duc Phong airstrip was also repaired at this time. At Dong Xoai Special Forces Camp, the airfield was completely regraded, compacted and pontonized in support of the IIFFV Forward Airfield Maintenance Program. Phuoc Vinh was the site for construction of 20 UH-1 Revetments, a 40x48 Radio Research TOC, and a 40'x100' Maintenance hangar in support of the 1st ACD. A Company is presently at work on an air traffic control tower at Phuoc Vinh, as well as erection of a 60 ft. steel tower and a major repair of the airfield taxiway.
k. Company B, 31st Engineer Battalion:

(1) Command: Cpt. Andrew Mueller continued as Company Commander.

(2) Operations: Bravo Company, with its headquarters at Quan Loi, completed the ASP in Quan Loi and the repair of An Loc Bridge on QL 303. MSR consisting of showers, latrines, and hardstands was accomplished for the 1/9 and 2/20 of the 1st AD at Quan Loi. The third platoon remained at Song Be where construction continues on the MACV Housing project. Presently at Song Be MACV, the underground TOJ and BOQ are complete. The 20x100 two story EM billet, Officers’ latrine, EM and Officer septic tanks and drain fields, medical bunker, and maintenance building are all under construction and progressing on schedule towards a 31 Dec completion date.

During the month of October, it was necessary to reinforce the MACV project with added effort and furnish a platoon in support of the expansion of FSB Buttons in the vicinity of Song Be. Therefore, the entire company was moved to Song Be via C-130 sorties and one convoy on 7 October.

Presently, two platoons of Bravo Company are at work on the MACV Housing project while the third remains under OPCON of Delta Company for work at LZ Buttons.

l. Company C, 31st Engineer Battalion (C)(A):

(1) Command: Cpt. Karl R. Woodruff continued as Company Commander.

(2) Operations: During this reporting period, Charlie Company’s efforts were devoted to construction of two 80x144 aircraft maintenance hangars and a mess hall composed of two 40x100 Pascoe Buildings, all in support of the 1st ACD in Phuoc Vinh. The two aircraft hangars were first dismantled in Dong Tam, then convoyed to Phuoc Vinh, where they were re-erected in support of Project OCQ, the decentralized aircraft maintenance concept.

The Mess Hall was composed of two Pascoe buildings (40x100) erected adjacent to another with a connecting concrete slab. The slabs, building erection and all electrical was constructed by C Company for the 1st Squadron, 9th Cavalry of the 1st Air Cavalry Division.

m. Company D, 31st Engineer Battalion (C)(A):


(2) Operations: The first platoon of Delta Company finished its work repairing Tonlo Chan Airstrip by early September. The runway was patched using soil-stabilization and then primed. At Phuoc Vinh the remainder of the company was at work placing concrete pads for mess hall, showers and latrines for the 227th Helicopter Battalion of the 1st Air Cavalry Division. On 10 Aug, the second platoon moved to Blackhorse where it remained until 19 August, dismantling 9 Adams Huts for movement to Quan Loi. The huts were transported to Quan Loi.

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Loi where Bravo Company was in the process of placing concrete slabs for foundations. The Adams hits were then reassembled and the project was completed on 22 Sep 69.

Early in October, Delta Company was alerted for a major construction effort at FSB Buttons. On 5 October, a major convoy consisting of 200 engineer vehicles was assembled and the second and third platoons moved out for FSB Buttons with a major portion of the lumber, sand, and aggregate required for the project. The scope of this project consists of a 750 Ton Ammunition Supply Point, 15 four-head showers, 20 four-hole latrines, 3 TOC's, a medical bunker, 2 AH-1G helicopter rearm points, CH-47 and UH-1 refuel areas, 7 mess hall poles, approximately 81,000 square yards of hardstands, 7500 linear feet of perimeter fence, 5 guard towers and 12,000 linear feet of roadway. The required completion date is 31 Dec 69. At the end of this reporting period the project is 20% complete, on schedule, and moving smoothly.

Throughout this period, Delta Company provided Airlift Mobile Support (A5 and A2) at the following locations: FSB Frieda, FSB Sedgwick, Xuan Loc, Duc Phong, and four other classified locations.

In the 557th Light Equipment Company, 31st Engineer Battalion (C)(A):


(2) Operations: The 557th LE Company has provided the 31st Engineer Battalion with the equipment necessary to fulfill our massive earthwork requirements. During the period 20 Aug 69 to 31 Oct 69, the first platoon remained at Thunder III FSB on a combat support basis to repair and maintain Route QL-13 from Chon Thanh to Quan Loi. As a result of their efforts, this road never failed to pass traffic in the heaviest part of the rainy season. In Phuoc Vinh, support was provided for earthwork on a vehicle POL point under construction by the 31st Engineer Battalion. The second platoon was located at Quan Loi in support of Bravo Company where maintenance hardstands were constructed for 1st ACD MER.

Additional missions of the 557th LE Co have been the operation of a laterite pit in Phuoc Vinh for fill requirements as well as the operation of a concrete batch plant utilizing MCA-LOC Transit-Mix Trucks. To date this plant has produced approximately 1000 cy of concrete since beginning operation on 2 Sep 69.

At the present the 557th has one platoon at FSB Buttons in support of the 2nd Brigade of the 1st ACD and their expansion of this site. Another platoon is preparing to move to FSB Buttons to reinforce the horizontal effort there in early November. The remainder of the 557th will continue support missions in Phuoc Vinh on the helicopter refuel site, vehicle POL point and the repair of the Phuoc Vinh Taxiway.
SACTION III: LESSONS LEARNED: COMMANDER'S OBSERVATION, EVALUATION, AND RECOMMENDATIONS

a. Personnel: None
b. Intelligence: None
c. Operations:

(1) Gun Pad Failures:

(a) Observation: Repeated failures of heavy (175 & 155 mm) Gun Pads.

(b) Evaluation: Upon investigation it was found in all cases that the failures occurred in pads constructed with a laterite fill over 6" minus rock for use in absorbing the recoil. The laterite had washed through the voids and formed a cohesive mass which is not effective in absorbing the recoil.

(c) Recommendation: Use well washed 6" minus rock only, without laterite, for the construction of heavy gun pads. This size rock provides a sufficient void ratio to allow for absorption of the recoil.

(2) 16s Concrete Mixer:

(a) Observation: Damaged water pumps and gear boxes on the rear of the 16s mixer.

(b) Evaluation: Frequently, a bucket loader is employed in conjunction with a 16s mixer for carrying the concrete to a nearby site for placement. It was noted that the teeth of the bucket often bumped the water pump and gear boxes of the 16s mixer due to the limited visibility of the operator when undergoing this operation.

(c) Recommendation: For protection of the 16s, weld a guard frame of angle iron around the gear box and water pump.

(3) Revetment Failures:

(a) Observation: Failure of unsymmetrical, trapezoidal cross section, revetments.

(b) Evaluation: Failure of earth fill revetments of unsymmetrical cross section is due to the location of the resultant force vector which does not pass through the center of the base. The result is a greater load on one area of the foundation soil and, therefore, a proportionately greater consolidation and hence, more settlement on one edge yielding a top heavy structure (See sketch).

(c) Recommendation: All free standing revetments should be symmetrical in cross section. If a nonsymmetrical cross section revetment is employed, a
concrete foundation should be used to provide the necessary bearing surface,

(4) Field Expedient Crane:

(a) Observation: At a remote location a crane was necessary to erect a 36 ft. steel tower.

(b) Evaluation: A Field Expedient was necessary in order to have construction proceed. The only equipment available on site was a scoop loader.

(c) Recommendation: As an expedient, a 6x12 wooden member about 20 ft. long was clamped in the jaws of the bucket loader. The middle of the member was guyed back to the bucket with chains. A block and tackle was rigged on the end of the boom. The maneuverable hydraulics of the loader enabled adequate mobility to lift members of the tower into place (See sketch).

d. Organization:

(1) Observation: The battalion utilized a great deal of effort in support of airmobile operations.

(2) Evaluation: Airmobile equipment support is greatly hampered due to a lack of qualified personnel, repair parts and replacement items.

(3) Recommendation: The airmobile equipment should be eliminated from this battalion and pooled at a higher level. Provision for continued use of this equipment should be made in a specially designed organization with adequate parts and replacement support.

e. Training: None

f. Logistics: None

g. Communication: None

h. Material: None

i. Other: None

2 Indl
1. Sketch
2. Organization Chart

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KIL-CC (13 Nov 69) 1st Ind
SUBJ: Operational Report of 31st Engineer Battalion (CBT) for Period Ending 31 October 1969

TO: Commanding Officer, 20th Engineer Brigade, ATTN: AVBI-CS, APO 96491

20 November 1969

1. The Operational Report of the 31st Engineer Battalion has been reviewed and additional comments are as follows:

   a. Reference Section I, paragraph f-(4): I concur with LTC Andrews' assessment of the instability of the 20th Brigade Aviation to satisfy the 31st Battalion's command-and-control requirements. However, through our recently adopted program of more effectively managing this critical resource, I detect a certain amount of improvement. Nevertheless, the problem has not yet been completely solved to my satisfaction.

   b. Reference Section II: I heartily indorse LTC Andrews' comments on gun pad failures, on modifying the 16-8 mixer, on the use of a bucket loader as a field-expedient crane and on the consolidation of all excess airmobile equipment in a central maintenance pool.

2. This report is considered to be an adequate summary of the battalion's operational experience during the report period.

   A. L. WRIGHT
   COL, CE
   Commanding

CC: 31st Engr En
AVBI-OE (13 Nov 69) 2nd Ind

SUBJECT: Operational Report of 31st Engineer Battalion (CBT) for Period Ending 31 October 1969

DA, HEAD UARTS, 20TH ENGINEER BRIGADE, APO 96491 07 DEC 1969

To: Commanding General, United States Army Vietnam, ATTN: AVUX-OST, APO 96375


2. This headquarters concurs with the submitted report with the following comments:

   a. Section I, paragraph f(4), page 5: Unit aviation support is provided based on Group requests and availability of assets. Priorities are established by the Group headquarters. Due to the present configuration of the 31st Engineer Battalion, it has been suggested that fixed wing aircraft be utilized. Aviation support for the airfield upgrade program has been considered and will be requested through IFFV when the program is initiated and actual requirements are determined. Aircraft availability should greatly improve upon receipt of the new OH-58A aircraft by March 1970.

   b. Section II, paragraph c(4), page 10: From the diagram at Inclosure 1, it is not clear what the forces on the bucket parts and hydraulic rack brackets would be when even a moderate load is suspended at a distance of 15 to 20 feet out on the pole. The weight of the pole itself must also be considered. It appears that continuous use of this field expedient would result in maintenance problems with scoop loaders.

   c. Section II, paragraph d, page 10: This matter is currently under study at this headquarters. Several proposals are under consideration, including MTOE action and airmobile equipment pool support.

FOR THE RECORDER:

[Signature]
J. B. Kennedy
Adj, 31st
Adjutant

2CF:
Co, 79th Lngr Co
Co, 31st Lngr Bn

13
AVHGC-DST (13 Nov 69) 3d Ind
SUBJECT: Operational Report Lessons Learned-HQ, 31st Engineer Battalion (C)(A) for the period ending 31 Oct 1969 RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 31 DEC 1969

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

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 31st Engineer Battalion (C)(A).

2. Comments follow:
   a. Reference item concerning "16S Concrete Mixer", page 9, paragraph c(2); nonconcur. This is an unauthorized modification. A guide should be used to direct equipment when the operator's vision is limited. The 16S mixer operator should perform this function. Additionally, a wheel stop should be employed to limit the approach of the bucket loader. Recommended equipment modifications should be submitted in accordance with paragraph 3-7, TM 38-750.
   b. Reference item concerning "Field Expedient Crane", page 10, paragraph c(4) and 2d Indorsement, paragraph 2b; concur. This will provide an emergency field expedient. Close supervision must be exercised and the allowable load determined considering the length and condition of the boom, the angle of the boom, and the change of center of gravity of the loader. Continuous judicious use should not cause increased maintenance problems with the bucket loader.

FOR THE COMMANDER:

[Signature]

B. K. GOODWIN
MAJ, AGC
Assistant Adjutant General

Cy furn:
31st Engr Bn
20th Engr Bde
SUBJECT: Operational Report of HQ, 31st Engineer Battalion (C) (A) for Period Ending 31 October 1969, RCS CEFRM-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 15 JAN 70

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

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D. A. TUCKER
CPT. AGC
ASS'T AG
Wrong

Resultant of Forces

Soil Reaction Diagram

Right

Revetment Failure

3x4

20' Pole

Chain

Block & Tackle Key

Open Jaws

Field Expedient Crane

Incl 1

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ORGANIZATION CHART - 31ST ENGINEER BATTALION (C)(A)

CO

XO

S-1  S-2  S-3  S-4  Maint  Commo  Chap  Surj

HQ  A Co  B Co  C Co  D Co  557th

Inclosure 2

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### Operational Report - Lessons Learned, HQ, 31st Engineer Battalion

**Experiences of unit engaged in counterinsurgency operations, 1 Aug 69 to 31 Oct 69.**

**CO, 31st Engineer Battalion**

**13 November 1969**

**PROJECT NO:** N/A

**TOTAL NO. OF PAGES:** 20

**OBJECTIVE:** N/A

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