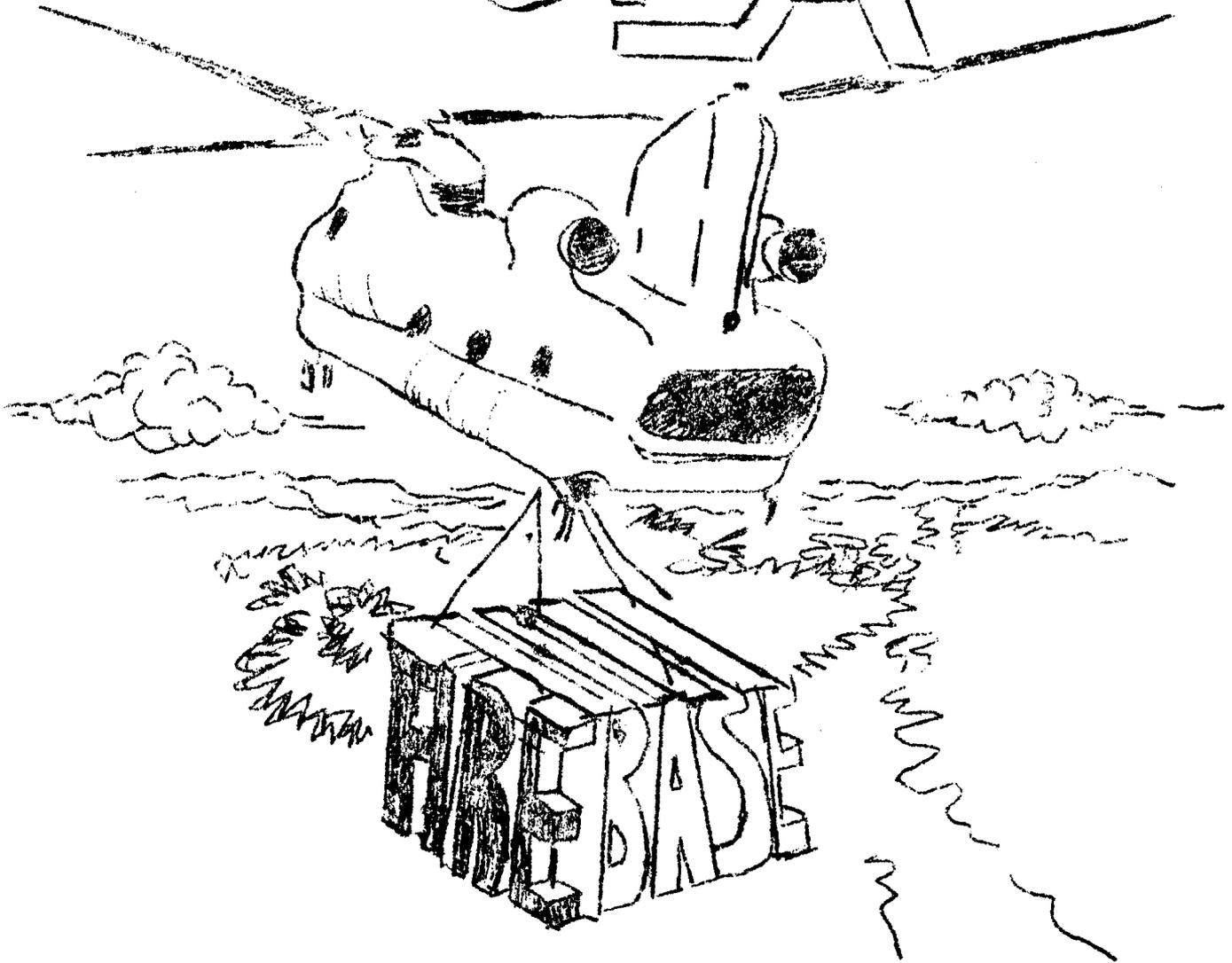


CONSTRUCTION OFA



1ST CAVALRY DIVISION (AM)

DEPARTMENT OF THE ARMY
14TH MILITARY HISTORY DETACHMENT
1ST CAVALRY DIVISION (AIRMOBILE)
APO SAN FRANCISCO 96490

AVDAMH

10 October 1969

SUBJECT: The Construction of a Fire Base in the 1st Cavalry Division
(Airmobile), 7-69

OFFICE OF THE CHIEF OF MILITARY HISTORY
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20315

1. Operation: NA.
2. Period Covered: September 1965 through October 1969.
3. Location: II, I, and III Corps Tactical Zones, Republic of Vietnam.
4. Control Headquarters: 1st Cavalry Division (Airmobile).
5. Supporting Elements: 8th Engineer Battalion, 1st Cavalry Division (Airmobile).
6. Mission: Support the infantry with all available resources organic to the fire base.
7. Persons Interviewed:
 - a. LTC Andre G. Broumas, [REDACTED], Battalion Commander of the 8th Engineers.
 - b. 1LT James R. Martin, [REDACTED], Executive Officer, Headquarters Company, 8th Engineers.
 - c. MSG Wright J. Jay, [REDACTED], Operations NCO, Headquarters Company, 8th Engineers.
8. Interviewer: PFC Joseph P. Coughlin, [REDACTED], Writer, 14th Military History Detachment, 1st Cavalry Division (Airmobile).

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I. Introduction - Concept of the Fire Base

The concept of the fire base or the fire support base as it is sometimes called is one of particular significance to the 1st Air Cavalry Division. Because of the airmobility of the division and its tactical situation in Vietnam, it has become necessary for the division to adopt new and more aggressive means of deployment. Because the Cav is the most tactically mobile unit in Vietnam it has the responsibility for one of the largest areas of operation (AO). This area of operations covers almost 4600 square miles and at times, depending on the tactical situation, half of III Corps. The boundaries of the AO change from day to day, however it seldom gets any smaller. In order to actively engage enemy units in this huge area, the division is constantly opening, closing and re-opening fire bases. If one would take a helicopter ride over any part of the Cav AO, he would almost certainly see an example of an active fire base, a deserted fire base (one that could be reopened the next day), and a fire base under construction. This opening and closing of fire bases is one of the basic concepts of the airmobile division.

For the Cav it all started in October of 1965 in Pleiku Province with the construction of fire base Bill. This was the beginning of an evolutionary process that has seen the constant hardening of fire bases into the sophisticated network that exists today. From clearings in the jungle with very little defensive capabilities to the formidable fire bases of today, fire bases have become the major defensive as well as offensive tactic of the airmobile infantry. Although fire bases differ greatly in capabilities and "comforts", they are virtually all, as fire support bases, capable of supporting with artillery and supplies the infantry companies that work their AO's. Because they have become more sophisticated, they have consequently become more permanent. This permanence

has allowed for better constructed and safer fire bases. It also allows for better support, both in artillery and logistics, for the infantry units working the area which is, in fact, the basic reason for their existence. Fire bases, no matter what size, have become a permanent part of the Vietnam War and will continue to be built wherever and whenever the tactical need exists.

II. Types of Support Facilities

Before we discuss the fire support base it will be to our advantage to define and make a clear distinction between the different types of forward support facilities that are found throughout the Cav AO. Clear distinction should be made between a fire base, a landing zone and a hasty landing zone (LZ).

All share the same basic goal - to support with all their available resources the "grunts" that work their AO's. In order to fulfill their mission they are all located in geographic areas where they are accessible to the infantry units they support. They differ, however, in their capacity to support, and it is here that a clear distinction must be made.

The fire base is exactly what the name implies, a tactical area that has the necessary personnel and equipment to support local infantry units with artillery fire whenever and wherever necessary, 24 hours a day. It also supplies logistics, communications, medical and rest facilities for the cavalrymen in its area. The size of a fire base will vary greatly according to the tactical situation and the units involved. However, the average fire base (and there is some question as to whether such an animal exists) possesses a 250 meter diameter with an 800 meter perimeter. Wherever you go in the Cav AO you will find some larger and some smaller, but all pursue the same goals with the same tactics; support the infantry with all available assets.

A landing zone is just that, an area large enough to accommodate a helicopter. All fire bases possess at least one LZ. It is the fire base airport where all personnel and equipment are landed or evacuated. An LZ can be found anywhere in Vietnam, including a jungle clearing or a Saigon street. Wherever a helicopter can take off and land safely can be considered a landing zone. Fire bases in the past have been called LZ's and this is still the most popular name used by the majority of GI's when referring to this unique support facility (eg. LZ Ike, LZ Andy, etc.). Fire base is simply the more inclusive term in relation to the mission and the capabilities of the fire base, and therefore the official term. A fire base includes a landing zone but it is much more than just that as any infantryman will testify.

A hasty LZ, on the other hand, is a temporary fire base without the fire power constructed for a particular mission and with no prospects for a lengthy existence. It is usually built to evacuate wounded personnel or to evacuate captured enemy supplies and weapons, and should be considered separately from the construction of a fire base.

Because the hasty landing zone (HLZ) is only a temporary landing zone, the number of personnel involved in the construction will be much less than the number required for a fire base. It could be as little as 2 or 3 persons working with chain saw and demolitions, but normally it will be at least a squad. When the site is chosen, the engineers will, if necessary, rappel into the area with chain saws, axes, demolitions and machetes to begin work cutting trees and clearing underbrush. It will be considered complete when it can meet the landing and take-off needs of the aircraft that will be utilized at the site. For the most part this will mean the UH-1 and the CH-47. The UH-1 helicopter requires a landing area roughly 60 meters in diameter. If the HLZ is to be used by more than one helicopter at a time, at least 50 meters spacing is required for aircraft

landing on line or in echelon, and 75 meters if in trail. The HLZ must be free of all obstacles and reasonably level (maximum slope is 15%). The following is a list of priorities in the construction sequence which is followed whenever possible.

- a. Demolition teams will clear a ring of the larger trees to outline the HLZ area.
- b. Branches will be trimmed and small trees cut down.
- c. Logs and brush will be cleared.
- d. This procedure will be continued until the diameter of the HLZ is large enough to accomplish its mission.

Safety is an important matter when constructing a HLZ. When explosives are being used it is the responsibility of the demolition team to ensure that all personnel, including the security elements, are at a safe distance from the charge being used. When chain saws are utilized it is the responsibility of the chain saw operator to warn all the personnel to be on the watch for falling trees. All trees should be felled so that they fall toward the outside of the HLZ. When the mission for which the HLZ was built is completed, the site is abandoned.

III. 8th Engineers

In the 1st Air Cavalry Division, the organization responsible for the construction of fire bases is the 8th Engineers. They joined the 1st Cavalry in 1921 as the 8th Mounted Engineers. Since that time, they have served proudly with THE FIRST TEAM in three wars making the going a little easier for their fellow cavalrymen. The Vietnam War has tested the versatility and ability of the 8th Engineers to the limit. They have proven themselves at every turn and in the Cav every turn presupposes a new engineering problem.

The battalion, commanded by LTC Scott P. Smith, consists of three line companies; A, B, and C, and a Headquarters Company. A, B, and C Companies support the 1st, 2d, and 3d Brigades of the Cav respectively. The three line companies

have two major functions: First, to cut fire bases in the Cav's areas of operations, and second, to further support the infantry by performing any required engineering task such as demolition missions, water point missions, and building items that are needed in the field. Headquarters Company is responsible for the heavy equipment, logistics and support of the three line companies.

The major difference between the 8th Engineers and any other engineer outfit is their airmobility. All the equipment organic to the battalion is capable of being airlifted by the division's helicopters to any construction site in the division's AO, making the 8th Engineers the fastest reacting construction team in Vietnam.

The engineers, however, are not the only unit involved in the construction of a fire base. The construction of a fire base is a three way project. Infantry, artillery and the engineers are the three major contributors and share the responsibility for the ultimate outcome. The engineers provide the technical knowhow along with manpower and equipment. The infantry provides security and the main labor force, while the artillery provides added security and additional manpower. Manpower is the basic ingredient, common to all units involved in the construction. This potpourri of talents is essential to the successful outcome of the project, or, for that matter, any project at any level throughout the division.

IV. The "Average" Fire Base

It must be clearly understood that tremendous diversity exists among fire bases. Some are virtually fortresses while others are little more than defenseless clearings in the jungle. The better constructed fire base is, for the most part, the more permanent one. They have, over a period of time, been improved

and perfected to the point where they offer the enemy little or no hope of successful assault. The defensive abilities on any one fire base are, to some extent, a reflection of the tactical commander's concept of the fire base mission. This is especially true in the case of a fire base that has been in existence for any length of time. If, in the considered opinion of the infantry commander, the fire base is one of only temporary use, he is not as apt to expend valuable equipment and personnel in costly and time-consuming construction. That is not to say that the tactical commander is oblivious to the security requirements inherent in the construction of any fire base - it merely presupposes a realistic appraisal of the tactical situation in the fire base area of operation. With this in mind, the following report will consider the "average" fire base, one that is not a fortress and not a defensive clearing in the jungle, but a forward base of operations for artillery and infantry that offers both refuge and support in the incessant search for the enemy.

V. Fire Base Construction

Let's assume that the tactical situation in the area of operations has warranted the need for a new fire base. The need having been determined, the planning begins. Development of a fire base can be viewed as having six interdependent phases all of which are of equal significance in the base's planning and successful completion. They are:

- 1: Planning
- 2: Combat assault and initial clearing
- 3: Immediate tactical construction
- 4: Final defensive structures
- 5: Rehabilitation and upgrade
6. Close out

Because the division is airmobile, it is imperative that all fire base planning be coordinated with the division's tactical mobility. Because opening a fire

base is often the first step in operations in a hostile area, time becomes the most crucial factor in both planning and construction. All efforts of the three major contributors, infantry, artillery and engineers, must be precisely timed in order to facilitate the flow of vital equipment and personnel to the construction site with minimum delay.

A. Planning

Joint reconnaissance by the base planners is a necessary step prior to any detailed planning. Both aerial and aerial photographic reconnaissance have proven to be valuable assets in determining the fire base site and placement of strategic weapons and bunkers to compensate for possible enemy infiltration routes and lanes of fire. Once this and other pertinent information has been gathered and assimilated an exact fire base site is determined at the division level and detailed planning begins at the brigade and battalion levels.

It has been proven time and time again that minutes spent in coordinated planning by all concerned units have saved hours in actual construction time. Prior planning, in the form of pre-fabrication and placement, has proven to be the most helpful pre-construction step available to all units involved in the actual construction.

With site terrain and weather information available to the planners they can proceed to determine what facilities are to be incorporated into the construction itself. Infantry, artillery and engineers simultaneously begin to gather equipment and material in preparation for the combat assault and initial clearing. Construction priorities can now be determined. This like all other phases of planning is a coordinated effort and reflects the ability and experience of the personnel involved. The 1st Air Cavalry Division standard operating procedure (SOP) suggests the following priorities:

- 1: Temporary logistical pad
- 2: 105 howitzer positions
- 3: Perimeter berm
- 4: Artillery fire direction center (FDC)
- 5: Infantry tactical operations center (TOC)
- 6: Ammunition supply point
- 7: VIP pad
- 8: Garbage sump
- 9: Defensive wire
- 10: 155mm howitzer positions (if applicable)

With the priorities determined, the tactical and logistical lift schedule can be arranged by the infantry. At the same time the Brigade Engineer determines the equipment and material requirements and obtains the necessary approval for their release through brigade S-4 channels. In the case of engineer equipment, requests are sent directly to the engineer battalion. Requirements for the construction will be developed by the project engineer and submitted to the infantry battalion, which is responsible for drawing materials and delivering them to the construction site. The forward support element will issue the standard fire base kit if available. The bill of materials contained in the fire base kit is included in the appendix. The kit is designed to standardize materials issued for the fire base but is sufficiently diverse to allow considerable flexibility in fire base construction.

The fire base kit itself consists of all the necessary materials that go into the construction of a fire base. Having a basic knowledge of the number and type of materials that are necessary for the construction, the engineer saves valuable time by compiling basic materials well in advance of the beginning phases of construction. Nails, spikes, culverts, chainlink, sandbags, pickets and lumber are necessary materials used in the construction of all fire bases and can therefore be gathered in basic loads and made ready for instant movement whenever the need arises.

The standard fire base kit, as defined by the 1st Air Cavalry Division, is sorted by size and type into components which provide the necessary items to

construct a complete fire base. The fire base requires about 25 CH-47 (Chinook) sorties for insertion into the construction site. The kit, which provides for an infantry battalion plus or minus a 105mm howitzer battery, can be augmented to support a 155mm howitzer battery and/or radar tower.

The heavy equipment necessary for the construction will come from Headquarters Company of the 8th Engineers located at Camp Gorvad (Phuoc Vinh). If the equipment is available, the average construction site will employ two Case 450 light bulldozers, one 3414 backhoe and two D6B medium bulldozers (see pictures). The Case 450 is a light tractor that can be hauled to the construction site in one piece by the CH-54 Flying Crane. It can be used to clear fields of fire, small trees, and level artillery positions. It is most useful getting into tight areas where the larger equipment, because of its size, cannot maneuver. The 3414 backhoe, transported to the site by a CH-47 Chinook in one piece, digs emplacements for the TOC, FDC, medical bunker and perimeter bunkers. The third type of equipment utilized is the D6B bulldozer. Because of its weight, the D6B is split into two loads. The tracks and blades will be lifted by a Chinook, while the body of the tractor constitutes a Flying Crane load. The dozer will be assembled on the ground, an operation that takes between 30 and 90 minutes depending on the pilot's placement of the body. Ideally, the body is set down on the tracks. The D6B will do most of the pushing and pulling in clearing operations and berm construction. The three tractor combination constitutes a hard working, reliable team that can transform dense jungle into a working fire base in a reasonably short period of time. Thus, if available, one combat engineer platoon, two Case 450 dozers, one 3414 backhoe, and two D6B dozers will be committed to the construction of a fire base. This force will be tailored according to the terrain as well as other tactical commitments.

The project engineer will, for the most part, practice the "Overkill" concept in planning his engineer troop and equipment requirements. This concept involves hitting the site early with all available engineer equipment and personnel, and committing these forces toward developing a tenable fire base by nightfall of the first day. A tenable fire base, in the present area of operations, must include internal land clearing, fields of fire, artillery positions, fire direction center (FDC), infantry tactical operations center (TOC), perimeter wire, fighting positions and overhead cover for all the troops. In order to accomplish this project the engineer must be on the ground early with a coordinated plan for the commitment of engineer and infantry troops to the construction program. As essential construction projects are completed, troops and equipment will be phased out of the site and on to other missions.

The amount of heavy equipment that will be needed will depend on the terrain and the pre-assault clearing measures that have been taken by the infantry commander. If the proposed site is one of dense jungle where it would take ground crews considerable time to clear even the smallest opening, it would be to the commander's advantage to use more efficient means, such as large Air Force bombs that would completely demolish all vegetation in the drop area. The 750 pound bomb called the "Daisy Cutter" detonates approximately ten feet above the ground, completely destroying all vegetation within a ten foot radius and knocking down trees in a considerably larger area. The 10,000 pound bomb (instant LZ) performs the same devastation but over a much larger area. When pre-construction planning includes the use of such large and devastating bombs, construction time is greatly decreased especially in the initial phases of land clearing and fields of fire. Because the present area of operations is generally more dense than that of northern I Corps, it is important that preparatory fire play a large part in clearing fire bases prior to the initial clearing. Much time and man-

power can be saved by selective use of high explosive land clearing bombs, such as the 750 pound and 10,000 pound bombs of the Air Force. Several recent fire bases were, of tactical necessity, located in areas clogged by bamboo or thick jungle growth. Napalm and "daisy cutters," had they been more extensively used, would have aided in the ground clearing, allowing engineer efforts to be directed sooner to the installation of perimeter wire and the clearing of greater fields of fire.

The amount of equipment that will be needed for the construction of a fire base is also dependent on the type of defensive and tactical structures that will be built at the site. Efficiency can be greatly increased through the use of a reusable, airmobile fire base TOC/FDC, which can be pre-cut and pre-stocked before the opening of a new fire base. Much of the time and effort spent on fire base construction goes into the building of facilities that are destroyed once the fire base is abandoned. Reusable TOC's, FDC's and personnel positions eliminate the waste of materials and reduce construction time as well as the number of lifts required to outfit a new fire base. The most efficient airmobile TOC, one that is immediately reusable, can be constructed out of two conex containers facing each other with the gap covered by M8A1 matting. This type of module is ideal for an FDC. Two modules (four containers) are adequate for an infantry battalion TOC. Using these containers, an operational TOC/FDC bunker complex can be completed within 8 hours, including pushing fill up around the sides and sand-bagging the tops. The efficiency of the operation is further enhanced when the unit moves to a new fire base. Operational materials can be packed into the conex containers and the containers dispatched to the new site in very little time.

An alternate improvement in TOC construction, somewhat less efficient than the use of conex containers, is the use of pre-cut tactical bunkers which are stocked by the brigade S-4 or brigade engineer and slung out to the fire base as

needed. The size of the structure may vary within the brigades, but for standardization of design and pre-cutting, the recommended size is a 20'x24' TOC and a 10'x16' FDC for all fire bases. The obvious disadvantage of this alternative compared to the conex containers is the continuing need to replenish the stock of bunkers.

One of the most time consuming tasks on a fire base is the construction of overhead cover for each man on the site. It is essential that every man have overhead cover by nightfall of the first day. The quickest and most effective system at this time is the two man position constructed of three sections of 72" or 60" culverts. This type of position is easily covered with sandbags or earth, and may be constructed and camouflaged in less than one hour and disassembled and evacuated very quickly.

Engineers would like to see these and other time- and material-saving procedures followed more closely in fire base construction. However, they are at this time the exception rather than the rule. Most infantry commanders prefer to use the more traditional materials in the major construction projects on the fire base. This gives them more flexibility in size and disposition of basic structures, and quite often a more defensible fire base.

With the personnel, equipment, and logistics requirements determined and being made ready for instant movement by the appropriate units, lift schedules can be arranged by the infantry commander with the aid of the artillery and engineering officers. The tactical troop and logistics lifts are arranged by the infantry commander. Lifts of engineer equipment and personnel are coordinated by the brigade engineer through brigade channels. The engineer company commander, whose troops will be involved in the construction, will prepare his troops for immediate movement to the construction site.

B. Combat Assault and Initial Clearing

With the planning completed, the unit's infantry and combat engineers that will be involved in the upcoming combat assault are informed of their status and begin to make immediate preparations. Personal and unit equipment is checked and double checked. Maintenance is performed where necessary and then starts the inevitable waiting until the word is given to move to the staging area. This is a time of mixed emotions for all personnel, experienced and unexperienced alike. Constructing a fire base is a risky business and the most risky part of the construction is the combat assault. It is then that the assault troops are most vulnerable to an ambush. If the construction site is not large enough to accommodate a UH-1 assault helicopter, it will be necessary for the combat assault troops to rappel from a hovering helicopter 50 to 100 feet off the ground. It goes without saying that this type of troop insertion greatly increases the chances of an enemy ambush.

Once on the ground, the infantry unit sets up a security network around the area that is being cleared while the engineers begin to clear an area large enough to accommodate both the CH-47 and CH-54 helicopters. The time required to complete the initial clearing depends on the terrain at the fire base site. If the site is clear of most trees and underbrush, or if these obstacles have been removed by artillery and tactical air fire preparation, it will take very little time to clear the necessary landing area for the big choppers. If, on the other hand, the site is one of dense jungle, completion of the initial clearing by the combat engineers using demolitions and chain saws may take up to three hours.

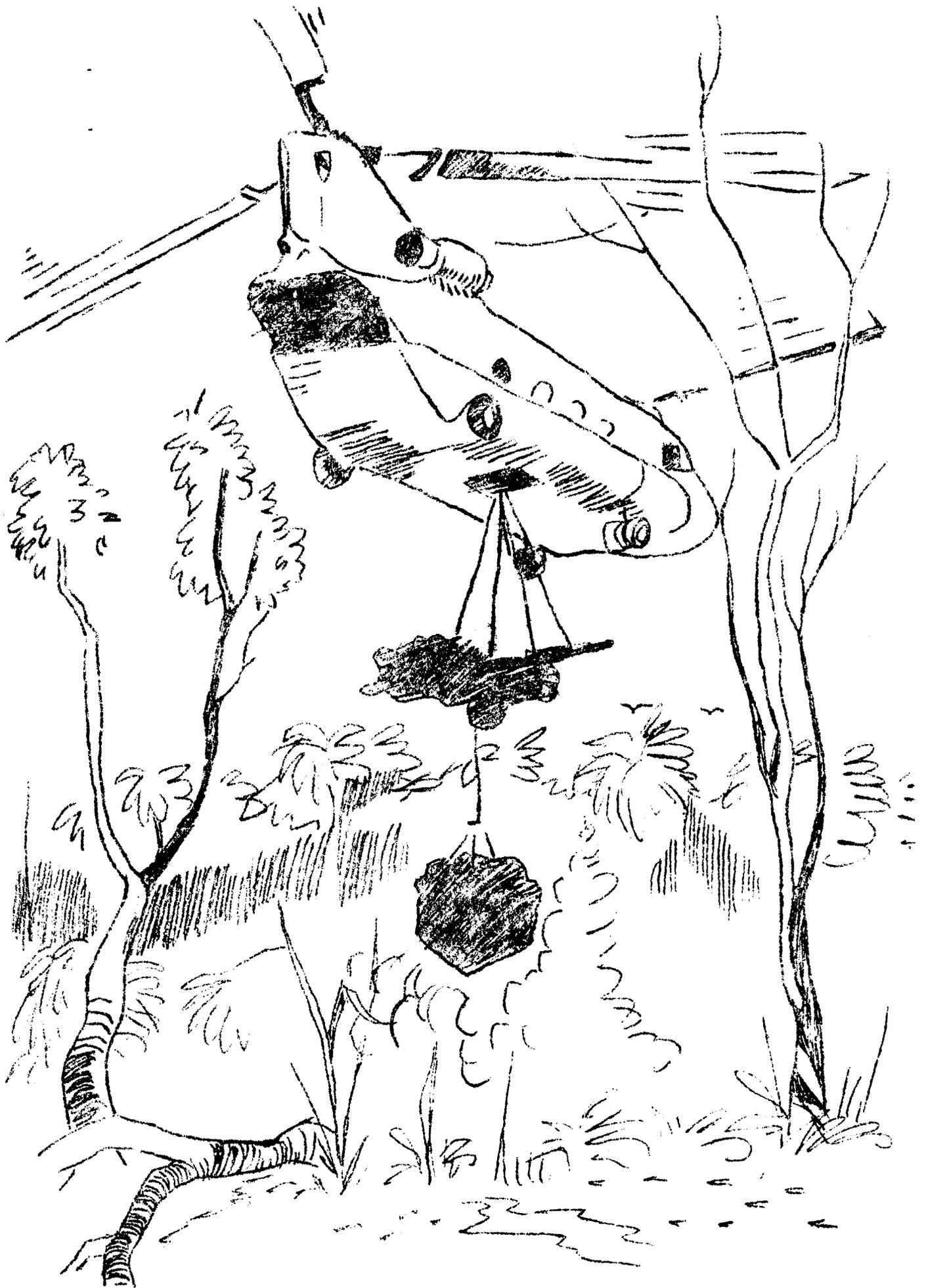
Most of the work involved in the initial clearing will be accomplished by the hand tools traditional to the combat engineers. Once a sufficient landing area has been cleared, larger equipment can be landed to augment the muscle power of the combat assault troops.

C. Immediate Tactical Construction

Phase III begins as soon as the cleared area can accommodate a CH-54 "Flying Crane" helicopter. At this time, two case 450 dozers are lifted to the site and are immediately employed clearing brush and stumps to expand the perimeter and clear and level howitzer positions. Meantime, the engineers continue to expand the perimeter with chain saws, demolitions, and bangalore torpedoes. As soon as the area is available, D6B's and one or two 3414 backhoes will be introduced into the site. The D6B's will be committed to clearing a logistics area and sling-out pad and then to expanding the perimeter and fields of fire. At the same time, the backhoes will be engaged in excavating positions for the infantry TOC, artillery FDC, and, as soon as the perimeter trace is established, perimeter fighting positions.

The immediate tactical construction phase is characterized by coordinated efforts by infantry, artillery and engineering forces to produce a tenable tactical position by nightfall of the first day. It is a time of intense helicopter traffic introducing personnel, ammunition, barrier and bunker materials, rations, fuel, water and artillery pieces into the site. It is imperative that all personnel remain alert and perform their assigned tasks with speed and precision.

As soon as a perimeter trace is established and the site is capable of accepting the logistics and artillery lifts, maximum efforts are directed toward the defense of the fire base. As soon as the situation permits, the D6B and the 450 dozers are committed to the construction of a 4-foot berm around the perimeter to protect against enemy direct fire. At the same time, all available infantry, artillery and engineer troops begin work on perimeter wire entanglements to include the first strand of tactical wire, and initiate perimeter bunker construction along the berm at sites previously excavated by the backhoe. The infantry commander has the option of constructing "quick fix" bunkers which can

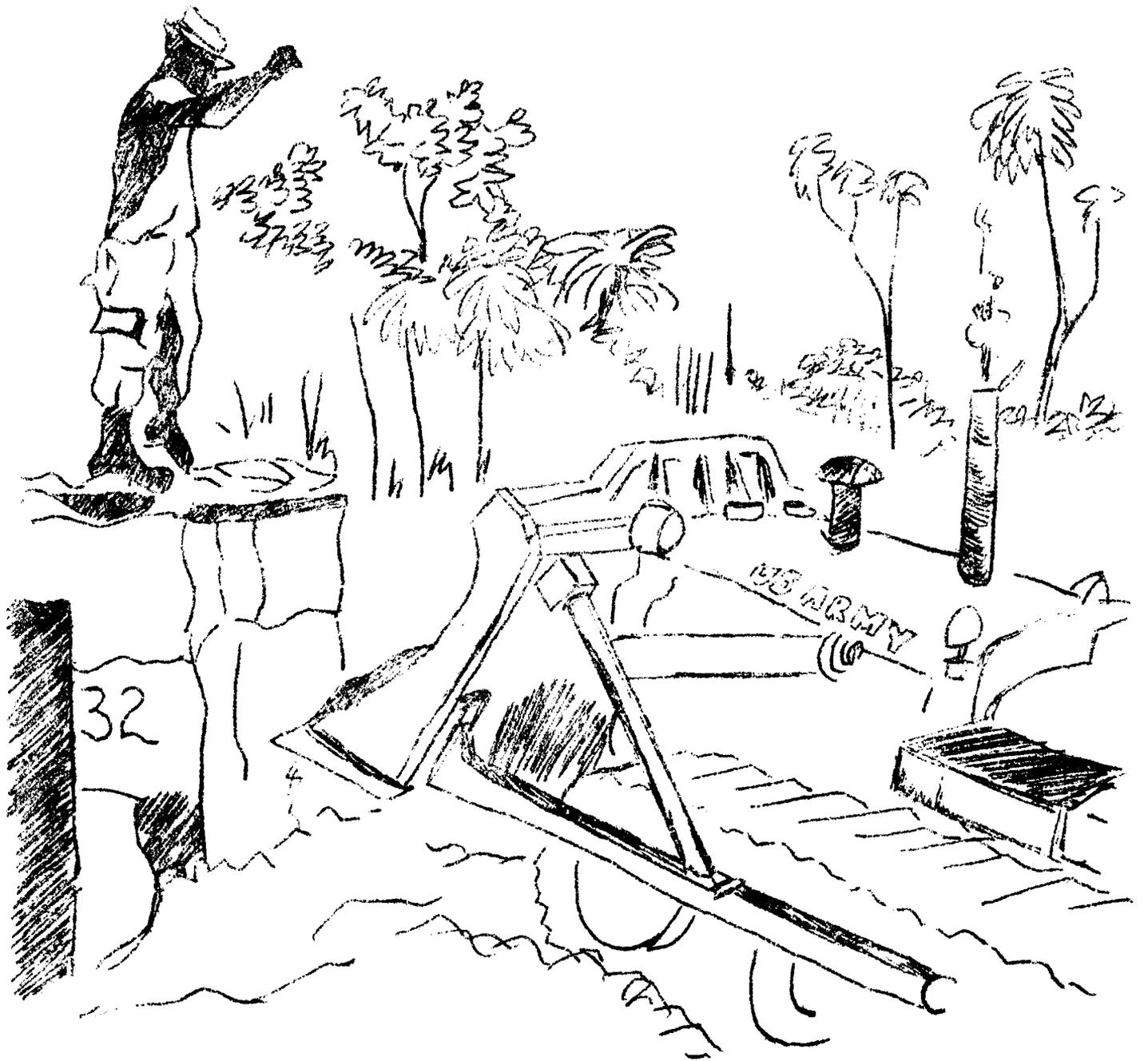


later be upgraded, or of constructing the standard perimeter bunker right away (drawings of each type are attached). The tactical wire constructed at the average fire base is triple standard concertina. At the same time, any artillery troops not committed to immediate fire missions or other necessary first day construction are set to work preparing ammunition storage bunkers and parapets around each howitzer.

To this time, all phases of the combat assault and construction have been successful. Security forces are on station, a landing area has been cleared for the large choppers, heavy equipment has been inserted and put to work on priority projects, artillery and artillery personnel have been inserted and are preparing their weapons for immediate fire missions, and fire base personnel have been arriving at regular intervals and put to work at immediate tactical construction. All this activity presupposes coordination and team work by all personnel on the fire base. Team work is essential in all phases of construction, but even more so in the immediate tactical construction. This phase must be completed by nightfall of the first day if the fire base is to be secure against possible enemy attack that first vulnerable night.

D. Final Defensive Structures

Phase IV of construction begins when the Chinook sorties have delivered enough of the fire base kit to allow the engineers to commence work on the infantry TOC, artillery FDC, and medical bunker. The materials used in the construction of these facilities are, for the most part, large dimensional timbers which are pre-cut in anticipation of fire base requirements. The TOC, FDC, and medical bunker are usually started at the end of the first day or the beginning of the second day and completed by the end of the fourth day. The ideal goal is to have these structures well on their way to completion by the end of the first day.



While the engineers are completing the TOC, FDC, and medical bunker, the available artillery and infantry troops are busy on perimeter wire entanglements to include tanglefoot, channelizing wire and the second strand of tactical wire. Also during this phase, infantry and artillery troops, with engineer technical advice, continue to build and improve individual sleeping positions out of 60" or 72" half culvert sections. Within 72 to 96 hours after insertion, the fire base is essentially complete.

In the same way that efficient construction involves "overkill" in the initial phases, efficient use of troops and equipment demands that non-essential elements be moved on to other projects as soon as priority structures in phase IV are completed. If available, one or two items of equipment may remain at the site to complete lower priority construction.

E. Rehabilitation and Upgrade

As has already been mentioned, engineer troops and equipment may remain on the fire base as priorities permit. Those that do remain will be engaged in upgrading the fire base with regard to drainage, rehabilitation of damaged or improperly constructed facilities, and constant inspection of all facilities to ensure their continued structural safety. Surveying teams will be made available to prepare topographic maps for the base to assist the commander in maintaining good surface drainage. On long-term fire bases, equipment is returned to the area to re-clear fields of fire, improve drainage, and do repair work as required.

Recently it has become normal procedure to keep one squad of combat engineers on all major fire bases. This deployment of combat engineers will place engineer equipment and personnel at the immediate disposal of fire base commanders, thereby allowing for sustained maintenance of all fire base equipment and structures.



F. Close Out

The life span of a fire base depends on the tactical situation in its area of operations. When the proper personnel consider it no longer of tactical advantage to the Division to keep the fire base in existence, the base will be closed out. When the decision has been made to close out a fire base, the Brigade Engineer provides troops and equipment as necessary to assist in the dismantling of the fire base. Structures are dismantled in such a way as to salvage the maximum amount of material, especially timbers, culverts, M81 matting and chain link fence. This is done not only to deny the use of the material to the enemy, but to reconstitute fire base kits. The 1st Cav uses a standard design for fire base structures, so most timbers and other basic equipment are considered reusable. Holes are filled and berms leveled as desired by the infantry commander. Ordinarily one combat engineer platoon and one rifle company dismantle a fire base.

VI. Conclusion

The fire base, as a strategic development, is not an exclusive outgrowth of the Vietnam War. It is an old concept utilized by the Roman Army in its conquest of northern Europe. More recently, it has been employed against the Japanese in the form of the American island hopping strategy in the Pacific campaigns of World War II. Perhaps the most striking example of the fire base concept, and one very familiar to most Americans, is the fort system employed by the Army in the Indian campaigns on the western frontier. The concept was the same; support local units with all available resources and protect the local population from enemy hostilities. Vietnam calls for different interpretations of the same strategy. Advancements in all phases of technical and human capabilities have always called for new and more

inventive means of achieving the same goals. Vietnam is no exception. Fire bases, as old as the concept is, must be utilized with these new developments in mind if they are to be of lasting significance. The fire base is still in an evolutionary development phase and will remain in that state until the last American has left Vietnam, for that matter, until the last shot has been fired in the final war among men. Vietnam is part of that evolution, a very significant part. It is in Vietnam that the fire base has become the major defensive and offensive tactic utilized by all allied forces in the Republic. It is here that the enemy has met with constant and violent defeat and it is here, on fire bases located in every part of Vietnam, that the ultimate military victory must be won.

TABLE A: *Fire Base Construction Checklist.

1. LZ _____ 2. Infantry Unit _____ 3. Starting Date _____

4. LZ Commander _____

5. Project Engineer _____

6. Tactical Lift

	<u>Amount</u>	<u>Origin</u>	<u>Time</u>	<u>Type A/C, Sorties</u>
a. Personnel				

b. Equipment w/OVIE				

c. Equipment Section:				
Operators				
Mechanic				
Supervisor				
d. Supplies				
Tools				
Fuel				
Barbed Wire				
Concertina or Barbed Tape				
Pickets				
CONEXES				
Peneprime				
Water				
Rations				
Construction Materials:				
MSA1 Matting				
Culvert				
Lumber				
Sandbags				

TABLE A:- Fire Base Construction Checklist (Cont)

7. CONSTRUCTION PRIORITIES8. SITE PLAN

<u>Priority</u>	<u>Start (DTG)</u>	<u>EDC (DTG)</u>	<u>Element</u>
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DOZERS

1. Perimeter Trace
2. 105 Berms
3. 155 Berms
4. Perimeter Berm
5. Log Pad
6. CC Pad
7. Fields of Fire
8. ASP
9. Sanitary Fill
10. Fire Breaks
11. VIP Pad
12. Duster Positions

BACKHOES

1. TOC
2. FDC
3. Perimeter Posns
4. Personnel Posns
5. Sumps

TROOPS

1. LZ Clearing
2. Perimeter Wire
3. TOC
4. FDC
5. Fields of Fire

TABLE B: . Fire Base Kit.

<u>ITEM</u>	<u>U/I</u>	<u>TOC 20'x24'</u>	<u>AID STATION</u>	<u>20 Per BUNKERS</u>	<u>80 PERSONNEL SHELTERS</u>	<u>TOTALS</u>
2"x12"x20'	bf/ea	1400/35	800/20	1600/40		3800/95
3"x12"x20'	bf/ea	2880/48	1200/100			10080/168
4"x12"x20'	bf/ea	960/12	400/5	-		1360/17
4"x8"x16'	bf/ea	-	-	1220/30		1220/30
6"x8"x16'	bf/ea	384/6	256/4	-		1150/10
2"x6"x20'	bf/ea	362/16	160/8	-		522/28
6"x6"x20'	bf/ea	1440/24	840/14	6000/100		7980/134
Sandbags	Each	22,000	10,000	32,000		62,000
M8A1	Sheet	52	20	60		132
Tar Paper	Roll	12	8	20		40
Nails 60d	Pound	400	200	250		850
Nails 40d	Pound	200	100	-		300
Nails 20d	Pound	100	50	250		400
Nails 10d	Pound	25	-	-		25
8" Spike	Pound	200	100	400		700
Culvert	Pieces				320	320
Chainlink	25'x8' Roll	6	-	20		26

Barrier Material - Two bands TSC, 180m and 200m diameters.

Circumference = $D = (180 + 200) = 380 = 1200m$ of wire.

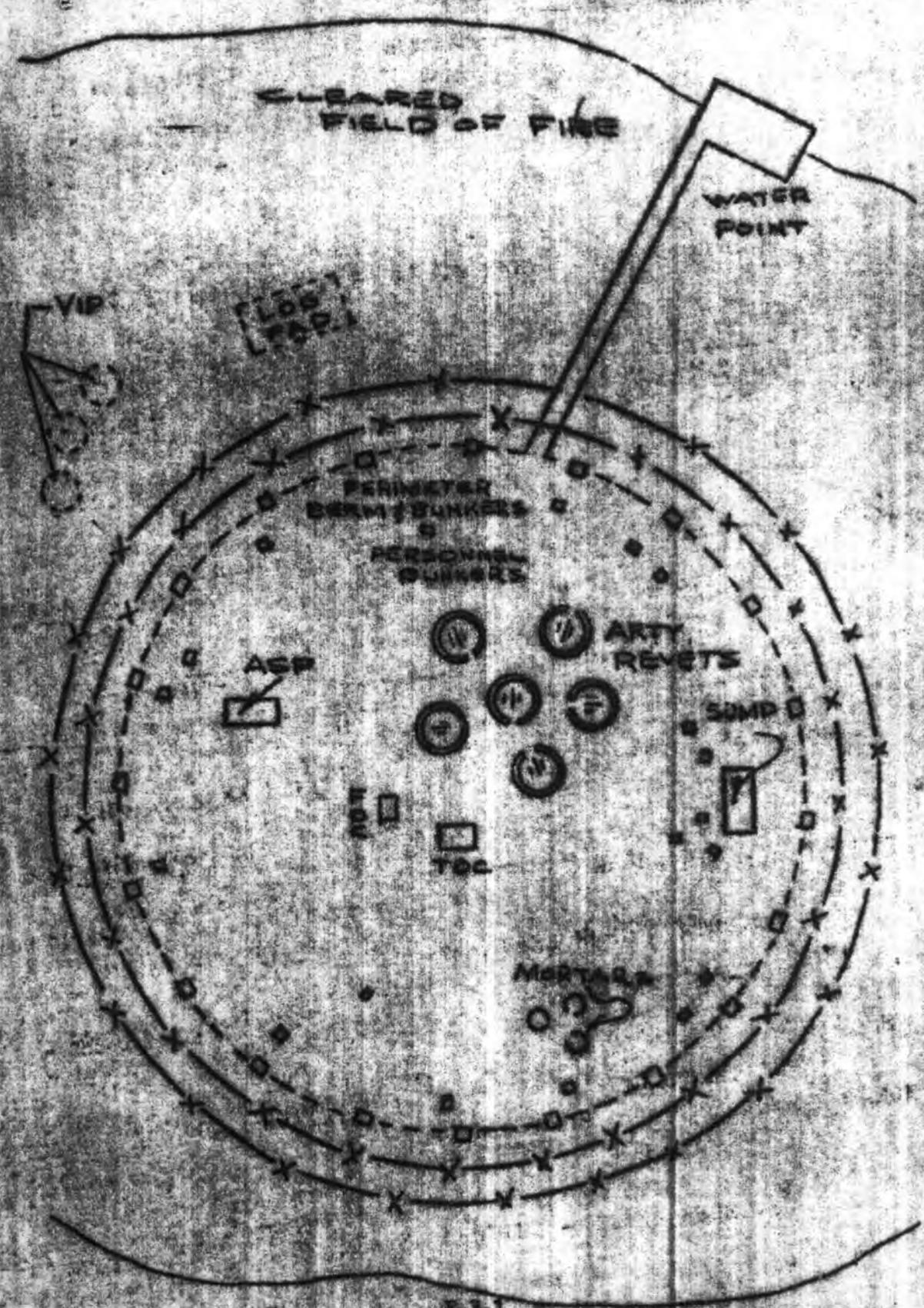
(Using 5-34, Table 20, Page 98 for reference)

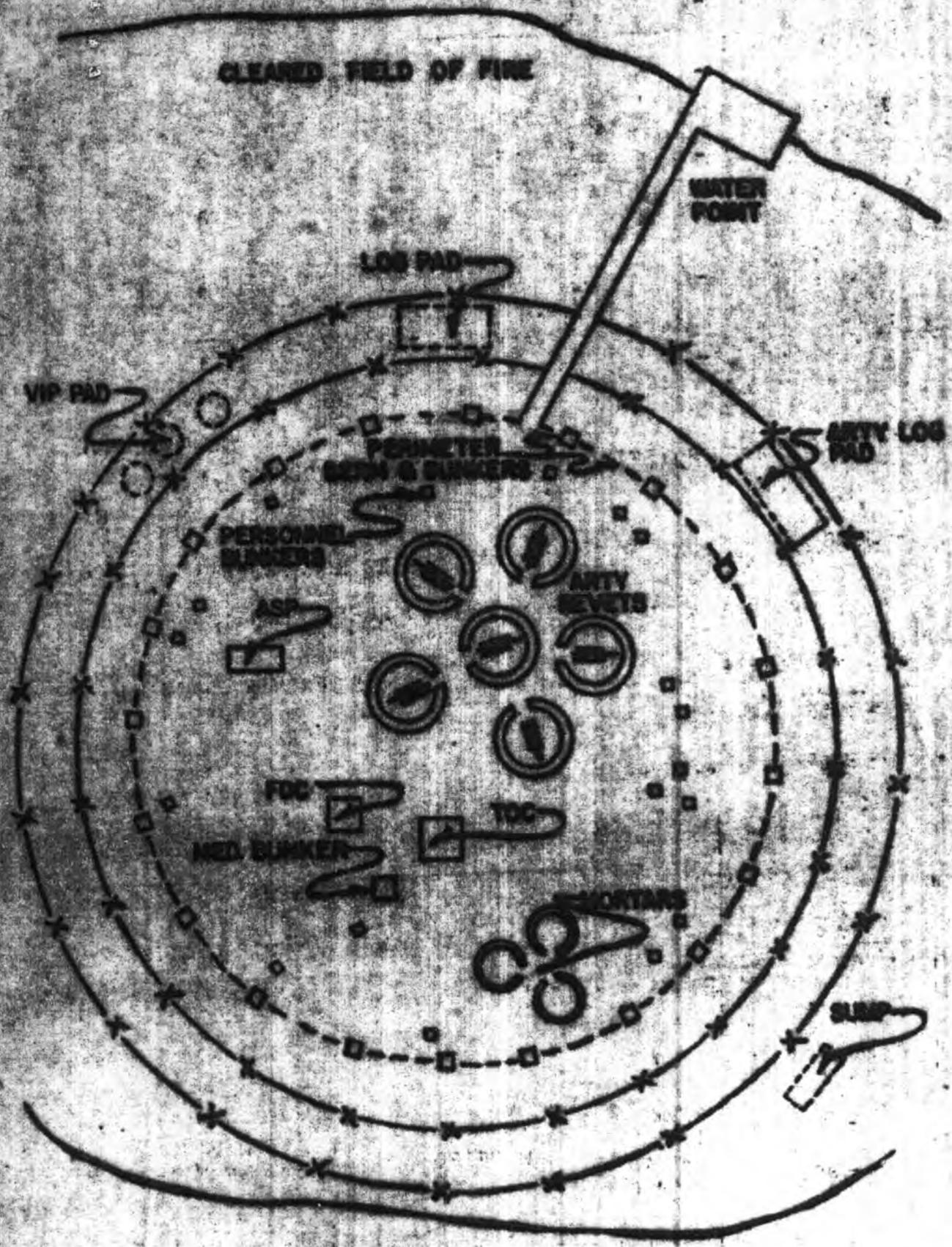
For 300m TSC - 160 8' Pickets
 160 3' Pickets
 3 Rolls Barbed Wire
 59 Rolls Concertina/83 Rolls German Tape

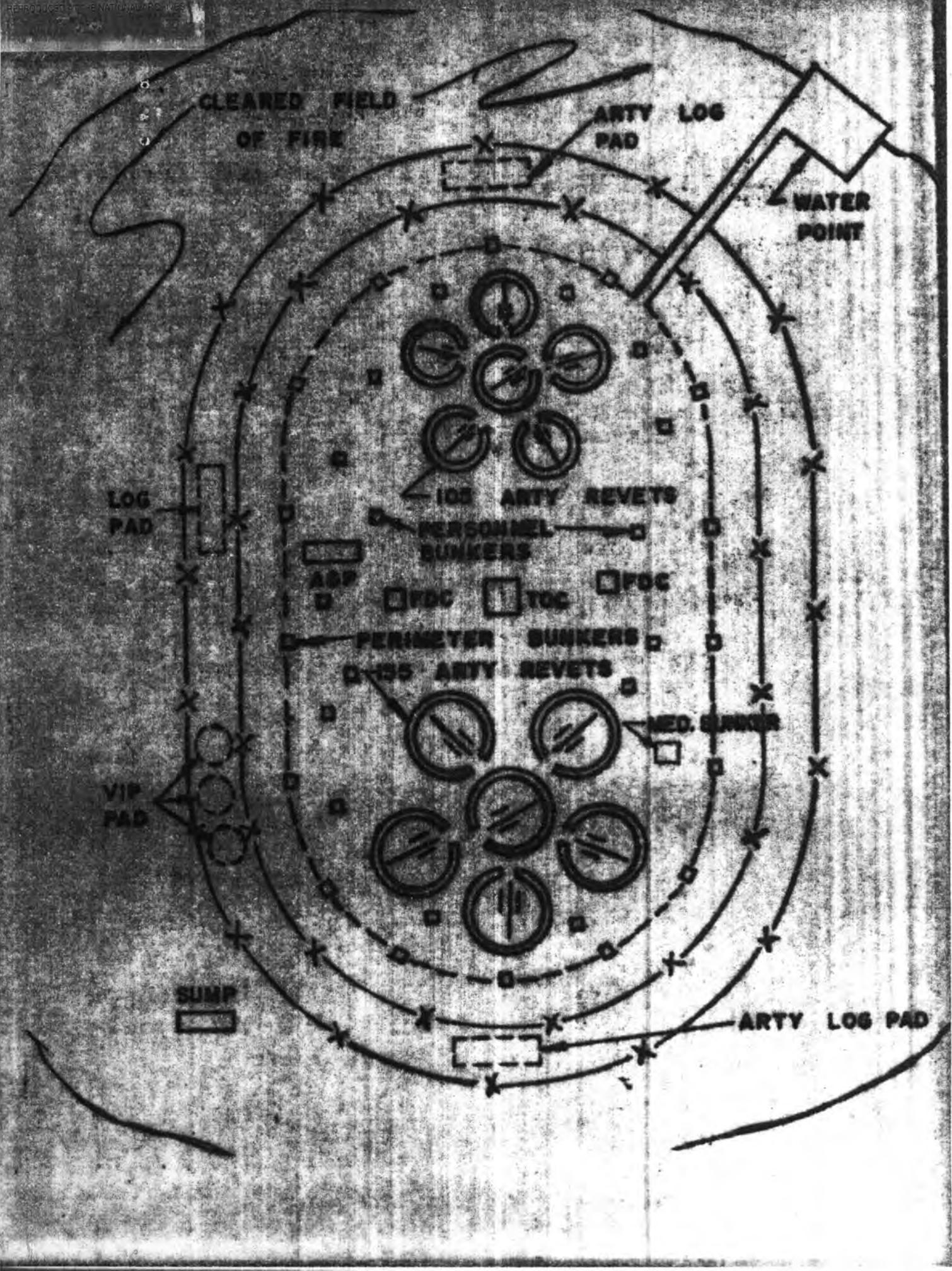
Required: 640 8' Pickets
 640 32" Pickets
 12 Rolls Barbed Wire
 240 Rolls Concertina/332 Rolls German Tape

APPENDIX 3 (Site Plan for Typical Fire Base) to ANNEX F
(Fire Base Construction) to 8TH ENGR BN TAC SOP

10 May 1969







14TH MILITARY HISTORY DETACHMENT
1ST CAVALRY DIVISION (AIRMOBILE)
APO SAN FRANCISCO 96990

AVDMHD

5 December 1969

LTC Leonard W. Wagner
Command Historian
USARV
APO 96490

Dear Sir :

Enclosed are the answers to the questions you asked concerning special report 7-69 "Construction of a fire base". I hope they are of some help in making the report more complete.

John M. Manguso
CPT FA
Commanding

A. QUESTION: IS THERE A RULE OF THUMB IN THE DIVISION THAT A BASE WILL BE LOCATED WITHIN THE ARTILLERY FANS OF ONE, TWO OR MORE BASES?

ANSWER: All fire bases in the 1st Air Cavalry division are within artillery range of at least one other fire base. It is standard operating procedure (SQP) in the division that a fire base will be within mutual artillery support range of at least one other fire base. It is also SQP that all fire bases will have at least one battery of 105mm guns stationed on each base. Consequently, all fire bases in the 1st Cav. AO will be within 105 range (Approx. 10k's) of at least one other fire base. The larger fire bases and those situated in critical locations, have the standard 105mm battery plus three 155mm guns. Any deviation from the SQP concerning the distance between fire bases must have the expressed approval of the Commanding General.

B. QUESTION: DOES CONSTRUCTION DIFFER WHEN THE BASE IS TO HOUSE A MECH UNIT? IF SO, HOW?

ANSWER: The 1st Air Cavalry Division does not have a mech unit within its divisional organization. However, it does have the 11th ACR OPCON to the division. When the 11th ACR is located on a 1st Cav. fire base, its mission is usually that of a support unit causing little change in the defensive make-up of the fire base. The base will still be a class 4 effort with all the construction being performed by the engineers. When the 11th ACR is on its own on a fire base, TOC, FDC and other large construction jobs, usually performed by the engineers, will not be necessary. The tracks themselves would replace the bunkers that are found on all 1st Cav fire bases.

C. QUESTION: ARE BUNKERS AND FIGHTING POSITIONS SITED BY A STANDARD PROCEDURE, TERRAIN PERMITTING? FOR EXAMPLE, ARE THEY LAID OUT ON FIXED AZIMUTHS?

ANSWER: There is no set rule, within the division, that states where a bunker is to be located on a fire base. It is the fire base commanders decision as to where bunkers are to be located, how far apart they will be, and where the intermediate fighting positions will be placed. On the average fire base the bunkers will be situated 30 to 40 meters apart with intermediate fighting positions located at even intervals between the bunkers. Whenever possible, uniformity is sought in the positioning of both bunkers and fighting positions. Bunkers are not laid out on a fixed or predetermined azimuth, but are situated so as to block terrain features that could be used by the enemy as lanes of fire or possible infiltration routes. Geographic situation is the determining factor with reference to the location of bunkers and fighting positions on all 1st Cav. fire bases.

QUESTION: WHEN BASES ARE BUILT IN FLAT CLEAR AREAS, SUCH AS THE BASE IN THE PHOTO (WHICH IS PROBABLY ASPEN), ARE BARBED WIRE OBSTACLES BUILT AT RELATIVELY FIXED DISTANCES FROM THE BERM? IF SO, WHAT ARE THE DISTANCES AND THE REASONS FOR THEM?

ANSWER: In the 1st Air Cavalry Division barbed wire obstacles are found on all fire bases and are set at relatively fixed distances from the berm. The first strand of wire, the strand closest to the berm, will be positioned far enough away from the berm so as to be out of hand grenade and satchel charge range. This would locate the first strand of wire between 35 and 40 meters from the berm. The second strand would be located from 25 to 30 meters from the first and the third 25 to 30 meters from the second. The distance will differ, to some extent, depending on the terrain and location of the fire base. However, the reasoning behind the placement of wire obstacles remains the same on all fire bases; and that is, to keep sappers far enough away from the berm so as to be out of throwing range, and to break-up and slow down possible attackers.

E. QUESTION: WHERE ARE CLAYMORES AND TRIP FLARES POSITIONED?

ANSWER: In the 1st Air Cavalry Division there is a general rule concerning the positioning of claymore mines. 'All claymore mines will be located no further from the berm than can be visually observed by the occupants of the bunkers'. The first line of mines will be located directly in front of the bunker line with a second line placed in the first strand of wire and a third between the last two strands of wire. Trip flares are located in no set position. They are set, in very liberal amounts, around the entire berm, both inside and outside the defensive wire.

F. QUESTION: HOW ARE LANES/GAPS IN THE WIRE SECURED?

ANSWER: Gaps or lanes in the wire will usually be found in only two locations, Ex. north and south gates. These positions are covered by large barb wire gates that can be dragged into position at nightfall or whenever necessary and will usually be covered by a M-60 gun emplacement and further secured by claymore mines and trip flares attached to the gate itself.

G. QUESTION: HOW IS THE BASE CONSTRUCTED SO AS TO PERMIT DIRECT FIRE BY ARTILLERY WITHIN THE BASE? CAN DIRECT FIRE BE LAID OVER THE ENTIRE PERIMETER?

ANSWER: On most 1st Cavalry fire bases direct fire can be achieved over the entire perimeter. This is accomplished, for the most part,

G. ANSWER : by firing Charge 1 "Killer Junior", a high explosive with time fuse
CONT. which detonates 20 meters off the ground with a casualty radius
of 35 to 40 meters . This is not the only means of achieving direct
fire , but it is one of the most effective when the enemy is located
in a concealed position . If the enemy is located in the open , the
Bee Hive round would be the most effective . The artillery battery
will be located in a position where it can achieve maximum
results in support friendly troops working the base AO, and
if necessary , performing direct fire missions in support of the
fire base itself. If a blind spot exists , to the extent that
direct fire can not be laid on a certain section of the perimeter ,
a "7th position" will be utilized . This consist of maneuvering one
of the 105mm guns into a position where it can cover any blind
spots the battery can not reach.