PROVIDING ENGINEER RECONNAISSANCE TO THE MANEUVER COMMANDER

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DWAYNE R. SMITH, MAJ, USA
B.B.A., Columbus College, Columbus, Georgia, 1990

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THESIS APPROVAL PAGE

Name of Candidate: MAJ Dwayne R. Smith

Thesis Title: Providing Engineer Reconnaissance to the Maneuver Commander

Approved by:

_____, Thesis Committee Chairman
LTC Jonathan M. Williams, M.A.

_____, Member
LTC Franklin J. Moreno, M.A,

_____, Member
COL James T. Treharne, Ph.D.

Accepted this 6th day of June 2003 by:

_____, Director, Graduate Degree Programs
Philip J. Brookes, Ph.D.

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ABSTRACT

ENGINEER RECONNAISSANCE PROVIDED TO THE MANEUVER COMMANDER, by MAJ Dwayne R. Smith, 52 pages.

The use of reconnaissance on the battlefield has been a valuable tool for centuries. The ability of the engineers to support these reconnaissance efforts has, however, been a source of many discussions. The discussions are not whether it is important to provide detailed engineer reconnaissance on the battlefield, but how to provide this specific reconnaissance. While some maneuver forces, specifically the scout military occupational skill (MOS 19D) soldiers are trained to provide all types of reconnaissance information to include specific engineer information, far too many times the engineer reconnaissance is secondary in priority and quality, to the detriment of the entire force. The engineer branch must come up with a way to augment the brigade and task force reconnaissance units to provide detailed engineer reconnaissance to the brigade combat team commander with this much needed information. Present engineer doctrine speaks of the importance of providing assets to gathering detailed engineer reconnaissance. However, this same doctrine does not speak of providing assets to this mission. For far too long, engineer commanders have had to answer this question on their own with little help from the engineer branch or engineer doctrine. This thesis will examine this longstanding dilemma and evaluate the flaws within our doctrine and force structure with the goal of recommending a practical solution to the problem of getting high-quality, timely engineer reconnaissance to the maneuver commander.

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CHAPTER 1

INTRODUCTION

> You can never have too much reconnaissance. (1947, 110)
>
> Patton

> Reconnaissance operations are those operations undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographical, or geographical characteristics and the indigenous population of a particular area.. (2001, 13-0)
>
> FM 3-90

The art of providing battlefield reconnaissance is by no means a new idea. As far back as battles occurred, so did reconnaissance. In March 1241, the Mongol army crossed the Carpathian Mountains and by April had found the Hungarian army of 100,000 men near Buda and Pest. Having gained detailed reconnaissance about the Sajo River, the Mongol army led the Hungarians to a spot on the ground near the river where it wanted to engage the Hungarian army. The Mongol army then used extensive reconnaissance at the Battle of the Sajo River to maintain contact with the Hungarian army and to gain valuable information pertaining to key terrain. The Mongol army used its reconnaissance assets to set the conditions for future success against the Hungarian army. The reconnaissance was able to locate a stone bridge and a ford site for crossing of the Sajo River. Through gaining the imitative of maneuver, the Mongol army was able to lead the Hungarian army across the bridge where the Hungarian army eventually set up camp. The Mongol army then moved to the crossing site that the reconnaissance unit had discovered to attack the

Hungarians. Catching the Hungarian army off guard, constructing a bridge to aid crossing, and using the existing stone bridge, the Mongol army was able to destroy the encamped Hungarian army. Detailed reconnaissance, not only on the enemy, but also on the terrain allowed the Mongol army to use the terrain to its advantage on the battlefield.

> Reconnaissance was critical in determining enemy dispositions and taking advantage of the terrain in this and many other Mongol battles. The Mongol army conducted continuous reconnaissance with a definite reconnaissance objective, and a significant part of their success resulted from their reconnaissance operations. During operations, light cavalry preceded each of their army's main columns performing reconnaissance. They reported on terrain and weather conditions as well as the enemy's size, location, and movements. (FM 3-90 2001, 13-4)

The Mongol army knew the importance of detailed reconnaissance on the battlefield. Not only did they concentrate on enemy positions but also on all aspects of the battlefield to include the terrain and weather effects on their units as well as the enemy. Even as early as 1241, armies knew the importance of engineer reconnaissance. The reconnaissance for the Mongol army examined the terrain and weather effects. It was the reconnaissance unit of the Mongol army that discovered an existing stone bridge and locations and dispositions on the Hungarian camp as well as another river crossing site. "After dark, the main body of the Mongol army moved to cross the river at the crossing site. In addition to using the ford, the Mongols constructed a bridge to aid their crossing" (FM 3-90 2001, 13-5). Knowing the critical information of the river crossing proved to be the key to the destruction of the Hungarian force. Studying historical examples not only provides insight to the importance of reconnaissance but also sheds light on tactics, techniques, and procedures on how to provide this critical battlefield multiplier.

Commanders at all levels must have situational awareness on the battlefield to make decisive decisions that will influence the outcome on the battlefield.

To reduce confusion of some terms that I will use throughout this paper, I will briefly define them:

Army Battle Command System (ABCS)--employs a mix of fixed/semi-fixed installations and mobile networks and will be interoperable with theater, joint, and combined command and control systems.

Battlefield Operating Systems (BOS)--A listing of critical tactical activities. They include intelligence, maneuver, fire support, mobility and survivability, air defense, combat service support, and command and control.

Brigade Combat Team (BCT)--Task organized unit that includes all of the BOS units. Normally three brigade combat teams make up a maneuver division (two armor, one mechanized or one armor two mechanized).

Brigade Reconnaissance Troop (BRT)--Unit dedicated at brigade level to perform reconnaissance missions for the BCT.

Center for Lessons Learned (CALL)--Agency at Fort Leavenworth, Kansas that gathers lessons learned from training activities to combat.

Command Training Centers (CTC)--Training facilities provided for use by units that includes force on force training, live fire training, and simulations training. These include the National Training Center (NTC), Joint Readiness Training Center (JRTC),

Combined Maneuver Training Center (CMTC), and Battle Command Training Center (BCTP).

Interim Force--The force (brigade size) that is the link between the legacy force and the objective force.

Legacy Force--Current force structure of the army as we now know it today.

Objective Force--Force of the future for the Army.

Tactical Satellite (TACSAT)--Radio equipment used through the use of satellites.

The maneuver commander on the battlefield is constantly in search of updated intelligence through detailed reconnaissance. Task organization, fielding, modified table of organizational equipment (MTOE), and other issues have plagued engineer commanders in their efforts to support the maneuver commander's battle plans. The organic resources allocated to a task force or brigade commander do not include engineer reconnaissance. Although significant strides have been made in the world of intelligence gathering and dissemination, (i.e., Army Battle Command System--ABCS), these systems still do not provide the tools necessary to provide detailed engineer information on the battlefield. The problem of how to augment the reconnaissance assets of the brigade (brigade reconnaissance troop and task force scouts) and to still get detailed engineer reconnaissance has been a problem for maneuver commanders throughout history.

So how do we solve the problem of getting detailed engineer reconnaissance on the modern day battlefield to the maneuver commander? My thesis will concentrate on how to provide detailed engineer information on the battlefield to the maneuver commander in a

timely, logical manner. I will concentrate on actions of a maneuver brigade in support of a heavy division.

Commanders at all levels have tried to organize their units and assets to allow for a balance between actions during the battle (maneuver, actions on the objective, etc.), support roles, and the implementation of a detailed reconnaissance plan to support the overall operations plan. On every battlefield throughout history, the importance of detailed intelligence has posed a problem for maneuver commanders at all levels.

While great improvements have been made in the area of intelligence gathering, these battlefield gathering techniques still lack the tools necessary for providing detailed engineer information. Engineer information needed for the maneuver commander, especially during offensive operations, must include all elements that the force would encounter while getting to and destroying the enemy. In the United States Army White Paper, Army Chief of Staff, General Shinseki states, "Operations will be characterized by developing situations out of contact; maneuvering to positions of advantage; engaging enemy forces beyond the range of weapons; destroying them with precision fires; and as required, by tactical assault at times and places of our choosing" (Shinseki 1999, 1). General Shinseki goes on to say:

> Objective Force units will see first by detecting, identifying, and tracking the individual components of enemy units. Advanced technologies that lead to unprecedented intelligence, surveillance, and reconnaissance capabilities coupled with other ground, air, and space sensors networked into a common integrated operational picture enabling us to see the enemy, both in whole and in part, as a complex, adaptive organization. Commanders refine their information requirements based on their intent for the operation. (Shinseki 1999, 2)

This movement to the Objective Force continues to prove the need for all of the Battlefield Operating Systems (BOS) to bring to the battlefield not only conventional fighting forces but also detailed intelligence of the enemy. Detailed reconnaissance of the enemy, key terrain, and weather will give the maneuver commander more options when making critical decisions.

This needed intelligence includes all elements of the Battlefield Operating Systems. From the enemies' fighting positions, air defense systems, obstacle emplacement, supply points and routes, etc., detailed intelligence throughout the Military Decision Making Process (MDMP) and the actual battle, must continually be updated in a timely manner so that the commander can make quick, accurate decisions that will affect the outcome on the battlefield.

Proving the need for detailed intelligence would be an easy sale, but the how to provide this intelligence is a much tougher question. In the area of mobility and countermobility, the engineer community must come up with a plan for answering this problem. Many organizations have tried different ways to accomplish the mission of providing the commander with detailed engineer intelligence on the battlefield. Engineer battalions have provided reconnaissance assets in a number of ways to support the brigade's and task force's reconnaissance efforts. From providing engineer expertise (assistant brigade engineer) during the planning phase to augmenting the maneuver units with engineer assets to the brigade and task force reconnaissance units, the engineer commander still struggles to be able to provide these assets. While the new Brigade

Reconnaissance Troop as part of the maneuver Brigade Combat Team does employ engineers directly in the role of reconnaissance, this unit still does not provide adequate information for the commander.

During this process of my thesis research, many secondary and tertiary questions need to be asked and answered. Each of these questions will concentrate on different ways that we can provide the maneuver commander with detailed engineer reconnaissance:

1. Resources needed. What are the critical assets (personnel, vehicles, radios, weapons, specific reconnaissance equipment, misc.) needed for this unit to perform its reconnaissance mission?

2. Command and control of this organization. What will be the structure for command and control of this reconnaissance unit? Will the unit have a platoon leader, platoon sergeant, squad leaders, and team leaders or will it be under the control of a staff organization officer and noncommissioned officer?

3. Training. Who is responsible for the training of these reconnaissance assets? Do we make the required training into a formal training program performed at Fort Leonard Wood, Missouri, or do we train these soldiers to perform this mission at the unit level?

4. Task Organization. Where these reconnaissance assets are assigned for during missions? At what level do we assign this unit, brigade reconnaissance troop, task force scouts, or work as an independent unit?

To support these and other questions that will need to be answered, I will have to make some assumptions early in the research process. Some assumptions that I have identified are:

1. The maneuver community recognizes the need for detailed engineer reconnaissance.

2. The maneuver community cannot provide adequate engineer reconnaissance on the battlefield.

3. The Army (Training and Doctrine Command--TRADOC) will direct the Corps of Engineers (Maneuver Support Center--MANSCEN) to develop a plan to solve this reconnaissance problem.

4. Units do not presently have adequate resources to provide engineer reconnaissance to the commander.

5. New technological systems of the future will not adequately address the problem of engineer reconnaissance.

While I will focus on these questions and assumptions, these stated will not answer all areas of engineer reconnaissance in the Army. Much work must be done is this area. Not only must we concentrate on today's problem with the legacy force, but also we must look to the future of the Objective Force. In the interim we must support the mission of engineer reconnaissance in the Interim Force and the need for increased reconnaissance. As the force continues to downsize and be more spread out on the battlefield, reconnaissance will play an even greater role in the success of combat units on the

battlefield. For purposes of this research, I will concentrate only on providing reconnaissance assets to the legacy force.

There has never been a debate about the importance of engineer reconnaissance, but there have been many debates how to provide this information. Whether to provide this reconnaissance through a new unit, form an ad hoc organization, or to provide it by tasking the maneuver reconnaissance unit is the question that must be answered. For too long the engineer community has neglected to address this problem. While engineer doctrine does detail the importance of engineer reconnaissance, doctrine does not provide the how. Detailed background and research must be conducted before making an analysis as how to fix this problem.

Throughout my research, I will use many tools to help me gather needed information and then make a recommendation on how to provide detailed engineer information on the battlefield to the maneuver commander in a timely, logical manner. My research will be directed at the tactical level, brigade combat team. The engineer community must continue to find ways to meet this problem and support and resource the solution through doctrine. Using historical analysis, current training trends, engineer doctrine and research, maneuver doctrine, surveys, interviews, and personal experience will provide me background for my analysis.

CHAPTER 2

REVIEW OF LITERATURE

I will use a variety of ways in which to research my thesis question. The areas I have concentrated my research in are: historical examples, current training trends, engineer doctrine and research, maneuver doctrine and research, surveys, interviews, and through personal experiences. In the upcoming pages, I will briefly explain the patterns of each of these areas of research.

Historical Examples

I will show examples of reconnaissance throughout history. I will point out examples of both good and bad reconnaissance on the historical battlefields. Specifically, I will show how the correct use or the lack of all the Battlefield Operating Systems providing detailed intelligence on the battlefield either helped or hurt the maneuver commander in his operations plan. This research will cover major battles throughout history. Research and analysis will not be limited to just major conflicts. I will use current events including small conflicts (i.e., Bosnia, Kosovo, and operations in Afghanistan), and operations other than war (i.e., peacekeeping operations).

While there are many good examples of detailed reconnaissance, none may be better than previously mentioned example of the Mongol Army. The reconnaissance unit of the Mongol army used its assets to set the conditions for the success of the main body of the Mongol army.

> Mongol reconnaissance discovered the locations and dispositions within the Hungarian camp as well as a river-crossing site north of the camp. After dark, the

> main body of the Mongol army moved to cross the river at the crossing site. In addition to using the ford, the Mongols constructed a bridge to aid their crossing. (FM 3-90 2001, 13-5)

As previously discussed, the use of the Mongol army reconnaissance was crucial in destroying the Hungarian army. Vital to the reconnaissance unit's success was the organization of the unit.

> During operations, light cavalry preceded each of their army's main columns performing reconnaissance. They reported on terrain and weather conditions as well as the enemy's size, location, and movements. If a Mongol column met an enemy force that it could defeat, it did so. If it could not, its light cavalry maintained contact with the enemy, developed the situation to its advantage, and maintained freedom of movement. The Mongol light cavalry inflicted casualties and disrupted the enemy's movements while the main Mongol army deployed for action. (FM 3-90 2001, 13-5)

In contrast to the success of the Mongol army and their reconnaissance unit is the failure to conduct reconnaissance before the 1st Marine Division landing at Wonsan during the Korean War. Very little reconnaissance was conducted of the area where the marines were to conduct an amphibious assault. Because of this lack of reconnaissance, the 1st Marine Division's landing was delayed for six days. Fortunately, the South Korean ground force was able to accomplish the mission without the use of the 1st Marine Division. This did, however, provide lessons learned on the importance of detailed reconnaissance on all levels.

> The few mine countermeasures units that reached the operational theater after the Inchon landing began operations ten days prior to the amphibious assault on Wonsan, sweeping a thirty-mile channel to the landing beach. There had been little advance reconnaissance, the planners believing that the relatively few mines present would be found in the harbor's choke points. The mine countermeasures forces were stunned when minefield reconnaissance finally revealed that the North Koreans, under the direction of Soviet advisors, had laid more than three thousand mines over four hundred square miles in approximately three weeks. When magnetic-influence mines were encountered, the landing force of nearly twenty-nine thousand troops was kept at sea aboard the seventy-two ships of Joint

> Task Force 7 for six extra days. By the time the Marines finally came ashore, Wonsan had already been taken by South Korean troops. (Montross and Canzona 1957, 72)

Reconnaissance efforts are not only important in major conflicts but also small scale conflicts. The 16th Engineer Battalion proved this in its reconnaissance efforts in Kosovo. The 16th Engineer Battalion performed many reconnaissance missions including boundary activities, checkpoints, and obstacle information. The 16th Engineers used a unique system to gather needed information. "The 16th Engineer Battalion uses a mini-laptop with external compact disc read-only memory and 3 1/2 inch floppy drives, plus the Kodak DC120 zoom digital camera. We've sent pictures through the single-channel secure frequency hop and Spitfire TACSAT with some minor variations in the DTS configuration" (Jung 1999, 2).

Current Training Trends

Extensive lessons learned from action reports have been implemented in current training at the unit level. Simulations, Combined Training Center rotations, Division exercises, Brigade level exercises (i.e., Marne Focus), Task Force exercises (i.e. Hammer Focus), and other unit level training exercises are the main focus for this area. The Center for Army Lessons Learned (CALL) here at Fort Leavenworth has provided great assistance in this area. The Center for Army Lessons Learned is the proponent for gathering information from the field and putting it into a logical, working document.

Engineers are used in many different roles at the National Training Center (NTC). In a paper written by the engineer observer controller team (Sidewinders), many different issues were pointed out with recommendations for future operations. In the field of

intelligence the Sidewinders point out that engineers must be included early in the planning phase and integrated into the maneuver unit's execution plan.

> If brigade/task force assets are not available or capable of collecting the required intelligence then engineers should be task to augment the reconnaissance effort. Regardless of task organization (engineer recon assets in direct support or operational control), the appropriate engineer commander should issue clear and complete orders (or guidance as appropriate) to the engineer reconnaissance teams and ensure the team deploys with graphics, maps, reporting matrixes, and a redundant communication plan. Engineer commanders should also establish a system for tracking the location and activity of the teams, and receiving, analyzing and disseminating this critical information. (Sidewinder Team 2001, 2)

Engineer Doctrine and Research

The Maneuver Support Center located at Fort Leonard Wood, Missouri, continues to conduct research for the battlefield operating system mobility, countermobility, and survivability. As part of the Maneuver Support Center, the Army Engineer School has the responsibility for all related engineer doctrine. Having the most updated doctrine on today's tactics will aid me in the direction of how to provide detail engineer reconnaissance.

While FM 5-170, *Engineer Reconnaissance*, lays out specific engineer doctrine, it is not the only manual or doctrine dedicated to reconnaissance. FM 5-170 covers in great detail many areas of engineer reconnaissance that include: missions, intelligence preparation of the battlefield, tactical reconnaissance, engineer reconnaissance team training, and route classification; it does not provide for the organization of how to accomplish these tasks.

> Engineer recon elements may be a team-, a squad-, and a platoon-, or another-sized element. Regardless of the size, highly trained personnel are required for obstacle recon operations conducted forward of friendly lines and having extremely limited security and evacuation assets available. Engineer training must be focused on accomplishing the specific obstacle recon mission. The current engineer force structure does not provide for personnel (other than a recon noncommissioned officer in the S2 section) or equipment dedicated to recon efforts. However, experience has shown that engineer units that have dedicated

> personnel, equipment, and planning time to the recon effort have achieved great success. Successful employment of engineers in a recon role is a result of effective SOPs and highly trained staff and recon teams. (FM 5-170 1998, 4-1)

Engineer reconnaissance is also covered in numerous other engineer manuals: FM 5-10, *Combat Engineer Platoon*; FM 5-34, *Engineer Field Data*; FM 5-71-2, *Task Force Engineer Operations*; FM 5-71-3, *Brigade Engineer Combat Operations*; and FM 5-101, *Mobility*. Each of these manuals addresses specifics that support the level of expertise that the manual reflects. The engineer community continues to refine its doctrine to meet the every changing environment in which the engineer unit must work.

FM 3-34, *Engineer Operations (Draft),* (2003) looks to the future of the engineer corps as it supports the rest of the army. FM 3-34 specifically addresses how engineers will support transformation from the legacy force to the objective force. Not only is the Maneuver Support Center responsible for engineer doctrine but also many other ways of gathering and developing engineer doctrine. Included in these areas is the Engineer Council of Colonels.

Held biannually, the Engineer School at Fort Leonard Wood, MO holds the Engineer Council of Colonels. This is a time that the engineer corps' leadership meets for three days to discuss current and future issues pertaining to the engineer corps. In October 2002 I attended the first day of the Council of Colonels. Many subjects were covered including two of specific note: Brigadier General (BG) Castro's (Assistant Commandant for the U.S Army Engineer School) presentation on assured mobility and BG Castro's presentation on the engineer's future role in the objective force. BG Castro defines assured

mobility as “actions that give the force commander the ability to maneuver where and when he desires, without interruption or delay to achieve the mission” (Castro 2002).

BG Castro notes four things we must do as engineers to be able to complete his definition of assured mobility. They are: see first, understand first, act first, and finish decisively. To accomplish the last three we must be able to provide the maneuver commander the ability to “see first” the battlefield, which includes a detailed engineer reconnaissance plan and the ability to carry it out. BG Castro said, “real time modified combined obstacles overlay (MCOO)--develop mobility common operating picture from see to understand” (Castro 2002). Knowing the importance and being able to provide engineer reconnaissance must be accomplished by the engineer commander supporting the maneuver commander.

BG Castro also pointed out the need for increased reconnaissance assets in the future. The future Objective Force by nature will demand increased early awareness of the battlefield. With engineers more spread out on the battlefield, the need for engineers at the right time and right place will prove to be even more important.

Maneuver Doctrine

I will use sister TRADOC installations and schools for research. As stated earlier, I feel that not only is engineer reconnaissance important but all elements of the Battlefield Operating System are important. Combined Arms efforts are key to providing reconnaissance. History has shown that the engineer reconnaissance team cannot provide all the needed assets to provide detailed reconnaissance information on the battlefield.

Maneuver doctrine does support the idea of combat engineers integrated into the maneuver reconnaissance elements, whether it be the task force scouts or the brigade reconnaissance troop. FM 17-98, *Scout Platoon,* states:

> In reconnaissance operations, an engineer reconnaissance team may be placed in DS to a scout platoon. The engineers should remain attached to the scout platoon for the duration of the reconnaissance. The engineer team's primary objective is to collect OBSTINTEL and report the information back to the task force engineer to facilitate breach planning and preparation. The engineer team may perform the following functions:
>
> - Conduct tactical or technical reconnaissance.
> - Conduct route and bridge classification.
> - Assist in locating bypasses around obstacles.
> - Identify the exact composition and dimensions of an obstacle.
> - Conduct limited reduction of log cribs, abatises, and minefields. The engineer reconnaissance team's actual reduction capabilities are limited to manual and explosive methods. The scouts must provide security for the engineer team while it is reducing obstacles. (FM 17-98 Apr 1999, 4-8)

FM 3-90.3, *The Mounted Brigade Combat Team,* states:

> The DS engineer battalion may provide a specially trained engineer reconnaissance team specially trained to conduct area reconnaissance of an obstacle belt. They provide the technical expertise to identify and map minefields and complex obstacle belts and recommend breaching options to the commander. (FM 3-90.3 Nov 2001, 3-6)

As you can see, the maneuver community not only wants support from engineers, but also demands it in their doctrine. With the shortage of critical resources, finding a way to support the reconnaissance effort while continuing to provide mobility, countermobility, and survivability to the maneuver commanders is very difficult.

Surveys

I will use surveys of the leadership of the engineer corps and of my fellow students here at the Command and General Staff Officer Course. I want to use the past

experiences, knowledge, and how my fellow engineers and personnel from my small group feel about the direction of not only the engineer force but also the combined arms team.

I will conduct three different surveys. The questions I will ask to both the senior leadership of the engineer corps and the engineer students here at the Command and General Staff Officer Course will be the same questions (Appendix A). The questions I will ask to my small group (Appendix A) focus more on what support other branches feel is necessary for engineers to provide. The answers provided from these surveys will help to show the direction that current and future army leadership feels is important for engineers to provide reconnaissance to the maneuver commander on the modern battlefield.

Interviews

Through interviews of the engineer branch leadership, I want to show the direction of the engineer corps' leadership feels we should take in this area. These surveys were conducted mainly via email. The list of personnel I interviewed are: COL Daniel Wilson, 8th Army Engineer, COL John Peabody, 3d Infantry Division Engineer Brigade Commander, COL Marc Hildendbrand, 1st Infantry Division Engineer Brigade Commander, COL W. A. Bailey, British Liaison Officer, US Army Maneuver Support Center, and CPT Michelle Garcia, former commander HHC/317th Engineer Battalion.

Personal Experience

I will draw from my past experience to help close some of the gaps that have been created because of a lack of current doctrine in this area. I have been in the Army for more than twenty-one years in the field of engineering. I started my career as an enlisted soldier in construction engineering. For the past 12 1/2 years, I have been a Combat

Engineer Officer. I have served in many different positions that have given me experience in this area: platoon leader, assistant brigade engineer for 3d Brigade, 3d Infantry Division, company commander of a combat engineer company, and observer controller/trainer for combat engineer companies in the South Carolina National Guard. My military education includes the Engineer Officer Basic Course, the Engineer Officer Advanced Course, and the Air-Assault Course.

My personal experiences include commander, C/317th Engineer Battalion, 3d Brigade, 3d Infantry Division. While a commander of C/317th Engineer Battalion, my battalion commander, then LTC Daniel Wilson, introduced an engineer reconnaissance platoon in our battalion. During my seventeen months of command, we had an engineer reconnaissance platoon under our Headquarters and Headquarters Company. This platoon was a fully resourced reconnaissance platoon, under the leadership of a platoon leader and a platoon sergeant. My experiences during command include; multiple Task Force and Brigade level exercises, Brigade and Division simulations exercises, a National Training Center rotation, and an Intrinsic Action rotation in Kuwait. During this command time, we used the engineer reconnaissance team concept in all maneuvers we did.

I have significant experience dealing with combat engineering on the battlefield. I know the importance of detailed combined arms reconnaissance to keep the commander updated of the changing battlefield. My hopes are to continue in the field of combat engineering and be able to apply some of these lessons learned to engineer reconnaissance. I want to be sure as a battalion S-3 and a battalion commander, I can help to provide my maneuver commander the needed information to make informed decisions on an

everchanging battlefield. Furthermore, I want maneuver commanders everywhere to be able to benefit from detailed engineer intelligence gathered on the battlefield. The maneuver commander must be able to collect, analyze, and make informed decisions on an everchanging battlefield.

While this is not an all inclusive list, it will help focus the reader and set the framework for the remainder of my thesis. From here I will move the reader from a general understanding of the research problem to more specifics about how I will answer the research questions and secondary questions.

CHAPTER 3

RESEARCH METHODOLOGY

As mentioned in chapter 2, I will use chapter three to bring the reader to a better understanding of how my research will answer the question of providing engineer reconnaissance to the maneuver commander. In chapter 2, I briefly discussed several areas in which I gathered background for my analysis. Now, I will detail the "how" and "why" I will use this information in a logical format. I will examine each area differently for the conclusions and recommendations that I will draw in chapter 4. Again, the areas I will concentrate on are: historical examples, current training trends, engineer doctrine and research, maneuver doctrine and research, surveys, interviews, and personal experiences.

I will use extensive analysis to ensure the reader has a good understanding of the answers to key questions of my thesis. I will focus on answering the following secondary questions that support my thesis: 1. Resources needed. What are the critical assets needed for this unit to perform its reconnaissance mission? 2. Command and control (C2) of this organization. What will the C2 of this reconnaissance unit be? 3. Training. Do we inject the required training into a formal training program performed at Fort Leonard Wood, Missouri, or do we train these soldiers to perform this mission at the unit level? 4. Task organization. Where these reconnaissance assets are assigned for during missions? From detailed analysis, the conclusions will be drawn to answer: how do we solve the problem of getting detailed engineer reconnaissance on the modern day battlefield to the maneuver commander?

Using the six areas of historical analysis, current training trends, engineer doctrine and research, maneuver doctrine, surveys and interviews, and personal experience, I will take these four secondary questions to analyze my criteria for success. Each of these areas will provide a different insight to each unit that I will detail later.

Historical Analysis

This area has provided input not only to the importance of the need for good reconnaissance but also how reconnaissance assets were deployed in the past. It also shows how commanders analyzed the reconnaissance information to make critical decisions on the battlefields. Providing commanders with detailed information allows their decision making process to be more flexible and to react to the enemy's actions. This detailed intelligence of the battlefield allows the commander to fight the enemy, not the plan. Having this flexibility provides more options for the defeat of the enemy.

Current Training Trends

Studying the training of not only one's own unit but also others has provided great assistance in developing tactics, techniques, and procedures (TTPs). The use of the Army's combined training centers (CTCs) allows units to conduct extensive training at command levels that cannot normally be conducted at home station. Having dedicated observer/controllers and an opposing force assigned to these training facilities also adds a wide level of knowledge that can be used by commanders. The lessons learned at the CTCs continue to allow commanders to make training plan adjustments to support the unit's performance while at the CTCs.

Engineer Doctrine and Research

The engineer branch has conducted much research and debate, but not many changes have come from this area. I hope to examine this doctrine and make recommendations that will in the future become a formal part of the engineer branch training. As mentioned in chapter two, FM 5-170, *Engineer Reconnaissance*, points out the need for engineer reconnaissance but provides no comprehensive means for gathering this information. Using current engineer doctrine to show the need for detailed reconnaissance and then showing how we will provide is what I will do in chapter four.

Maneuver Doctrine

Knowing what is expected from the maneuver commander is key to knowing what his reconnaissance assets will be looking for. With a limited number of reconnaissance gathering assets, the assets must have a detailed plan for gathering information. I will examine this doctrine for what assets are available from the maneuver battlefield operating system and how the commander doctrinally employs these assets.

Surveys and Interviews

The surveys and interviews I used help to provide information from commanders and leaders currently serving in the field to what is important to them in the area of engineer reconnaissance. These surveys were conducted at Fort Leavenworth, Kansas and Fort Leonard Wood, Missouri. Survey number 03-011 and number 03-012 were at Fort Leavenworth, Kansas and survey number 03-012 at Fort Leonard Wood, Missouri.

The information gathered from engineer commanders and leaders showed a distinct trend echoing what engineer doctrine already tells us, that the need for providing

reconnaissance is there, but we still face the challenge of providing resources. While most commanders do agree for the need of these resources, there were some differences on where to get these resources.

The survey taken by my classmates provided general feedback to what all branches feelings are about the need for reconnaissance on the battlefield is now and will be in the future. While some officers did have, and did provide, some specifics about reconnaissance, most was their feelings on being supported by engineer reconnaissance.

Personal Experience

I will use my personal experience to tie all this information into a logical pattern for a recommendation to answer my thesis question. My personal experience will also allow me to input some lessons learned when I was a company commander in a mechanized infantry brigade.

Criteria for Success

From here, I want to detail the criteria to answer my thesis question and secondary questions. I will detail the key elements of criteria that I will use to evaluate for my research and then make recommendations and draw conclusions from my research. The criteria defined will go with my four secondary questions. I will use the combat engineer battalion (mechanized) that supports a brigade combat team for my analysis. Before defining the four areas that are necessary to analyze for success of this reconnaissance unit, I will detail five different courses of actions (units) that I will use for my analysis.

While there are many different ways to answer the question of providing engineer reconnaissance on the battlefield, I will limit my choices to five units that are manned by

engineer soldiers. I have chosen these five units based on the feasibility, acceptability, and suitability (FAS) test. As I will show, all of these units will have certain strengths and weaknesses in the area of providing engineer reconnaissance, but all of these units do pass the basic FAS test. FM 101-5, *Staff Organization and Operations*, details the definition of the FAS test:

> - Feasibility. The unit must have the capability to accomplish the mission in terms of available time, space, and resources.
> - Acceptability. The tactical or operational advantage gained by executing the COA must justify the cost in resources, especially casualties. This assessment is largely subjective.
> - Suitability. It must accomplish the mission and comply with the commander's guidance. However, the commander may modify his guidance at any time. When the guidance changes, the staff records and coordinates the new guidance and reevaluates each COA to ensure it complies with the changes. (FM 101-5 1997, 5-11)

Feasibility--Does the plan make sense? Is there a need and will the need outweigh the required efforts to implement the plan? Any change within a very structured system will cause some heartache. The need for detailed engineer reconnaissance has long been neglected. The end result compared to the required changes of any of these five options will far outweigh the necessary work needed for implementation.

Acceptability--Will this unit be accepted into the reconnaissance role in the army? Will this unit be able to integrate into the brigade reconnaissance troops and task force scouts' reconnaissance role within the brigade combat team?

Suitability--Can the unit do the required job? Detailed engineer reconnaissance not only takes personnel, but personnel with knowledge of what they are looking for and recognizing this information when they find it. The use of combat engineers will be able

to do this. They know what the maneuver commander will need to make informed decisions on the battlefield.

Each of the following units that I will use for my analysis does pass all elements of the FAS test. There were many units/assets that can perform this engineer reconnaissance mission, but I have used the FAS test to limit the total to five units. I will show in detail in chapter 4 the analysis of each of these five units independently. While each of my five units will have many differences, they will also have some common threads throughout them. Each unit will be assigned to the engineer battalion headquarters with the exception of unit E that will be part of the engineer company.

These units are detailed in figures 1-5:

Engineer Reconnaissance Platoon (Unit A): Platoon Leader (1LT), Platoon Sergeant (SFC), Squad Leader (SSG) X 3, Team Leader (SGT) X 6, Team Member (PVT - SPC) X 12. Total personnel = 23. High-mobility, multipurpose wheeled vehicle (HMMWV, hard body)--8, SINCGARS radio--16, M2 machine gun--6. MTOE change is necessary to field this unit.

ENGINEER RECONNAISSANCE PLATOON (unit A)

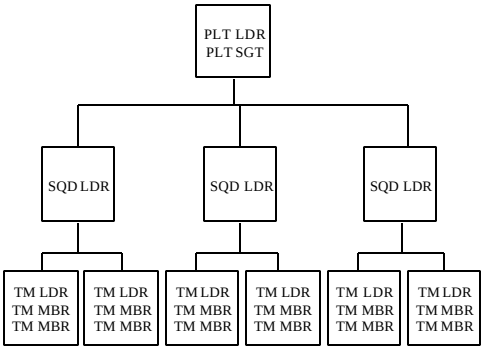

Figure 1

Engineer Reconnaissance Platoon (Unit B): Platoon Leader (1LT), Platoon Sergeant (SFC/SSG), Team Leader (SGT) X 6, Team Member (PVT - SPC) X 12. Total personnel = 20. HMMWV (hard body)--7, SINCGARS radio--14, M2 machine gun--6. No MTOE change is necessary, will take assets out of hide from within engineer battalion.

ENGINEER RECONNAISSANCE PLATOON (unit B)

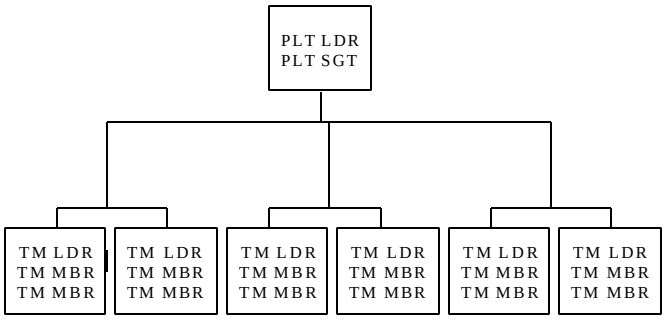

Figure 2

Engineer Reconnaissance Section (Unit C): Officer in Charge (1LT/CPT), Noncommissioned Officer in Charge (SFC/SSG), Team Leader (SGT) X 3, Team Member (PVT - SPC) X 6. Total personnel = 11. HMMWV (hard body)--4, SINCGARS radio--8, M2 machine gun--3. MTOE change is necessary to field this unit.

ENGINEER RECONNAISSANCE SECTION (unit C)

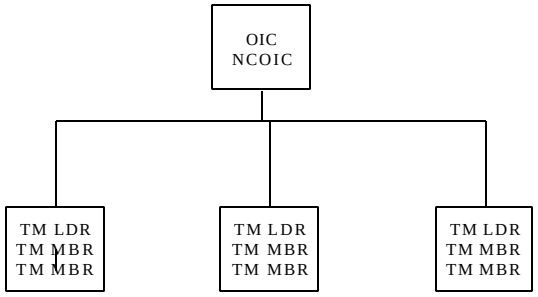

Figure 3

Engineer Reconnaissance Section (Unit D): Noncommissioned Officer in Charge (SFC/SSG), Team Leader (SGT) X 3, Team Member (PVT - SPC) X 6. Total personnel = 10. HMMWV (hard body)--4, SINCGARS radio--8, M2 machine gun--3. No MTOE change is necessary, will take assets out of hide from within engineer battalion.

ENGINEER RECONNAISSANCE SECTION (unit D)

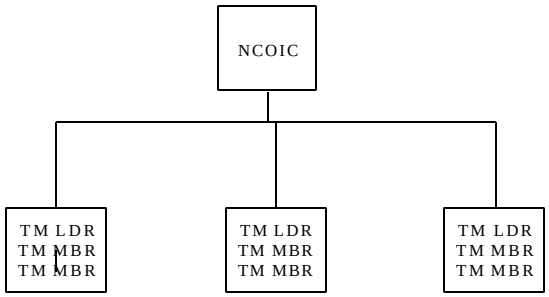

Figure 4.

Engineer Reconnaissance Squad (Unit E): One squad from each line platoon within the engineer battalion. Total of six squads are available for reconnaissance missions. Personnel and major equipment will come from assets of the engineer platoon. No MTOE change is necessary.

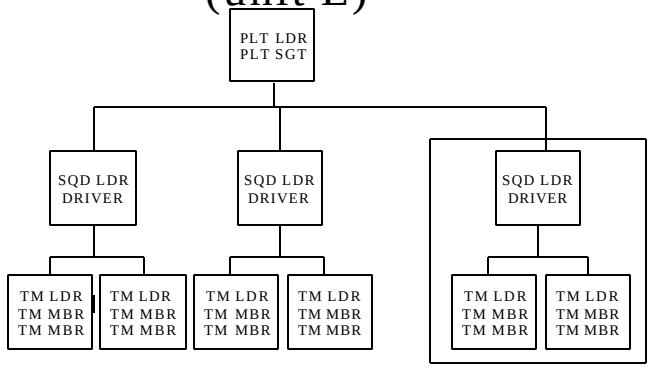

Figure 5

Now that each unit has been detailed to what it will look like in an organization chart, I will define what areas I will evaluate. These four areas are: resources needed, command and control, task organization for missions, and training. Each area will be evaluated independently.

Resources needed--Defining what resources are needed for success of the reconnaissance unit will be the key to answering this question. I will not take into account the cost of providing these resources. The resources I am referring to are personnel, vehicles, weapons' configuration (crew serve only), communication equipment, demolition equipment, and miscellaneous reconnaissance assets (binoculars, etc).

Responsibility for command and control of this organization--Each unit is unique in its organization to include the leadership of each unit A--E. I will compare the importance

of these leadership positions, command and control, of each unit from platoon leader to team leader and from staff officer/staff noncommissioned officer to team leader.

Task Organization--Where this reconnaissance unit is assigned for missions? While this area goes hand in hand with responsibility for command and control, I feel task organization should also be analyzed separately. Each mission will pose unique intelligence gathering problems that will cause the engineer reconnaissance assets to be used in many different ways. I will analyze three separate places that the reconnaissance unit can be assigned for missions. These three places are: an independent unit that performs missions, as part of the brigade reconnaissance troop, or as part of the task force scouts. During task organization, the commander will have to decide on the command support relationship for the mission of these units. The reconnaissance unit will be in a direct support (DS), providing a specific service for a specific mission while parent unit provides logistical support, or in an operational control (OPCON), providing the supported commander with more flexibility in conducting the mission, again where the parent unit provides logistical support. The reconnaissance will not be in an attached command support relationship, where the supported unit has to provide logistical support. I will further subdivide this category into the missions in which a brigade combat team is expected to perform: offense, defense, and support and stability operations.

Training--Who will train this unit? Will it be the responsibility of the unit of assignment or will the training be a part of the institutional training within the Training and Doctrine Command?

From the six areas of research I have detailed and the criteria for success that I have laid out, I will provide the reader a detailed analysis in chapter four to support my thesis. I will show specific evidence to the why and how I will answer the question of providing detailed engineer reconnaissance.

The procedure that I will use to complete a detailed analysis of all areas of criteria for success will be to use a decision matrix for all areas. Each unit will be scored From one to five with five being the best. After completion of the detailed decision matrix format, I will discuss in detail why each unit received the score it did. After comparing each area (resources, command and control, task organization, and training), I will add the scores of all four to determine the best unit to provide detailed engineer reconnaissance on the modern day battlefield. I will then detail the how to implement a plan and make recommendations to make this unit work to answer the question of engineer reconnaissance.

Once completion of my detailed analysis yields the unit most capable of providing engineer reconnaissance, I will make recommendations for implementation of this unit into the current force structure. To complete this process, doctrine must change at some point. Not only engineer doctrine but also maneuver doctrine must support the changes needed to provide engineer reconnaissance. Just saying what must be done will not be sufficient for military engineers to be able to accomplish this mission. We must do more than what current doctrine calls for, “The current engineer force structure does not provide for personnel (other than a recon noncommissioned officer in the S2 section) or equipment dedicated to recon efforts” (FM 5-170 1998, 4-1).

CHAPTER 4

ANALYSIS

In each of the four broad areas of analysis (resources, command and control, task organization, and training) I have used a simple decision matrix with each having several subordinate measures. Each individual will be given a subjective score from one to five with five being the best. While some may find one area more important than another, each category will be weighted and evaluated equally. Not weighting any one category shows the importance of all four categories to make the whole of the evaluation. Again, I will use the following four areas to analyze information: resources, responsibility for command and control, task organization, and training (tables 1 through 5).

In the area of resources, I will cover six different sub-categories:

Personnel--number of personnel and configuration of personnel to accomplish the reconnaissance mission.

Vehicles--total amount of vehicles to support the mission as well as ability to integrate into the brigade and task force reconnaissance.

Weapons--basic survivability of each reconnaissance team member and the team as a whole to defend itself.

Radios--ability to communicate internally among the reconnaissance, but more importantly the ability to communicate the gathered information back to the engineer battalion and brigade main tactical operations center.

Demolition (demo) equipment--demolition equipment required to conduct simple covert missions.

Reconnaissance (recon) tools--tools used to gather information that will enhance the unit's ability to conduct their reconnaissance mission, i.e. binoculars and night vision goggles.

Table 1

RESOURCES

UNIT / RESOURCE FACTOR	A	B	C	D	E
PERSONNEL	5	4	3	2	1
VEHICLES	5	4	3	2	1
WEAPONS	4	5	3	2	1
RADIOS	5	4	2	3	1
DEMO EQUIPMENT	1	2	3	4	5
RECON TOOLS	4	5	3	2	1
TOTAL (high is best)	**24**	**24**	15	15	10

Subcategory personnel: unit A scored the best. Unit A provides the maximum amount of personnel needed to accomplish many different missions simultaneously. These personnel will allow the engineer brigade commander more flexibility in providing support to the supported maneuver unit.

Subcategory vehicles: unit A scored the best. Again, flexibility is the key to unit A on the battlefield. They will be able to accomplish their mission while their leaders will have dedicated vehicles to provide support to the teams.

Subcategory weapons: While unit A and unit B are very close, unit B will have the same amount of crew served weapons, M2 machine gun, as unit A with less assets to provide defense of personnel.

Subcategory radios: With more SINCGARS radio units, Unit A will be able to have redundant communications for all their reconnaissance teams.

Subcategory demolition equipment: Being a part of an engineer line company will allow unit E more demolitions training. Habitual training together and being a smaller unit will allow for the unit to be more proficient in performing covert missions.

Subcategory reconnaissance tools: All units will be relatively equal in this area. Unit B and Unit A have a smaller advantage with the ability to transport more equipment for mission support.

While engineer and maneuver doctrine do not support the resources needed to provide engineer reconnaissance, the surveys I conducted narrowly support adding a new unit to the current engineer force structure. Current engineer commanders in the field recognize the need for dedicated resources, but understand the cost associated with providing these resources. Most commanders admit the engineer reconnaissance intelligence that is gathered from these resources far outweigh the loss of these resources for other combat engineering missions (i.e., breaching, obstacle emplacement, etc.). "However, experience has shown that engineer units that have dedicated personnel, equipment, and planning time to the recon effort have achieved great success. Successful employment of engineers in a recon role is a result of effective SOPs and highly trained staff and recon teams" (FM 5-170 1998, 4-1).

Finding a way to balance the need for providing engineer reconnaissance and supporting maneuver units remains a difficult task for all engineer commanders. While unit A and unit B had the same score, unit B narrowly beat out unit A because of the known difficulty of changing a unit's MTOE in this time of ever shrinking assets across the military. Colonel John Peabody, 3D Infantry Division Engineer Brigade Commander states, "we will never get the MTOE changed to insert ERT's into our organization, so why try to force it?" (COL Peabody Oct 2002).

In the area of command and control, I will cover four sub-categories:

Experience--the leadership that already has the most experience in the field of reconnaissance.

Leadership--the unit that allows for the best hierarchy of internal leadership.

Tactical skills--the collective skills of the leadership that has the skills from previous schooling and assignments.

Technical skills--the collective skills of the leadership that has the skills from previous schooling and assignments.

TABLE 2

COMMAND AND CONTROL

UNIT / C2 SKILLS	A	B	C	D	E
EXPERIENCE	2	1	5	4	3
LEADERSHIP	5	4	2	1	3
TACTICAL SKILLS	5	3	2	1	4
TECHNICAL SKILLS	5	3	2	1	4
TOTAL (high is best)	**17**	11	11	7	14

Subcategory experience: With a staff officer (captain) in charge of unit C, unit C will bring to the table a higher level of experience from the beginning.

Subcategory leadership: With a full range of command and leadership positions from platoon leader to team leader, unit A provides the best overall skills in leadership.

Subcategory tactical and technical skills: Drawing from the experience of squad leaders will allow unit A to not only have great tactical and technical skills, but also the ability to teach these skills to other squad members.

Unit A clearly is the best unit to provide for the best command and control of this reconnaissance unit. The use of squad and team leaders is critical to small unit leadership not only in training but also in actual combat to carry out these reconnaissance missions. COL Marc Hildenbrand, commander engineer brigade, 1st Infantry Division believes that the engineer must control the engineer reconnaissance assets. He says, “We need a trained,

embedded engineer reconnaissance capability within our combat engineer units" (COL Marc Hildenbrand, Oct 2002). This would allow the line engineer companies to concentrate on the traditional engineer support missions, while still giving the engineer battalion commander the needed assets to support the brigade combat team in the reconnaissance and intelligence gathering mode.

In the area of task organization, I will cover three sub-categories:

Independent unit--the unit will perform reconnaissance missions independently of other brigade and task force reconnaissance assets.

Brigade Reconnaissance Troop--unit will be task organized for missions to the brigade reconnaissance troop.

Task Force Scouts--unit will be task organized for missions to the task force scouts.

The category task organization shows the command support relationship that the chosen unit will have to its supported unit. The unit chosen for the engineer reconnaissance role can perform missions in any of the three subcategories.

TABLE 3

TASK ORGANIZATION

UNIT / MISSION ASSIGNMENT	A	B	C	D	E
INDEPENDENT UNIT	4	5	3	2	1
BRIGADE RECON TROOP	1	2	3	4	5
TASK FORCE SCOUTS	1	2	3	4	5
TOTAL (high is best)	6	9	9	10	**11**

Subcategory independent unit: both unit A and unit B would best be suited for performing independent missions. With more overall assets, both these units have the ability to gather engineer intelligence on the battlefield.

Subcategory brigade reconnaissance troop and subcategory task force scouts: being a small, squad-size unit, unit E would most easily fit into performing missions with either the brigade reconnaissance troop or the task force scouts.

Combat engineers must provide the supported maneuver commander with mobility, countermobility, and survivability on the battlefield. Providing intelligence of the battlefield is also a very important role the commanders must play. From the planning phase to the execution phase, the combat engineer plays a critical role. "To maximize the success of the infiltration and enhance survivability, scouts need a detailed knowledge of the terrain and

up to date information about the threat" (FM3-20.971 2003 Draft, 1-9). During planning, the assistant brigade engineer uses terra-base to provide detailed information of the area of operations.

> Terra-base is an effective tool. The best use of terra-base is to run the terra-base shot from the NAI/TAI or artillery target. This will save time by identifying all the possible OPs that are available. (Bronco Observer/Controller Team, National Training Center Sep 2002)

During the execution phase is where the engineer battalion commander must make tough decisions about task organization. The assistant brigade engineer plays a critical role in this process during the intelligence preparation of the battlefield (IPB) process. Maneuver doctrine supports engineer reconnaissance teams are used in support of the brigade's and task force's reconnaissance efforts.

> Whenever possible, engineer elements should have a habitual relationship with the scouts to whom they are attached. They should be task organized with scouts as early as possible in an operation so they can be integrated into the scout platoon leader's troop-leading procedures, rehearsals, OPORD, and movement plans. (FM 17-98 Apr 1999, 3-6)

> The engineer team may perform the following functions:
> - Conduct tactical or technical reconnaissance.
> - Conduct route and bridge classification.
> - Assist in locating bypasses around obstacles.
> - Identify the exact composition and dimensions of an obstacle.
> - Conduct limited reduction of log cribs, abatises, and minefields. The engineer reconnaissance team's actual reduction capabilities are limited to manual and explosive methods. The scouts must provide security for the engineer team while it is reducing obstacles. (FM 17-98 Apr 1999, 3-6)

While all of the unit's A through E could be task organized to perform engineer reconnaissance missions, unit E provides the most flexibility for these missions. Using a

trained engineer squad with organic equipment would allow them the ability to work independently or as part of the maneuver unit's reconnaissance assets.

In the area of training, I will cover two different sub-categories:

Unit of assignment--will the parent unit be responsible for all training and will the reconnaissance unit be better trained by the parent unit?

Institutional training--will the reconnaissance unit go to a formal TRADOC school for reconnaissance training?

TABLE 4

TRAINING

UNIT / TRAINING LOCATION	A	B	C	D	E
UNIT OF ASSIGNMENT	2	3	5	4	1
INSTITUTIONAL TRAINING	5	2	4	3	1
TOTAL (high is best)	7	5	**9**	7	2

Subcategory unit of assignment: Unit C would be best trained by the parent unit. As a small staff reconnaissance section, unit C could dedicate all its time for the mission of training at the unit level, while on the other hand unit E still needs to train on many other mission essential tasks as part of the engineer line company.

Subcategory institutional training: Unit A could be best trained by a FORSCOM training site. Since unit A is a separate organization with dedicated leaders, the unit could complete the training course together (i.e. Sapper Leader Course at Fort Leonard Wood, Missouri).

Both institutional and organizational training are important for the role of engineer reconnaissance. Unit C would best be suited for this training. Since unit C is a unit of itself, it would be able to go as a unit to courses like the Sapper Leader Course conducted at Fort Leonard, Missouri. Unit C would also be able to concentrate in garrison and field training on engineer reconnaissance specific training whereas for example unit E would still have the responsibility of normal combat engineer missions.

TABLE 5

TOTAL

UNIT / CRITERIA	A	B	C	D	E
RESOURCES	**24**	**24**	18	15	10
COMMAND AND CONTROL	**17**	11	11	7	14
TASK ORGANIZATION	6	9	9	10	**11**
TRAINING	7	5	**9**	7	2
TOTAL (high is best)	**54**	49	47	39	37

From my detailed analysis, unit A stands as the unit that would best have the ability to be able to provide engineer reconnaissance on the battlefield to the commander. As you can see from table 10, unit's A, B, C, or D are very close in my analysis. While unit A does mean a change to unit MTOE, I feel it will, across the board, be able to best support the maneuver commander in reconnaissance missions.

> To correct this shortfall, we propose that U.S. Army engineers implement a reconnaissance platoon that is organic to divisional engineer battalions. In practice and by doctrine, TF engineers attach combat engineers to their TF scout platoons to enhance obstacle identification and terrain analysis. The engineer reconnaissance platoons would support this effort three ways:
>
> - Provide tactically proficient engineers who are trained to operate forward of the forward edge of the battle area (FEBA).
> - Promote habitual relationships between scout platoons and their engineers.
> - Clearly define the role of engineer squads when they support scout platoons. (McNeese and Creighton 1996, 2)

Now that detailed analysis has been conducted, I will in chapter 5, Conclusions and Recommendations, make recommendations on how to implement this unit into the current force structure. Recommendations and conclusions will give the maneuver commander and the engineer force commander a detailed plan to make the engineer reconnaissance platoon (unit A) the answer to, how do we solve the problem of getting detailed engineer reconnaissance on the modern day battlefield to the maneuver commander?

Details of where to resource unit A will show it is possible within our current force structure to field this reconnaissance. There will be many different ways in which to accomplish the fielding of unit A, from forming the unit from assets already in the combat engineer battalion to using assets from other engineers in the current force structure. There will be many issues that still need to be answered on the "how" to resource a new

unit, and I will try and provide those details for the engineer commander in the field. While the need for engineer reconnaissance will not go away, commanders must decide how to provide the resources. In the future our engineer doctrine must change to provide the needed resources for this important mission.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter will reinforce some of the areas of engineer reconnaissance that I have laid out in previous chapters. From historical analysis to doctrine and personal interviews and surveys, I have shown that while engineer doctrine and maneuver doctrine dictate that specific engineer reconnaissance must be provided to the maneuver commander, our current force structure does not provide for the resources to provide this information.

In chapter 4, through detailed analysis of five proposed engineer reconnaissance units, I have illustrated which unit will best perform the mission of providing engineer reconnaissance on the battlefield. While this analysis was completed without regard for cost or where these assets will come from, I believe each combat mechanized engineer battalion can provide this unit, unit A, or a unit close to, unit A, from assets currently in the battalion. While all military units are faced with ever dwindling assets and ever increasing missions, the proper use of these precious assets will help to solve some of these problems.

While many will look at the difficulties of the requirement of providing these dedicated resources that I have proposed in the engineer reconnaissance platoon. I feel if employed in the field correctly, this element can help to alleviate some of the conventional combat engineer task required.

So, from where do we get these resources in an already small engineer battalion? Until the Army adopts any new concept doctrine, each unit will have to determine the

solution on their own. As evidenced by my survey and interviews of engineer colonels and brigade commanders, there are many different ideas from the units and commanders in the field. While the majority of commanders feel a change to the current engineer battalion MTOE is needed, at the present time this is not a feasible alternative in the current down-sizing of forces in our military. However, this does not alleviate engineer commanders of the responsibility of supporting the brigade combat team in full scale operations.

To take resources from the engineer battalion obviously means cutting resources somewhere else. Again, each commander seems to have a different idea on how to approach this problem. COL Peabody, Commander, Engineer Brigade, 3d Infantry Division states the 3 ID solution:

> - Train one squad per engineer company as a specialty reconnaissance squad additional equipment. They need to focus primarily on technical reconnaissance (bridge, route, etc.).
> - They will also train on tactical (OBINSTEL) reconnaissance, but as implied above, tactical reconnaissance is a combined arms issue that has no single unit to solve it. Engineer reconnaissance team by itself is not a fix, although an engineer reconnaissance capability (vice organization) may contribute to a solution. (Peabody 2002)

In contrast to COL Peabody is COL Hildenbrand, Commander, Engineer Brigade, 1st Infantry Division who has a different solution. Each of his battalions has dedicated reconnaissance teams pulled from internal battalion assets. These reconnaissance teams train on reconnaissance specific missions and it is their primary role.

To be able to field unit A, engineer reconnaissance platoon from internal assets, I propose:

Assign the engineer reconnaissance to the Headquarters and Headquarters Company.

Most engineer battalions have a senior 1LT on staff in the battalion S-3 section, make him the platoon leader.

Use a senior staff sergeant or sergeant first class to be the platoon sergeant.

Reassign seven personnel from each company's line platoon for a total of twenty-one personnel. Each individual line company can make the decision of to either go to two full engineer squads per platoon or to go to three six man squads.

Reassign all the line platoons HMMWV's, for a total of six, and use the assistant brigade engineer's HMMWV. Unless a MTOE change is implemented, this reduction in assets will leave the platoon short one HMMWV. The engineer reconnaissance platoon will have to decide according to mission needs, the use of seven versus eight vehicles. The platoon sergeants in the line companies will have the option of positioning themselves in either one of the short squads M113 squad vehicle or if the unit decides on the course of action to only have two squads, the platoon sergeant will have his own M113 vehicle. This will be a benefit by having the most experienced engineer in the platoon in a hard-shelled vehicle during combat operations. This will allow for another command and control vehicle for the platoon or act as a medical evacuation vehicle for the platoon/company.

All personal weapons, communication equipment, night vision goggles, etc. will remain with the individuals when they move to the new engineer reconnaissance platoon.

Figure 6 shows the combat engineer battalion with an engineer reconnaissance platoon in the Headquarters and Headquarters Company:

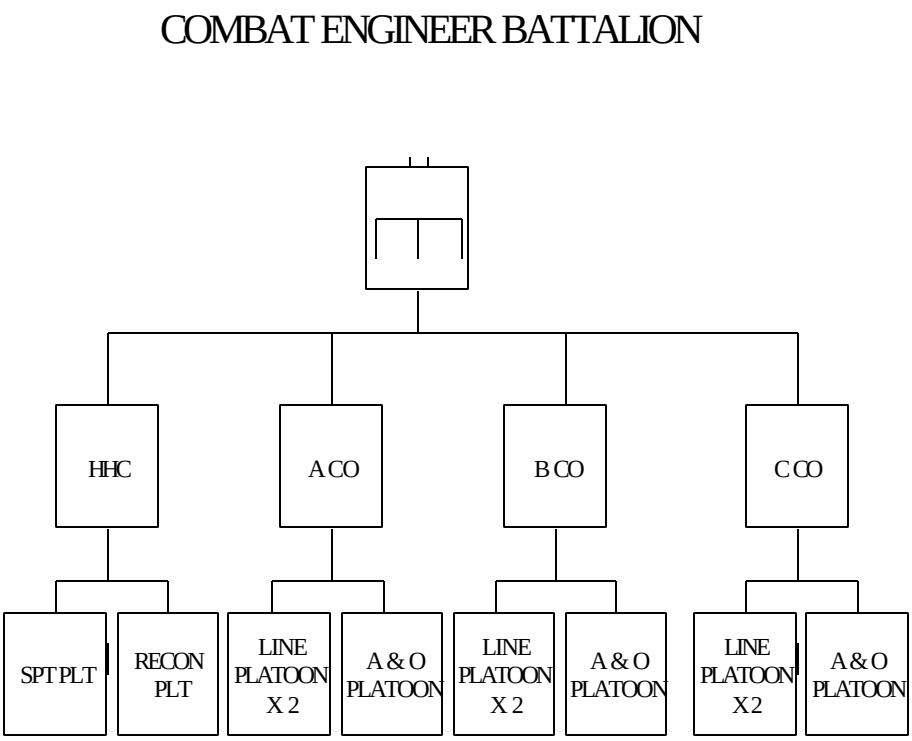

Figure 6

Until the Army makes a MTOE change to the combat mechanized engineer battalion, here is a recommendation how these resources can come from what is currently in the engineer battalion. Each battalion commander will have to make tough decisions on

where to get the resources from to continue to provide all support to the brigade combat team.

While this thesis does not claim to answer all the questions on providing detailed engineer reconnaissance on the modern battlefield to the maneuver commander, it does provide the engineer battalion commanders and staff in the field “a way” to provide for and perform this critical mission. From here, additional research needs to be conducted on the best way to field this unit. Additionally, commanders must be willing to support the engineer reconnaissance mission. Doctrine will soon have to change to support necessary changes before all units will fully support the critical reconnaissance role that engineers play on the battlefield.

The Mongol Army showed the importance of having good detailed engineer reconnaissance on the battlefield. “The Mongol army conducted continuous reconnaissance with a definite reconnaissance objective, and a significant part of their success resulted from their reconnaissance operations” (FM 3-90 2001, 13-4). From the planning phase through the execution phase, the Mongol Army identified important information needed for success on the battlefield. The Mongol Army dedicated reconnaissance assets to perform the critical reconnaissance mission so that the commander was able to make informed decisions on the battlefield. The success of the Mongol reconnaissance mission led to the destruction of the Hungarian Army on the battlefield.

Unlike the Mongol Army’s dedicated reconnaissance, our doctrine does not provide for these assets. As I have shown, the unit that takes assets “out of hide” to perform the

critical mission of engineer reconnaissance has proven to be valuable to the maneuver commander.

We must as an organization fix this problem. I have pointed out several options and recommended one specific unit to perform this mission, but until changes are made to how to resource this unit or any other dedicated resources, engineer commanders in the field will continue to have to perform this mission without the help of dedicated resources.

Engineer leaders will continue to remain responsible for providing detailed and timely reconnaissance to their supported maneuver commander. If we do not provide this critical asset on the battlefield, the engineer unit will loose some of its creditability in the Brigade Combat Team. The sooner we fix the problem of lack of resources in the engineer force, the sooner we as combat engineers will prove our worth to the Brigade Combat Team commander.

APPENDIX A

ENGINEER SURVEY FOR ENGINEER OFFICERS

My name is MAJ Dwayne Smith and I am in SG24C. I am working on my master's in the MMAS program. My thesis question is: How do we solve the problem of getting detailed engineer reconnaissance on the modern day battlefield to the maneuver commander? Thank you for your input.

1. I have served/commanded in the following types of engineer units:
   A. Corps Combat Mechanized
   B. Corps Combat Wheeled
   C. Divisional Mechanized
   D. Divisional Light
   E. Combat Heavy
   F. Other (please specify) _____

2. In your experience in the units you commanded, what was the primary means that your units used to provide engineer reconnaissance?
   A. ad hoc engineer reconnaissance element retained at the engineer headquarters level
   B. ad hoc engineer reconnaissance element detached to the maneuver element
   C. task a subordinate engineer element to perform the mission
   D. form "engineer experts" in subordinate units and task them
   E. other (please specify) _____

3. What is your assessment of the future engineer reconnaissance requirements - Interim Force to the Objective Force?
   A. the demand for engineer specific reconnaissance will be greater
   B. the demand for engineer specific reconnaissance will be less
   C. the demand for engineer specific reconnaissance will be about the same
   D. the demand for engineer specific reconnaissance is unknown

4. FM 5-170, Engineer Reconnaissance, states, "The current engineer force structure does not provide for personnel (other than a recon noncommissioned officer in the S2 section) or equipment dedicated to recon efforts." With that said, the best way to fix the current gap in engineer reconnaissance is to:
   A. change the engineer unit MTOE
   B. prioritize engineer reconnaissance as a METL task
   C. internally change the task organization of the engineer units
   D. train maneuver units to perform engineer reconnaissance
   E. other (please specify) _____

5. Additional comments. Please feel free to add any information you feel important for this subject area.

Thank you for your responses. Your input will be used for research for my thesis paper.

DAD Survey # 03-012

ENGINEER SURVEY FOR SMALL GROUP 24

My name is MAJ Dwayne Smith and I am in SG24C. I am working on my master's in the MMAS program. My thesis question is: How do we solve the problem of getting detailed engineer reconnaissance on the modern day battlefield to the maneuver commander? Thank you for your input.

1. My basic branch is: _____

2. I have served/commanded in the following types of units:
   Command _____
   Staff _____
   Executive Officer _____
   Platoon Leader _____
   Other _____

3. Have you served in any reconnaissance role?
   A. Yes
   B. No (go to question 7)

4. If so, what was your position?
   A. Company Commander
   B. Platoon Leader
   C. Staff planner
   D. other (please specify) _____

5. When in your reconnaissance, did you have engineers as part of the reconnaissance?
   A. Yes
   B. No (go to question 7)

6. What was the command support relationship of the engineer element?
   A. Assigned
   B. Attached
   C. OPCON
   D. DS

7. What is your assessment of the future reconnaissance requirements - Interim Force to the Objective Force?
   A. the demand for engineer specific reconnaissance will be greater
   B. the demand for engineer specific reconnaissance will be less
   C. the demand for engineer specific reconnaissance will be about the same
   D. the demand for engineer specific reconnaissance is unknown

8. Additional comments. Please feel free to add any information you feel important for this subject area.

Thank you for your responses. Your input will be used for research for my thesis paper.
DAD Survey # 03-011

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