Joint Engineers Build a Temporary Parking Apron

By Lieutenant Kevin J. Bartoe, USN

The ability to transform a field of thick vegetation into a solid helicopter parking apron is one thing that makes military engineers so valuable. Joint engineer forces make the impossible possible by completing engineering missions while under fire or in peacetime. With the continuing resource challenges we face, joint engineering operations are demonstrating their value by making the best use of all resources.

Naval Mobile Construction Battalion 4 (NMCB 4) was tasked with a deployment for training to construct a 290,000-square-foot expeditionary parking apron on the U.S. Army K-16 Airfield in Seoul, Korea. The apron would be built using AM-2 matting. Originally designed as a rapid runway repair tool, the 2-foot by 12-foot aluminum-magnesium panels have preformed grooves that lock together and form a staggered grid pattern. The ends are locked in place with a thin locking bar, which is also aluminum. The apron at K-16 Airfield would provide temporary parking for 16 UH-60 Black Hawk helicopters while the existing asphalt apron was replaced with a new concrete apron. Funding for the project was to be provided by the Republic of Korea Funded Construction program. The customer for the parking apron was 1/52 Aviation Battalion, 17th Aviation Brigade.



Photo by JO1 J.C. Musser

The 7.1-acre, 11,900-piece apron is put together like a gigantic puzzle by hand, crowbar and sledgehammer.

Planning

The construction tasking called for clearing and grubbing a 7.1-acre site adjacent to the existing 9,900-foot runway. The K-16 Airfield is controlled and operated by the Republic of Korea Air Force, which required thorough access control procedures and reporting on the project's progress. After clearing the site, a 6- to 8-inch lift of fill material from an adjacent in situ fill pile would be placed, compacted, and graded to finish elevation. Then, 11,900 sheets of AM-2 matting would be placed on the 204-foot by 1,360-foot area. Access to the existing airfield taxiway would be maintained by constructing a culvert system across a 10-foot-deep, 25-foot-wide drainage ditch. Additionally, an access road for fuel support vehicles would be constructed.

For the project's horizontal tasking, NMCB 4 assembled a 24-person detail of equipment operators, construction mechanics, an engineering aide, and others. Twenty marines from 9th Engineering Support Battalion, Okinawa, Japan, provided additional labor and AM-2 technical expertise.

Obtaining equipment for the project was an open issue as the Seabee advance party deployed on 22 October 1998. Funds to draw equipment from theater war reserve were still in the approval process. To get the project started, four pieces of equipment were moved from the Seabee camp in Pohang, Korea, to K-16 Airfield. The Seabee advance party worked with the limited equipment fleet for 30 days and accomplished 90 percent of the clearing and subbase rough grade.

Funding for the project was ultimately provided from the Eighth U.S. Army commanding general's "flex" funds. These funds enabled the unit to draw on Air Force war reserves of civil engineer support equipment at Suwon Air Base. Maintained by the U.S. Air Force 607th Material Maintenance Squadron Detachment 2, the fleet consists of more than 400 pieces of

equipment ranging from flight-line support gear to troop movers.

Executing the Project

With the entire vehicle fleet on site by 20 November, it was time to move full speed ahead on the project. The mixed-service equipment suite included two bulldozers, two motor graders, three front-end loaders, two vibratory rollers, five dump trucks, one wheeled excavator, and troop support vehicles for the 44 personnel assigned to the task.

The clearing and grubbing operations concluded after removing 7,000 cubic yards of spoil and vegetation. The clay-rich subbase material was rough graded to a 1-percent slope and compacted. Then, 5,200 cubic yards—more than 800 truckloads—of select fill material were placed. Conveniently, the fill site was less than one-quarter mile from the project, which made haul times short. By 27 November, the rough grading was 90 percent complete and the fill placement was 30 percent complete. The marines arrived on 28-29 November and began placing AM-2 matting on 1 December.



Photo by JO1 J.C. Musser

A crew of NMCB 4 Seabees prepares to build a roadway to the airstrip over an existing gully.

Matting, Matting, and More Matting...

The placement system for AM-2 matting is designed to be simple and straightforward. However, each panel weighs 144 pounds and each pallet of 20 panels weighs almost 3,000 pounds. Placing the matting is highly labor intensive and requires a hardworking crew to successfully complete the task.

Marines from the 9th Engineering Support Battalion began with a goal of placing 10,000 square feet of matting each day. After two days on the job, they averaged 20,000 square feet of matting per day and peaked at 31,416 square feet during one 9-hour day. As Seabee equipment operators placed the fill material and completed related site work, they shifted crews to the matting task as well. The entire 285,600-square-foot main parking apron was completed by 16 December, just 14 working days after work began.

Clean Up and Wrap Up

The final work elements of the project were wrapped up by 21 December. This included constructing a culvert crossing for the 10-foot-deep drainage ditch; finishing the fuel access road, which included a soil stabilization operation; cleaning the matting; and final grading the fill site. Follow-on work for the Army Directorate of Public Works included painting parking and taxi lines and installing aircraft mooring points.

Seabee equipment operators and construction mechanics washed and inspected the equipment and returned it to Suwon Air Base. The total cost of repairing 15 pieces of construction equipment was less than $15,000, one-half of the original $30,000 estimate. Total equipment operating time was 1,200 hours and 1,500 miles worth of troop training.

Working Together

This project provided high-quality training for everyone involved. Navy Seabees received construction training similar to what they would receive in a contingency environment. Marine Corps engineers practiced AM-2 matting installation, which is one of their major requirements in support of marine air/ground task force operations. Air Force and Army personnel demonstrated outstanding support and contributed vital resources to the project. Under the leadership of U.S. Forces, Korea, engineers worked together in a joint environment and accomplished the task on schedule. From junior Seabees or marines up to the officer in charge and the staff at U.S. Forces, Korea, it was clear that each of the four services plays a vital role in the Korean theater. Engineers must be prepared to work together in peacetime taskings as well as in contingency operations.

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