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(SHORT TITLE: ENG & UTIL T&R MANUAL)

Ref: (a) MCO P3500.72A  
(b) MCO 1553.3A  
(c) MCO 3400.3F  
(d) MCO 3500.27B W/Erratum  
(e) MCRP 3-0A  
(f) MCRP 3-0B  
(g) MCO 1553.2A

1. Purpose. Per reference (a), this T&R Manual establishes Core Capability Mission Essential Tasks (MET) for readiness reporting and required events for standardization training of Marine personnel assigned to the Marine Corps Combat Engineer battalions, Engineer Support battalions, and Marine Wing Support groups. Additionally, it provides tasking for formal schools preparing personnel for service in the Marine Corps Engineer and Utilities community. This NAVMC supersedes NAVMC 3500.12.

2. Scope

a. The Core Capability Mission Essential Task List (METL) in this manual is used in Defense Readiness Reporting System (DRRS) by all Engineer Support battalions, Combat Engineer battalions, and Marine Wing Support groups for the assessment and reporting of unit readiness. Units achieve training readiness for reporting in DRRS by gaining and sustaining proficiency in the training events in this manual at both collective (unit) and individual levels. Commanders are to report the training readiness of their units based on the percentage of core METs trained to standard in accordance with this Training and Readiness Manual.

b. Per reference (b), commanders will conduct an internal assessment of the unit's ability to execute each MET, and develop long-, mid-, and short-range training plans to sustain proficiency in each MET. Training plans will incorporate these events to standardize training and provide objective assessment of progress toward attaining combat readiness. Commanders will keep records at the unit and individual levels to record training achievements, identify training gaps, and document objective assessments of readiness associated with training Marines. Commanders will use reference (c) to incorporate nuclear, biological, and chemical defense training into training plans and reference (d) to integrate operational risk management.

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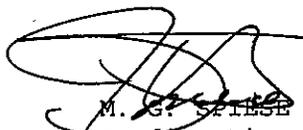
References (e) and (f) provide amplifying information for effective planning and management of training within the unit.

c. Formal school and training detachment commanders will use references (a) and (g) to ensure programs of instruction meet skill-training requirements established in this manual, and provide career-progression training in the events designated for initial training in the formal school environment.

3. Information. CG, TECOM will update this T&R Manual as necessary to provide current and relevant training standards to commanders, and to ensure a current Core Capabilities METL is available for use in DRRS by the Marine Corps Combat Engineer Battalion and Engineer Support Battalion. All questions pertaining to the Marine Corps Ground T&R Program and Unit Training Management should be directed to: Commanding General, TECOM (Ground Training Branch C 469), 1019 Elliot Road, Quantico, VA 22134.

4. Command. This Directive is applicable to the Marine Corps Total Force.

5. Certification. Reviewed and approved this date.

  
M. G. Spiese  
By direction

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CHAPTER 1

OVERVIEW

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CHAPTER 1

OVERVIEW

1000. INTRODUCTION

1. The T&R Program is the Corps' primary tool for planning, conducting and evaluating training, and assessing training readiness. Subject Matter Experts (SMEs) from the operating forces developed core capability Mission Essential Task Lists (METLs) for ground communities derived from the Marine Corps Task List (MCTL). T&R Manuals are built around these METLs and all events contained in T&R Manuals relate directly to this METL. This comprehensive T&R Program will help to ensure the Marine Corps continues to improve its combat readiness by training more efficiently and effectively. Ultimately, this will enhance the Marine Corps' ability to accomplish real-world missions.

2. The T&R Manual contains the individual and collective training requirements to prepare units to accomplish their combat mission. The T&R Manual is not intended to be an encyclopedia that contains every minute detail of how to accomplish training. Instead, it identifies the minimum standards that Marines must be able to perform in combat. The T&R Manual is a fundamental tool for commanders to build and maintain unit combat readiness. Using this tool, leaders can construct and execute an effective training plan that supports the unit's METL. More detailed information on the Marine Corps Ground T&R Program is found in reference (a).

1001. UNIT TRAINING

1. The training of Marines to perform as an integrated unit in combat lies at the heart of the T&R program. Unit and individual readiness are directly related. Individual training and the mastery of individual core skills serve as the building blocks for unit combat readiness. A Marine's ability to perform critical skills required in combat is essential. However, it is not necessary to have all individuals within a unit fully trained in order for that organization to accomplish its assigned tasks. Manpower shortfalls, temporary assignments, leave, or other factors outside the commander's control, often affect the ability to conduct individual training. During these periods, unit readiness is enhanced if emphasis is placed on the individual training of Marines on-hand. Subsequently, these Marines will be mission ready and capable of executing as part of a team when the full complement of personnel is available.

2. Commanders will ensure that all tactical training is focused on their combat mission. The T&R Manual is a tool to help develop the unit's training plan. In most cases, unit training should focus on achieving unit proficiency in the core capabilities METL. However, commanders will adjust their training focus to support METLs associated with a major OPLAN/CONPLAN or named operation as designated by their higher commander and reported accordingly in the Defense Readiness Reporting System (DRRS). Tactical

training will support the METL in use by the commander and be tailored to meet T&R standards. Commanders at all levels are responsible for effective combat training. The conduct of training in a professional manner consistent with Marine Corps standards cannot be over emphasized.

3. Commanders will provide personnel the opportunity to attend formal and operational level courses of instruction as required by this Manual. Attendance at all formal courses must enhance the warfighting capabilities of the unit as determined by the unit commander.

#### 1002. UNIT TRAINING MANAGEMENT

1. Unit Training Management (UTM) is the application of the Systems Approach to Training (SAT) and the Marine Corps Training Principles. This is accomplished in a manner that maximizes training results and focuses the training priorities of the unit in preparation for the conduct of its wartime mission.

2. UTM techniques, described in references (b) and (e), provide commanders with the requisite tools and techniques to analyze, design, develop, implement, and evaluate the training of their unit. The Marine Corps Training Principles, explained in reference (b), provide sound and proven direction and are flexible enough to accommodate the demands of local conditions. These principles are not inclusive, nor do they guarantee success. They are guides that commanders can use to manage unit-training programs. The Marine Corps training principles are:

- Train as you fight
- Make commanders responsible for training
- Use standards-based training
- Use performance-oriented training
- Use mission-oriented training
- Train the MAGTF to fight as a combined arms team
- Train to sustain proficiency
- Train to challenge

3. To maintain an efficient and effective training program, leaders at every level must understand and implement UTM. Guidance for UTM and the process for establishing effective programs are contained in references (a) through (g).

#### 1003. SUSTAINMENT AND EVALUATION OF TRAINING

1. The evaluation of training is necessary to properly prepare Marines for combat. Evaluations are either formal or informal, and performed by members of the unit (internal evaluation) or from an external command (external evaluation).

2. Marines are expected to maintain proficiency in the training events for their MOS at the appropriate grade or billet to which assigned. Leaders are responsible for recording the training achievements of their Marines. Whether it involves individual or collective training events, they must ensure proficiency is sustained by requiring retraining of each event at or

before expiration of the designated sustainment interval. Performance of the training event, however, is not sufficient to ensure combat readiness. Leaders at all levels must evaluate the performance of their Marines and the unit as they complete training events, and only record successful accomplishment of training based upon the evaluation. The goal of evaluation is to ensure that correct methods are employed to achieve the desired standard, or the Marines understand how they need to improve in order to attain the standard. Leaders must determine whether credit for completing a training event is recorded if the standard was not achieved. While successful accomplishment is desired, debriefing of errors can result in successful learning that will allow ethical recording of training event completion. Evaluation is a continuous process that is integral to training management and is conducted by leaders at every level and during all phases of planning and the conduct of training. To ensure training is efficient and effective, evaluation is an integral part of the training plan. Ultimately, leaders remain responsible for determining if the training was effective.

3. The purpose of formal and informal evaluation is to provide commanders with a process to determine a unit's/Marine's proficiency in the tasks that must be performed in combat. Informal evaluations are conducted during every training evolution. Formal evaluations are often scenario-based, focused on the unit's METs, based on collective training standards, and usually conducted during higher-level collective events. References (a) and (f) provide further guidance on the conduct of informal and formal evaluations using the Marine Corps Ground T&R Program.

#### 1004. ORGANIZATION

1. T&R Manuals are organized in one of two methods: unit-based or community-based. Unit-based T&R Manuals are written to support a type of unit (Infantry, Artillery, Tanks, etc.) and contain both collective and individual training standards. Community-based are written to support an Occupational Field, a group of related Military Occupational Specialties (MOSs), or billets within an organization (EOD, NBC, Intel, etc.), and usually only contain individual training standards. T&R Manuals are comprised of chapters that contain unit METs, collective training standards (CTS), and individual training standards (ITS) for each MOS, billet, etc.

2. The Engineer and Utilities T&R Manual is a unit-based manual comprised of 19 chapters. Chapter 2 lists the Core Capability METs and their related Battalion and Company-level events. Chapter 3 contain collective events. Chapters 4 through 22 contain individual events.

#### 1005. T&R EVENT CODING

1. T&R events are coded for ease of reference. Each event has a 4-4-4-digit identifier. The first four digits represent the MOS or occupational field (e.g. 1141, 1361, etc.).

2. The second four digits represent the functional or duty area (e.g. ADMN = ADMINISTRATION, MANT = MAINTENANCE, XENG = GENERAL ENGINEERING). The last four digits represent the Individual or Collective event level and sequencing number of the event. Every event has a sequence number from 001 to 999. For

Collective Events in this manual, the hundreds column identifies E-Coded responsibilities. E-Coded Collective Events sequenced in 9xx range are E-Coded for both CEB and ESB units. E-Coded Collective Events sequenced in 8xx range are E-Coded for CEB units. E-Coded Collective Events sequenced in 7xx range are E-Coded for ESB units. E-Coded Collective Events sequenced in 6xx range are E-Coded for MWSG units. E-Coded Collective Events sequenced in 5xx range are E-Coded for both MWSG and ESB units. E-Coded Collective Events sequenced in 4xx range are E-Coded for all engineer units. See Sect 1008 for more information on E-Coded events.

The T&R levels are shown in Figure (1). An example of the T&R coding used in this manual is shown in Figure (2).

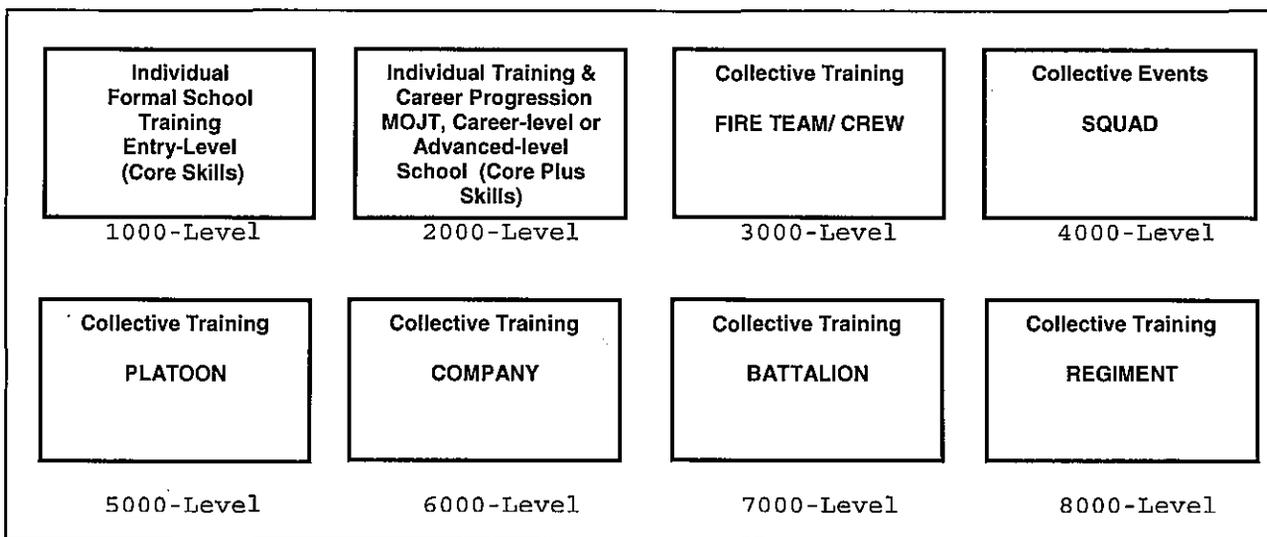


Figure 1: T&R Event Levels

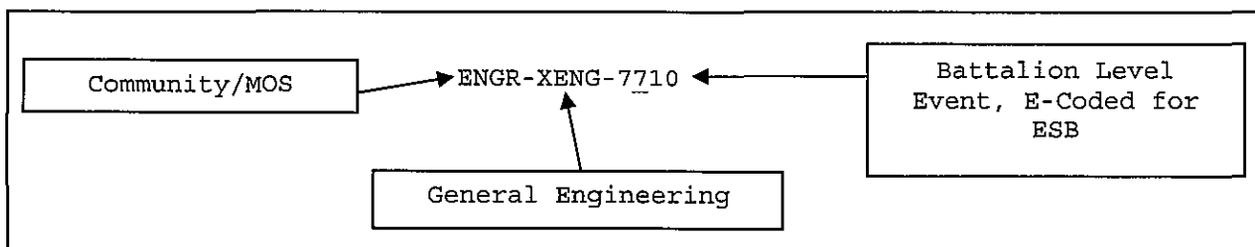


Figure 2: T&R Event Coding

**1006. COMBAT READINESS PERCENTAGE**

1. The Marine Corps Ground T&R Program includes processes to assess readiness of units and individual Marines. Every unit in the Marine Corps maintains a basic level of readiness based on the training and experience of the Marines in the unit. Even units that never trained together are capable of accomplishing some portion of their missions. Combat readiness assessment does not associate a quantitative value for this baseline of readiness, but

uses a "Combat Readiness Percentage", as a method to provide a concise descriptor of the recent training accomplishments of units and Marines.

2. Combat Readiness Percentage (CRP) is the percentage of required training events that a unit or Marine accomplishes within specified sustainment intervals.

3. In unit-based T&R Manuals, unit combat readiness is assessed as a percentage of the successfully completed and current (within sustainment interval) key training events called "Evaluation-Coded" (E-Coded) Events. E-Coded Events and unit CRP calculation are described in follow-on paragraphs. CRP achieved through the completion of E-Coded Events is directly relevant to readiness assessment in DRRS.

4. Individual combat readiness, in both unit-based and community-based T&R Manuals, is assessed as the percentage of required individual events in which a Marine is current. This translates as the percentage of training events for his/her MOS and grade (or billet) that the Marine successfully completes within the directed sustainment interval. Individual skills are developed through a combination of 1000-level training (entry-level formal school courses), individual on-the-job training in 2000-level events, and follow-on formal school training. Skill proficiency is maintained by retraining in each event per the specified sustainment interval.

#### 1007. EVALUATION-CODED (E-CODED) EVENTS

1. Unit-type T&R Manuals can contain numerous unit events, some for the whole unit and others for integral parts that serve as building blocks for training. To simplify training management and readiness assessment, only collective events that are critical components of a mission essential task (MET), or key indicators of a unit's readiness, are used to generate CRP for a MET. These critical or key events are designated in the T&R Manual as Evaluation-Coded (E-Coded) events. Formal evaluation of unit performance in these events is recommended because of their value in assessing combat readiness. Only E-Coded events are used to calculate CRP for each MET.

2. The use of a METL-based training program allows the commander discretion in training. This makes the T&R Manual a training tool rather than a prescriptive checklist.

#### 1008. CRP CALCULATION

1. Collective training begins at the 3000 level (team, crew or equivalent). Unit training plans are designed to accomplish the events that support the unit METL while simultaneously sustaining proficiency in individual core skills. Using the battalion-based (unit) model, the battalion (7000-level) has collective events that directly support a MET on the METL. These collective events are E-Coded and the only events that contribute to unit CRP. This is done to assist commanders in prioritizing the training toward the METL, taking into account resource, time, and personnel constraints.

2. Unit CRP increases after the completion of E-Coded events. The number of E-Coded events for the MET determines the value of each E-Coded event. For

example, if there are 4 E-Coded events for a MET, each is worth 25% of MET CRP. MET CRP is calculated by adding the percentage of each completed and current (within sustainment interval) E-Coded training event. The percentage for each MET is calculated the same way and all are added together and divided by the number of METS to determine unit CRP. For ease of calculation, we will say that each MET has 4 E-Coded events, each contributing 25% towards the completion of the MET. If the unit has completed and is current on three of the four E-Coded events for a given MET, then they have completed 75% of the MET. The CRP for each MET is added together and divided by the number of METS to get unit CRP; unit CRP is the average of MET CRP.

For Example:

MET 1: 75% complete (3 of 4 E-Coded events trained)  
MET 2: 100% complete (6 of 6 E-Coded events trained)  
MET 3: 25% complete (1 of 4 E-Coded events trained)  
MET 4: 50% complete (2 of 4 E-Coded events trained)  
MET 5: 75% complete (3 of 4 E-Coded events trained)

To get unit CRP, simply add the CRP for each MET and divide by the number of METS:

MET CRP:  $75 + 100 + 25 + 50 + 75 = 325$

Unit CRP:  $325$  (total MET CRP) /  $5$  (total number of METS) =  $65\%$

#### 1009 T&R EVENT COMPOSITION

1. This section explains each of the components of a T&R event. These items are included in all events in each T&R manual.

a. Event Code (see Sect 1005). The event code is a 4-4-4 character set. For individual training events, the first 4 characters indicate the occupational function. The second 4 characters indicate functional area (TAC, CBTS, VOPS, etc.). The third 4 characters are simply a numerical designator for the event.

b. Event Title. The event title is the name of the event.

c. E-Coded. This is a "yes/no" category to indicate whether or not the event is E-Coded. If yes, the event contributes toward the CRP of the associated MET. The value of each E-Coded event is based on number of E-Coded events for that MET. Refer to paragraph 1007 for detailed explanation of E-Coded events.

d. Supported MET(s). List all METs that are supported by the training event.

e. Sustainment Interval. This is the period, expressed in number of months, between evaluation or retraining requirements. Skills and capabilities acquired through the accomplishment of training events are refreshed at pre-determined intervals. It is essential that these intervals are adhered to in order to ensure Marines maintain proficiency.

f. Billet. Individual training events may contain a list of billets within the community that are responsible for performing that event. This ensures that the billet's expected tasks are clearly articulated and a Marine's readiness to perform in that billet is measured.

g. Grade. Each individual training event will list the rank(s) at which Marines are required to learn and sustain the training event.

h. Initial Training Setting. For Individual T&R Events only, this specifies the location for initial instruction of the training event in one of three categories (formal school, managed on-the-job training, distance learning). Regardless of the specified Initial Training Setting, any T&R event may be introduced and evaluated during managed on-the-job training.

(1) "FORMAL" - When the Initial Training Setting of an event is identified as "FORMAL" (formal school), the appropriate formal school or training detachment is required to provide initial training in the event. Conversely, formal schools and training detachments are not authorized to provide training in events designated as Initial Training Setting "MOJT" or "DL." Since the duration of formal school training must be constrained to optimize Operating Forces' manning, this element provides the mechanism for Operating Forces' prioritization of training requirements for both entry-level (1000-level) and career-level (2000-level) T&R Events. For formal schools and training detachments, this element defines the requirements for content of courses.

(2) "DL" - Identifies the training event as a candidate for initial training via a Distance Learning product (correspondence course or MarineNet course).

(3) "MOJT" - Events specified for Managed On-the-Job Training are to be introduced to Marines, and evaluated, as part of training within a unit by supervisory personnel.

i. Event Description. Provide a description of the event purpose, objectives, goals, and requirements. It is a general description of an action requiring learned skills and knowledge (e.g. Camouflage the M1A1 Tank).

j. Condition. Describe the condition(s), under which tasks are performed. Conditions are based on a "real world" operational environment. They indicate what is provided (equipment, materials, manuals, aids, etc.), environmental constraints, conditions under which the task is performed, and any specific cues or indicators to which the performer must respond. When resources or safety requirements limit the conditions, this is stated.

k. Standard. The standard indicates the basis for judging effectiveness of the performance. It consists of a carefully worded statement that identifies the proficiency level expected when the task is performed. The standard provides the minimum acceptable performance parameters and is strictly adhered to. The standard for collective events is general, describing the desired end-state or purpose of the event. While the standard for individual events specifically describe to what proficiency level in terms of accuracy, speed, sequencing, quality of performance, adherence to procedural guidelines, etc., the event is accomplished.

l. Event Components. Describe the actions composing the event and help the user determine what must be accomplished and to properly plan for the event.

m. Prerequisite Events. Prerequisites are academic training or other T&R events that must be completed prior to attempting the task. They are lower-level events or tasks that give the individual/unit the skills required to accomplish the event. They can also be planning steps, administrative requirements, or specific parameters that build toward mission accomplishment.

n. Chained Events. Collective T&R events are supported by lower-level collective and individual T&R events. This enables unit leaders to effectively identify subordinate T&R events that ultimately support specific mission essential tasks. When the accomplishment of any upper-level events, by their nature, result in the performance of certain subordinate and related events, the events are "chained." The completion of chained events will update sustainment interval credit (and CRP for E-Coded events) for the related subordinate level events.

o. Related Events. Provide a list of all Individual Training Standards that support the event.

p. References. The training references are utilized to determine task performance steps, grading criteria, and ensure standardization of training procedures. They assist the trainee in satisfying the performance standards, or the trainer in evaluating the effectiveness of task completion. References are also important to the development of detailed training plans.

q. Distance Learning Products (IMI, CBT, MCI, etc.). Include this component when the event can be taught via one of these media methods vice attending a formal course of instruction or receiving MOJT.

r. Support Requirements. This is a list of the external and internal support the unit and Marines will need to complete the event. The list includes, but is not limited to:

- Range(s)/Training Area
- Ordnance
- Equipment
- Materials
- Other Units/Personnel
- Other Support Requirements

s. Miscellaneous. Provide any additional information that assists in the planning and execution of the event. Miscellaneous information may include, but is not limited to:

- Admin Instructions
- Special Personnel Certifications
- Equipment Operating Hours
- Road Miles

2. Community-based T&R manuals have several additional components not found in unit-based T&R manuals. These additions do not apply to this T&R Manual.

#### 1010. CBRNE TRAINING

1. All personnel assigned to the operating force must be trained in chemical, biological, radiological, nuclear, and explosive incident defense (CBRNE), in order to survive and continue their mission in this environment. Individual proficiency standards are defined as survival and basic operating standards. Survival standards are those that the individual must master in order to survive CBRNE attacks. Basic operating standards are those that the individual, and collectively the unit, must perform to continue operations in a CBRNE environment.

2. In order to develop and maintain the ability to operate in an CBRNE environment, CBRNE training is an integral part of the training plan and events in this T&R Manual. Units should train under CBRNE conditions whenever possible. Per reference (c), all units must be capable of accomplishing their assigned mission in a contaminated environment.

#### 1011. NIGHT TRAINING

1. While it is understood that all personnel and units of the operating force are capable of performing their assigned mission in "every climate and place," current doctrine emphasizes the requirement to perform assigned missions at night and during periods of limited visibility. Basic skills are significantly more difficult when visibility is limited.

2. To ensure units are capable of accomplishing their mission they must train under the conditions of limited visibility. Units should strive to conduct all events in this T&R Manual during both day and night/limited visibility conditions. When there is limited training time available, night training should take precedence over daylight training, contingent on individual, crew, and unit proficiency.

#### 1012. OPERATIONAL RISK MANAGEMENT (ORM)

1. ORM is a process that enables commanders to plan for and minimize risk while still accomplishing the mission. It is a decision making tool used by Marines at all levels to increase operational effectiveness by anticipating hazards and reducing the potential for loss, thereby increasing the probability of a successful mission. ORM minimizes risks to acceptable levels, commensurate with mission accomplishment.

2. Commanders, leaders, maintainers, planners, and schedulers will integrate risk assessment in the decision-making process and implement hazard controls to reduce risk to acceptable levels. Applying the ORM process will reduce mishaps, lower costs, and provide for more efficient use of resources. ORM assists the commander in conserving lives and resources and avoiding unnecessary risk, making an informed decision to implement a course of action (COA), identifying feasible and effective control measures where specific measures do not exist, and providing reasonable alternatives for mission accomplishment. Most importantly, ORM assists the commander in determining the balance between training realism and unnecessary risks in training, the impact of training operations on the environment, and the adjustment of training plans to fit the level of proficiency and experience of

Sailors/Marines and leaders. Further guidance for ORM is found in references (b) and (d).

#### 1013. APPLICATION OF SIMULATION

1. Simulations/Simulators and other training devices shall be used when they are capable of effectively and economically supplementing training on the identified training task. Particular emphasis shall be placed on simulators that provide training that might be limited by safety considerations or constraints on training space, time, or other resources. When deciding on simulation issues, the primary consideration shall be improving the quality of training and consequently the state of readiness. Potential savings in operating and support costs normally shall be an important secondary consideration.
2. Each training event contains information relating to the applicability of simulation. If simulator training applies to the event, then the applicable simulator(s) is/are listed in the "Simulation" section and the CRP for simulation training is given. This simulation training can either be used in place of live training, at the reduced CRP indicated; or can be used as a precursor training for the live event, i.e., weapons simulators, convoy trainers, observed fire trainers, etc. It is recommended that tasks be performed by simulation prior to being performed in a live-fire environment. However, in the case where simulation is used as a precursor for the live event, then the unit will receive credit for the live event CRP only. If a tactical situation develops that precludes performing the live event, the unit would then receive credit for the simulation CRP.

#### 1014. MARINE CORPS GROUND T&R PROGRAM

1. The Marine Corps Ground T&R Program continues to evolve. The vision for Ground T&R Program is to publish a T&R Manual for every readiness-reporting unit so that core capability METs are clearly defined with supporting collective training standards, and to publish community-based T&R Manuals for all occupational fields whose personnel augment other units to increase their combat and/or logistic capabilities. The vision for this program includes plans to provide a Marine Corps training management information system that enables tracking of unit and individual training accomplishments by unit commanders and small unit leaders, automatically computing CRP for both units and individual Marines based upon MOS and rank (or billet). Linkage of T&R Events to the Marine Corps Task List (MCTL), through the core capability METs, has enabled objective assessment of training readiness in the DRRS.
2. DRRS measures and reports on the readiness of military forces and the supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. With unit CRP based on the unit's training toward its METs, the CRP will provide a more accurate picture of a unit's readiness. This will give fidelity to future funding requests and factor into the allocation of resources. Additionally, the Ground T&R Program will help to ensure training remains focused on mission accomplishment and that training readiness reporting is tied to units' METs.

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CHAPTER 2

MISSION ESSENTIAL TASKS MATRIX

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CHAPTER 2

MISSION ESSENTIAL TASKS MATRIX

2000. **COMBAT ENGINEER BATTALION CORE MISSION ESSENTIAL TASK LIST.** The Combat Engineer Battalion Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps Task List, for the Combat Engineer Battalion. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

CEB CORE MISSION ESSENTIAL TASK

MARINE CORPS TASK LIST 2.0B DRAFT	CEB CORE METL
MCT 1.1	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 1.5	Conduct Counter-Mobility Operations
MCT 2.2.2	Conduct Engineer Reconnaissance
MCT 4.4.2	Conduct Horizontal/Vertical Construction
MCT 4.4.9	Conduct Tactical Electric Supply
MCT 6.1.4	Conduct Survivability Operations

2001. **ENGINEER SUPPORT BATTALION CORE MISSION ESSENTIAL TASK LIST.** The Engineer Support Battalion Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps Task List, for the Engineer Support Battalion. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

ESB CORE MISSION ESSENTIAL TASK

MARINE CORPS TASK LIST 2.0B DRAFT	ESB CORE METL
MCT 1.1.2	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 4.4	Conduct General Engineering Operations
MCT 4.4.7	Conduct Tactical Water and/or Hygiene Service
MCT 4.4.8	Conduct Tactical Bulk Fuel Storage
MCT 4.4.9	Conduct Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations
MCT 6.3.4	Render safe, neutralize and destroy explosive ordnance, Improvised Explosive Devices (IED), & Chemical, Biological, Radiological / Nuclear (CBRN) devices

2002. **MARINE WING SUPPORT GROUP CORE MISSION ESSENTIAL TASK LIST.** The Marine Wing Support Group Mission Essential Task List (METL) Table lists the Standardized Core Mission Essential Task list, derived from the Marine Corps Task List, for the Marine Wing Support Group. This METL is used for readiness reporting in the Defense Readiness Reporting System (DRRS) and is reflected in the T&R METL.

**MWSG CORE MISSION ESSENTIAL TASK LIST**

MARINE CORPS TASK LIST 2.0B DRAFT	MWSG CORE METL (DRAFT)
MCT 1.1	Provide Forces
MCT 1.4.1	Conduct Mobility Operations
MCT 4.4	Conduct General Engineering Operations
MCT 4.4.7	Conduct Tactical Water and/or Hygiene Service
MCT 4.4.8	Conduct Tactical Bulk Fuel Storage
MCT 4.4.9	Conduct Tactical Electrical Supply
MCT 6.1.4	Conduct Survivability Operations
MCT 6.3.4	Render safe, neutralize and destroy explosive ordnance, Improvised Explosive Devices (IED), & Chemical, Biological, Radiological / Nuclear (CBRN) devices

2003. **ENGINEER AND UTILITIES MISSION ESSENTIAL TASKS MATRIX.** The Engineer and Utilities T&R Mission Essential Task List (METL) reflect the tasks in the ESB and CEB Core METL. The Engineer and Utilities METL Table includes the designated MET number. The following event codes are the linked evaluation coded (E- Coded) events that support the MET.

**MET#/MISSION ESSENTIAL TASK**

<b>MET 1. PROVIDE FORCES</b>	
ENGR-ADMN-7901	Command and control engineer forces
ENGR-EOPS-7901	Plan engineer operations
ENGR-EOPS-7902	Train engineer forces
ENGR-PINF-6401	Fight as provisional infantry
ENGR-EOPS-6402	Command and control engineer forces
ENGR-EOPS-6403	Train engineer forces
ENGR-PINF-5401	Fight as provisional infantry
ENGR-PINF-4401	Fight as provisional infantry
<b>MET 2. CONDUCT MOBILITY OPERATIONS</b>	
ENGR-MOBL-6801	Conduct mobility operations
ENGR-MOBL-6701	Conduct mobility operations
ENGR-MOBL-6601	Conduct mobility operations
ENGR-MOBL-5801	Conduct obstacle breaching operations
ENGR-MOBL-5802	Conduct route clearance operations
ENGR-MOBL-5701	Conduct obstacle breaching operations
ENGR-MOBL-5702	Conduct breach lane improvement operations

ENGR-MOBL-5703	Conduct route clearance operations
ENGR-MOBL-5704	Install a Medium Girder Bridge
ENGR-MOBL-5705	Conduct rafting operations
ENGR-MOBL-5706	Install Ribbon Bridge
ENGR-MOBL-5707	Construct a non-standard bridge
ENGR-MOBL-5708	Repair a non-standard bridge
ENGR-MOBL-5709	Construct combat roads
ENGR-MOBL-5601	Conduct route clearance operations
ENGR-MOBL-5602	Conduct Airfield Damage Repair
ENGR-MOBL-5501	Construct Tactical Landing Zones
ENGR-MOBL-5502	Conduct area clearance operations
ENGR-MOBL-5401	Construct expedient HLZ
ENGR-MOBL-4901	Conduct security for route clearance/sweep operations
ENGR-MOBL-4902	Detect obstacles for route clearance/sweep operations
ENGR-MOBL-4903	Breach obstacles for route clearance/sweep operations
ENGR-MOBL-4801	Conduct deliberate breach
ENGR-MOBL-4802	Conduct hasty/ in-stride breach
ENGR-MOBL-4803	Conduct covert breach
ENGR-MOBL-4804	Conduct assault breach
ENGR-MOBL-4805	Conduct dismounted route sweep operations
ENGR-MOBL-4806	Conduct route improvement
ENGR-MOBL-4807	Install rope bridge
ENGR-MOBL-4701	Maneuver a standard military ribbon raft
ENGR-MOBL-4702	Assemble Medium Girder Bridge
ENGR-MOBL-4703	Assemble ribbon bridge
ENGR-MOBL-4704	Assemble ribbon raft
ENGR-MOBL-4705	Conduct deliberate breach
ENGR-MOBL-4706	Conduct route improvement
ENGR-MOBL-4707	Repair runway crater
ENGR-MOBL-4708	Repair spall(s)
ENGR-MOBL-4709	Repair a road crater
ENGR-MOBL-4601	Conduct security for route clearance/ sweep operations
ENGR-MOBL-4602	Detect obstacles for route clearance/ sweep operations
ENGR-MOBL-4603	Breach obstacles for route clearance/ sweep operations
ENGR-MOBL-4604	Conduct route improvement
ENGR-MOBL-4605	Repair runway crater
ENGR-MOBL-4606	Repair spall(s)
ENGR-MOBL-4501	Conduct dismounted route sweep
ENGR-MOBL-3901	Create a lane through an obstacle
ENGR-MOBL-3902	Proof a lane through an obstacle
ENGR-MOBL-3903	Mark a lane through obstacle
ENGR-MOBL-3904	Remotely detect explosive hazards
ENGR-MOBL-3905	Remotely reduce explosive hazards
ENGR-MOBL-3906	Operate a Combat Rubber Reconnaissance Craft (CRRC)
ENGR-MOBL-3907	Employ a medium machinegun team
ENGR-MOBL-3908	Employ a heavy machinegun team
ENGR-MOBL-3801	Engage targets with Mk153 SMAW
ENGR-MOBL-3802	Conduct area clearance operations
ENGR-MOBL-3803	Breach obstacle with the (ABV)
ENGR-MOBL-3804	Conduct an urban breach
ENGR-MOBL-3805	Conduct route clearance operations
ENGR-MOBL-3806	Employ the JAB

ENGR-MOBL-3601	Employ a medium machinegun team
ENGR-MOBL-3602	Employ a heavy machinegun team
<b>MET 3. CONDUCT COUNTER-MOBILITY OPERATIONS</b>	
ENGR-CMOB-6801	Conduct counter-mobility operations
ENGR-CMOB-5701	Conduct counter-mobility operations
ENGR-CMOB-6601	Conduct counter-mobility operations
ENGR-CMOB-5801	Create obstacle groups
ENGR-CMOB-5701	Create obstacle groups
ENGR-CMOB-4901	Create an explosive obstacle
ENGR-CMOB-4902	Construct a non-explosive obstacle
ENGR-CMOB-4902	Create an explosive obstacle
ENGR-CMOB-4902	Create a non-explosive obstacle
ENGR-CMOB-4903	Construct a non-explosive obstacle
ENGR-CMOB-3901	Construct demolition obstacles
ENGR-CMOB-3801	Construct field expedient obstacle
ENGR-CMOB-3601	Construct demolition obstacles
ENGR-CMOB-3501	Construct field expedient obstacle
ENGR-CMOB-3401	Emplace explosive obstacles
ENGR-CMOB-3402	Build explosive obstacles
<b>MET 4. CONDUCT GENERAL ENGINEERING OPERATIONS</b>	
ENGR-XENG-6801	Conduct general engineering operations
ENGR-XENG-6701	Conduct general engineering operations
ENGR-XENG-6601	Conduct general engineering operations
ENGR-XENG-5801	Conduct horizontal construction
ENGR-XENG-5802	Conduct vertical construction
ENGR-XENG-5701	Conduct vertical construction
ENGR-XENG-5601	Conduct vertical construction
ENGR-XENG-5501	Conduct horizontal construction
ENGR-XENG-5401	Provide engineer equipment support
ENGR-MANT-5401	Maintain engineer equipment
ENGR-XENG-5402	Prepare site for construction
ENGR-XENG-4901	Rig expedient lifting devices
ENGR-XENG-4801	Conduct vertical construction
ENGR-XENG-4802	Construct wood frame structure
ENGR-XENG-4803	Construct timber structure
ENGR-XENG-4804	Repair existing structures
ENGR-XENG-4701	Construct wood frame structure
ENGR-XENG-4702	Construct concrete block structure
ENGR-XENG-4703	Construct timber structure
ENGR-XENG-4704	Repair existing structures
ENGR-XENG-4705	Construct concrete structure
ENGR-XENG-4706	Construct expedient drainage structure
ENGR-XENG-4501	Conduct vertical construction
ENGR-XENG-4502	Construct manufacture-steel structure
ENGR-XENG-4503	Conduct horizontal construction
ENGR-XENG-4401	Conduct material handling equipment operations
ENGR-MANT-3801	Provide cleaning and lubrication service to (JAB)
ENGR-MANT-3701	Employ maintenance team
ENGR-XENG-3501	Conduct dust abatement

ENGR-XENG-3401	Provide crane support
ENGR-XENG-3402	Provide material handling equipment support
ENGR-XENG-3403	Provide earth moving equipment support
ENGR-XENG-3404	Fell standing timber
<b>MET 5. PROVIDE AND MAINTAIN ENGINEERING RECONNAISSANCE OPERATIONS</b>	
ENGR-RECN-5901	Conduct cache sweep operations
ENGR-RECN-5401	Conduct engineer reconnaissance
ENGR-RECN-4901	Conduct zone reconnaissance
ENGR-RECN-4902	Conduct route reconnaissance
ENGR-RECN-4903	Conduct area reconnaissance
ENGR-RECN-4904	Conduct engineer reconnaissance
ENGR-RECN-4905	Conduct cache sweep
ENGR-RECN-4601	Conduct cache sweep
ENGR-RECN-4401	Conduct site survey
ENGR-RECN-3901	Conduct gap reconnaissance
ENGR-RECN-3902	Conduct ferry reconnaissance
ENGR-RECN-3903	Conduct tunnel reconnaissance
ENGR-RECN-3801	Survey site for construction
ENGR-RECN-3701	Assess damage to airfield surfaces
ENGR-RECN-3601	Assess damage to airfield surfaces
ENGR-RECN-3501	Assess damage to airfield surfaces
ENGR-RECN-3502	Survey site for construction
ENGR-RECN-3401	Conduct cache sweep
ENGR-RECN-3402	Conduct obstacle reconnaissance
ENGR-RECN-3403	Conduct bridge reconnaissance
ENGR-RECN-3404	Conduct road reconnaissance
<b>MET 6. CONDUCT TACTICAL WATER AND/OR HYGIENE SERVICE</b>	
UTIL-XENG-5401	Provide utilities support
UTIL-XENG-4701	Provide potable water
UTIL-XENG-4501	Provide tactical hygiene support
UTIL-XENG-3701	Provide environmental control unit (ECU) support
UTIL-XENG-3702	Provide refrigeration support
UTIL-XENG-3703	Produce potable water
UTIL-XENG-3704	Store potable water
UTIL-XENG-3705	Establish water distribution site
UTIL-XENG-3501	Provide laundry service
UTIL-MANT-3501	Maintain Tactical Water Purification Systems (TWPS)
UTIL-XENG-3502	Provide shower services
UTIL-MANT-3502	Maintain hygiene equipment
UTIL-MANT-3503	Maintain Environmental Control Units (ECU)
UTIL-MANT-3504	Maintain refrigeration systems
UTIL-XENG-3404	Install plumbing in a structure
<b>MET 7. CONDUCT TACTICAL BULK FUEL STORAGE</b>	
FUEL-XENG-6701	Conduct bulk petroleum operations
FUEL-XENG-5501	Construct bulk petroleum site
FUEL-XENG-5502	Conduct tactical bulk petroleum operations
FUEL-XENG-4701	Coordinate bulk petroleum operations

FUEL-XENG-4702	Construct bulk petroleum site
FUEL-XENG-3701	Maintain bulk fuel petroleum distribution site
FUEL-XENG-3702	Store petroleum, oil and lubricants (POL)
FUEL-XENG-3703	Provide tactical bulk petroleum storage
<b>MET 8. CONDUCT TACTICAL ELECTRICAL SUPPLY</b>	
UTIL-XENG-4401	Provide tactical electrical power
UTIL-XENG-3901	Establish tactical power distribution system
UTIL-XENG-3401	Provide floodlight support
UTIL-XENG-3402	Establish mobile electric power sites
UTIL-XENG-3403	Wire a structure for electricity
UTIL-XENG-3405	Maintain tactical power distribution system(s)
<b>MET 9. CONDUCT SURVIVABILITY OPERATIONS</b>	
ENGR-SURV-6801	Conduct Survivability Operations
ENGR-SURV-6701	Conduct Survivability Operations
ENGR-SURV-6601	Conduct Survivability Operations
ENGR-SURV-5401	Construct Survivability Positions
ENGR-SURV-5402	Harden existing structures
ENGR-SURV-5403	Construct field fortifications
ENGR-SURV-4401	Harden existing structure
ENGR-SURV-4402	Construct field fortification
ENGR-SURV-4403	Construct vehicle control point
ENGR-SURV-4404	Construct entry control point
ENGR-SURV-4405	Construct earth filled barrier/ structure
ENGR-SURV-3401	Construct vehicle fighting position
ENGR-SURV-3402	Construct vehicle survivability position
ENGR-SURV-3403	Construct vehicle survivability position/revetment
ENGR-SURV-3404	Construct crew served weapons position
ENGR-SURV-3405	Construct overhead cover
ENGR-SURV-3406	Construct shelter/bunkers
<b>MET 10. RENDER SAFE, NEUTRALIZE AND DESTROY EXPLOSIVE ORDNANCE, IMPROVISED EXPLOSIVE DEVICES (IED), &amp; CHEMICAL, BIOLOGICAL, RADIOLOGICAL / NUCLEAR (CBRN) DEVICES</b>	
ENGR-DEMO-5401	Conduct demolition operations
ENGR-DEMO-4801	Employ demolitions in support of counter mobility operations
ENGR-DEMO-4501	Employ demolitions in support of counter mobility operations
ENGR-DEMO-4401	Employ demolitions in support of mobility operations
ENGR-DEMO-4402	Employ demolitions in support of survivability operations
ENGR-DEMO-4403	Employ demolitions in support of expeditionary operations
ENGR-DEMO-3901	Destroy captured arms and ammunition with demolitions
ENGR-DEMO-3902	Destroy bridge with demolitions
ENGR-DEMO-3801	Destroy tunnel with demolitions
ENGR-DEMO-3802	Destroy building with demolitions

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CHAPTER 3

COLLECTIVE EVENTS

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CHAPTER 3

COLLECTIVE EVENTS

**3000. PURPOSE.** This chapter includes all collective training events for Engineer and Utilities. A collective event is an event that a trained Engineer Unit would accomplish in the execution of Mission Essential Tasks (METs). These events are linked to a Service-Level Mission Essential Task. This linkage tailor's individual and collective training for the selected MET. Each event is composed of a collective event title, event description, condition, and standard. Accomplishment and proficiency level required is determined by the event standard.

**3001. EVENT CODING.** Collective T&R events are coded for ease of reference. Each event has a 4-4-4-character identifier.

a. The first four characters represent the community:

ENGR - Engineer  
UTIL - Utilities  
FUEL - Bulk Fuel

b. The second four characters represent the functional or duty area. This chapter contains the duty areas listed below. See Appendix A for a complete list of functional areas.

ADMN - Administration  
CMOB - Counter-mobility  
DEMO - Demolitions  
EOPS - Engineer Operations  
MANT - Maintenance  
MOBL - Mobility  
PINF - Provisional Infantry  
RECN - Engineer Reconnaissance  
SURV - Survivability  
XENG - General Engineering

c. The first of the last four characters represent the level (7000 or 5000) and the last three characters the sequence (7001, 5002) of the event with the hundreds column (9xx, 8xx, 7xx) identifying the unit to which an E-Coded event applies (see Sect 1006). The Engineer and Utilities collective training events are captured in the 7000 (Battalion) through 3000 (Team) Level.

3002. INDEX OF COLLECTIVE EVENTS

EVENT	E-CODE	DESCRIPTION	PAGE
		<b>7000-Level Events</b>	
ENGR-ADMN-7901	YES	Command and control engineer forces	3-8
ENGR-EOPS-7901	YES	Plan engineer operations	3-9
ENGR-EOPS-7902	YES	Train engineer forces	3-9
		<b>6000-Level Events</b>	
ENGR-MOBL-6801	YES	Conduct mobility operations	3-11
ENGR-XENG-6801	NO	Conduct general engineering operations	3-12
ENGR-CMOB-6801	YES	Conduct counter-mobility operations	3-13
ENGR-SURV-6801	YES	Conduct survivability operations	3-13
ENGR-MOBL-6701	YES	Conduct mobility operations	3-14
ENGR-CMOB-6701	NO	Conduct counter-mobility operations	3-15
ENGR-XENG-6701	YES	Conduct general engineering operations	3-16
ENGR-SURV-6701	YES	Conduct survivability operations	3-18
FUEL-XENG-6701	YES	Conduct Bulk petroleum operations	3-19
ENGR-XENG-6601	YES	Conduct general engineering operations	3-19
ENGR-SURV-6601	YES	Conduct survivability operations	3-21
ENGR-CMOB-6601	NO	Conduct counter-mobility operations	3-21
ENGR-EOPS-6401	YES	Plan engineer operations	3-22
ENGR-EOPS-6402	YES	Command and control engineer forces	3-23
ENGR-EOPS-6403	YES	Train engineer forces	3-24
ENGR-PINF-6401	YES	Fight as provisional infantry	3-25
		<b>5000-Level Events</b>	
ENGR-RECN-5901	NO	Conduct cache sweep operations	3-26
ENGR-MOBL-5801	YES	Conduct obstacle breaching operations	3-27
ENGR-MOBL-5802	YES	Conduct route clearance operations	3-28
ENGR-MOBL-5803	NO	Construct combat roads	3-29
ENGR-XENG-5801	NO	Conduct horizontal construction	3-30
ENGR-XENG-5802	NO	Conduct vertical construction	3-32
ENGR-MOBL-5701	NO	Conduct obstacle breaching operations	3-33
ENGR-MOBL-5702	NO	Conduct breach lane improvement operations	3-34
ENGR-MOBL-5703	YES	Conduct route clearance operations	3-35
ENGR-MOBL-5704	YES	Install Medium Girder Bridge	3-36
ENGR-MOBL-5705	YES	Conduct rafting operations	3-37
ENGR-MOBL-5706	YES	Install Ribbon Bridge	3-38
ENGR-MOBL-5707	NO	Construct non-standard bridge	3-39
ENGR-MOBL-5708	NO	Repair non-standard bridge	3-40
ENGR-MOBL-5709	YES	Construct combat roads	3-41
ENGR-CMOB-5701	NO	Create obstacle groups	3-42
ENGR-XENG-5701	YES	Conduct vertical construction	3-43
ENGR-MOBL-5601	NO	Conduct route clearance operations	3-45
ENGR-MOBL-5602	YES	Conduct Airfield Damage Repair	3-45
ENGR-XENG-5601	YES	Conduct vertical construction	3-46

ENGR-MOBL-5501	YES	Construct tactical landing zones	3-48
ENGR-MOBL-5502	YES	Conduct area clearance operations	3-49
ENGR-XENG-5501	YES	Conduct horizontal construction	3-50
FUEL-XENG-5501	YES	Construct bulk Petroleum Site	3-51
FUEL-XENG-5502	YES	Conduct tactical bulk petroleum operations	3-52
ENGR-MOBL-5401	YES	Construct expedient HLZ	3-53
ENGR-XENG-5401	YES	Provide Engineer Equipment Support	3-54
ENGR-XENG-5402	NO	Prepare Site for Construction	3-55
UTIL-XENG-5401	YES	Provide Utilities Support	3-56
ENGR-RECN-5401	YES	Conduct engineer reconnaissance	3-57
ENGR-DEMO-5401	YES	Conduct demolition operations	3-58
ENGR-SURV-5401	YES	Construct survivability positions	3-58
ENGR-SURV-5402	YES	Harden Existing Structure	3-60
ENGR-SURV-5403	YES	Construct field fortifications	3-61
ENGR-MANT-5401	YES	Maintain Engineer Equipment	3-62
ENGR-PINF-5401	NO	Fight as provisional infantry	3-63
		<b>4000-Level Events</b>	
ENGR-MOBL-4901	YES	Conduct security for route clearance/sweep operations	3-64
ENGR-MOBL-4902	YES	Detect obstacles for route clearance/sweep operations	3-65
ENGR-MOBL-4903	YES	Breach obstacles for route clearance/sweep operations	3-66
ENGR-CMOB-4901	YES	Create an explosive obstacle	3-67
ENGR-CMOB-4902	YES	Create a non-explosive obstacle	3-69
ENGR-RECN-4901	YES	Conduct zone reconnaissance	3-70
ENGR-RECN-4902	YES	Conduct route reconnaissance	3-71
ENGR-RECN-4903	YES	Conduct area reconnaissance	3-72
ENGR-RECN-4904	YES	Conduct engineer reconnaissance	3-73
ENGR-RECN-4905	YES	Conduct cache sweep	3-74
ENGR-XENG-4901	NO	Rig expedient lifting devices	3-75
ENGR-MOBL-4801	YES	Conduct deliberate breach	3-76
ENGR-MOBL-4802	YES	Conduct hasty/ in-stride breach	3-77
ENGR-MOBL-4803	NO	Conduct covert breach	3-79
ENGR-MOBL-4804	YES	Conduct assault breach	3-80
ENGR-MOBL-4805	YES	Conduct dismounted route sweep operations	3-81
ENGR-MOBL-4806	NO	Conduct route improvement	3-82
ENGR-MOBL-4807	NO	Install rope bridge	3-83
ENGR-XENG-4801	NO	Conduct vertical construction	3-84
ENGR-XENG-4802	NO	Construct wood frame structure	3-85
ENGR-XENG-4803	NO	Construct timber structure	3-86
ENGR-XENG-4804	NO	Repair existing structures	3-87
ENGR-DEMO-4801	YES	Employ demolitions in support of counter-mobility operations	3-88
ENGR-MOBL-4701	YES	Maneuver a standard military ribbon raft	3-89
ENGR-MOBL-4702	YES	Assemble Medium Girder Bridge	3-90
ENGR-MOBL-4703	YES	Assemble ribbon bridge	3-91
ENGR-MOBL-4704	NO	Assemble ribbon raft	3-92
ENGR-MOBL-4705	NO	Conduct deliberate breach	3-93
ENGR-MOBL-4706	YES	Conduct route improvement	3-94
ENGR-MOBL-4707	NO	Repair runway crater	3-95

ENGR-MOBL-4708	NO	Repair spall(s)	3-96
ENGR-MOBL-4709	YES	Repair road crater	3-97
ENGR-XENG-4701	YES	Construct wood frame structure	3-98
ENGR-XENG-4702	YES	Construct concrete block structure	3-99
ENGR-XENG-4703	YES	Construct timber structure	3-100
ENGR-XENG-4704	YES	Repair existing structures	3-101
ENGR-XENG-4705	NO	Construct concrete structure	3-102
ENGR-XENG-4706	NO	Construct expedient drainage structure	3-102
UTIL-XENG-4701	YES	Provide potable water	3-103
FUEL-XENG-4701	NO	Coordinate bulk petroleum operations	3-104
FUEL-XENG-4701	NO	Construct bulk petroleum site	3-105
ENGR-MOBL-4601	NO	Conduct security for route clearance/ sweep operations	3-105
ENGR-MOBL-4602	NO	Detect obstacles for route clearance/ sweep operations	3-107
ENGR-MOBL-4603	NO	Breach obstacles for route clearance/ sweep operations	3-108
ENGR-MOBL-4604	NO	Conduct route improvement	3-109
ENGR-MOBL-4605	YES	Repair road crater	3-110
ENGR-MOBL-4606	YES	Repair spall(s)	3-111
ENGR-CMOB-4601	NO	Create an Explosive Obstacle	3-112
ENGR-CMOB-4602	NO	Create a Non-Explosive Obstacle	3-114
ENGR-CMOB-4603	NO	Construct Non-Explosive Obstacle	3-115
ENGR-RECN-4601	NO	Conduct Cache Sweep	3-116
ENGR-MOBL-4501	YES	Conduct Dismounted Route Sweep	3-118
ENGR-XENG-4501	YES	Conduct vertical construction	3-119
ENGR-XENG-4502	YES	Construct manufactured-steel structure	3-120
ENGR-XENG-4503	YES	Conduct horizontal construction	3-121
UTIL-XENG-4501	NO	Provide Tactical Hygiene Support	3-123
ENGR-DEMO-4501	NO	Employ demolitions in support of counter mobility operations	3-123
ENGR-PINF-4401	YES	Fight as provisional infantry	3-124
ENGR-XENG-4401	YES	Conduct MHE Operations	3-125
ENGR-SURV-4401	YES	Harden Existing Structure	3-126
ENGR-SURV-4402	YES	Construct field fortifications	3-127
ENGR-SURV-4403	YES	Construct Vehicle Control Point	3-128
ENGR-SURV-4404	YES	Construct Entry Control Point	3-130
ENGR-SURV-4405	YES	Construct earth filled barrier/structure	3-131
ENGR-DEMO-4401	YES	Employ Demolitions in Support of Mobility Operations	3-131
ENGR-DEMO-4402	YES	Employ Demolitions in Support of Survivability Operations	3-133
ENGR-DEMO-4403	YES	Employ Demolitions in Support of Expeditionary Operations	3-134
UTIL-XENG-4401	YES	Provide Tactical Electrical Power	3-135
ENGR-RECN-4401	YES	Conduct Site Survey	3-136
		<b>3000-Level Events</b>	
ENGR-MOBL-3901	YES	Create a lane through an obstacle	3-137
ENGR-MOBL-3902	YES	Proof a lane through an obstacle	3-137
ENGR-MOBL-3903	YES	Mark a lane through an obstacle	3-138
ENGR-MOBL-3904	YES	Remotely detect explosive hazards	3-140

ENGR-MOBL-3905	YES	Remotely reduce explosive hazards	3-140
ENGR-MOBL-3906	NO	Operate small craft	3-141
ENGR-MOBL-3907	YES	Employ a medium machinegun team	3-142
ENGR-MOBL-3908	YES	Employ a heavy machinegun team	3-143
ENGR-CMOB-3901	NO	Construct demolition obstacles	3-144
ENGR-RECN-3901	YES	Conduct gap reconnaissance	3-145
ENGR-RECN-3902	NO	Conduct tunnel reconnaissance	3-146
ENGR-RECN-3903	YES	Conduct ferry reconnaissance	3-147
ENGR-SURV-3901	YES	Construct vehicle survivability position	3-147
ENGR-SURV-3902	NO	Construct trenches	3-148
ENGR-DEMO-3901	NO	Destroy captured arms and ammunition with demolitions	3-150
ENGR-DEMO-3902	NO	Destroy bridge with demolitions	3-151
UTIL-XENG-3901	YES	Establish tactical power distribution system	3-152
ENGR-MOBL-3801	YES	Engage targets with Mk153 SMAW	3-153
ENGR-MOBL-3802	NO	Conduct area clearance operations	3-154
ENGR-MOBL-3803	YES	Breach obstacle with the (ABV)	3-154
ENGR-MOBL-3804	YES	Conduct an urban breach	3-156
ENGR-MOBL-3805	YES	Conduct route clearance operations	3-157
ENGR-DEMO-3801	NO	Destroy tunnel with demolitions	3-158
ENGR-DEMO-3802	NO	Destroy building with demolitions	3-159
ENGR-CMOB-3801	YES	construct field expedient obstacles	3-160
ENGR-SURV-3801	YES	construct vehicle fighting positions	3-161
ENGR-SURV-3802	YES	Construct shelter/bunkers	3-162
ENGR-RECN-3801	NO	Survey site for construction	3-163
ENGR-MANT-3801	NO	Provide cleaning and lubrication service to	3-164
UTIL-XENG-3701	NO	Provide environmental control unit (ECU) support'	3-164
UTIL-XENG-3702	NO	Provide refrigeration support	3-165
UTIL-XENG-3703	YES	Produce potable water	3-166
UTIL-XENG-3704	NO	Store potable water	3-166
UTIL-XENG-3705	NO	Establish water distribution site	3-167
FUEL-XENG-3701	NO	Maintain bulk fuel petroleum distribution site	3-167
FUEL-XENG-3702	NO	Store petroleum, oil and lubricants (POL)	3-168
FUEL-XENG-3703	NO	Provide tactical bulk petroleum storage	3-169
ENGR-MANT-3701	NO	Employ maintenance team	3-170
ENGR-RECN-3701	NO	Assess damage to airfield surfaces	3-170
ENGR-MOBL-3601	NO	Employ a Medium Machinegun Team	3-171
ENGR-MOBL-3602	NO	Employ a Heavy Machinegun Team	3-172
ENGR-CMOB-3601	NO	Construct Demolition Obstacles	3-173
ENGR-RECN-3601	YES	Assess Damage to Airfield Surfaces	3-174
ENGR-SURV-3601	YES	Construct Vehicle Survivability Position/Revetment	3-175
ENGR-XENG-3501	NO	Conduct Dust Abatement	3-176
ENGR-CMOB-3501	NO	Construct Field Expedient Obstacle	3-177
UTIL-XENG-3501	NO	Provide Laundry Services	3-178
UTIL-XENG-3502	NO	Provide Shower Services	3-178
UTIL-MANT-3501	NO	Maintain Water Support Equipment	3-179
UTIL-MANT-3502	NO	Maintain Hygiene Equipment	3-179
UTIL-MANT-3503	NO	Maintain Environmental Control Units	3-180
UTIL-MANT-3504	NO	Maintain Refrigeration Systems	3-181
ENGR-RECN-3501	YES	Survey Site for Construction	3-182
ENGR-RECN-3502	YES	Assess Damage to Airfield Facilities and	3-182

Structures			
ENGR-SURV-3401	NO	Construct Individual Fighting Position	3-183
ENGR-SURV-3402	YES	Construct Crew Served Weapons Position	3-184
ENGR-SURV-3403	YES	Construct Overhead Cover	3-185
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ENGR-RECN-3401	YES	Conduct a cache sweep	3-187
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ENGR-RECN-3403	YES	Conduct Bridge Reconnaissance	3-189
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ENGR-CMOB-3401	NO	Emplace Explosive Obstacles	3-191
ENGR-CMOB-3402	YES	Build Constructed Obstacles	3-192
ENGR-XENG-3401	NO	Provide Crane Support	3-193
ENGR-XENG-3402	NO	Provide Material Handling Equipment (MHE) Support	3-194
ENGR-XENG-3403	NO	Provide Earth Moving Equipment Support	3-194
ENGR-XENG-3404	YES	Fell Standing Timber	3-195
UTIL-XENG-3401	NO	Provide Floodlight Support	3-196
UTIL-XENG-3402	NO	Establish Mobile Electric Power Sites	3-196
UTIL-XENG-3403	NO	Wire a Structure for Electricity	3-197
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3003. 7000-LEVEL EVENTS

ENGR-ADMN-7901: Command and control engineer forces

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

CONDITION: Given an order and commander's intent

STANDARD: To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces, and coordinate operations with adjacent engineers in the accomplishment of the mission.

EVENT COMPONENTS:

1. Establish COC and communications with higher, adjacent, supported and subordinate units.
2. Command assigned units.
3. Maintain the engineer common operational picture (COP)
4. Direct and coordinate current engineer operations and initiate appropriate actions.
5. Track commander's critical information requirements (CCIR)
6. Maintain status of available engineer resources.
7. Integrate engineer reconnaissance products with intelligence effort.
8. Make recommendations to the commander on the employment of engineer forces.

CHAINED EVENTS: ENGR-EOPS-6402

REFERENCES:

1. MCDP 6, Marine Corps Doctrine Publication, Command and Control
2. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
3. MCWP 5-1, Marine Corps Warfighting Publication, Marine Corps Planning Process
4. MCWP 3-40.1 MAGTF Command and Control
5. JP 3-34 Joint Engineer Operations

SUPPORT REQUIREMENTS:

1. Fire and Maneuver Training Area
2. Material Handling Equipment
3. C4I Assets

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ENGR-EOPS-7901: Plan engineer operations

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Conduct planning with focus on mobility, counter-mobility, survivability, and general engineering in accordance with the Marine Corps Planning Process (MCP)

**CONDITION:** Given higher commander's initial guidance, battle space area evaluation, and a warning or operations order.

**STANDARD:** To identify the best use of engineer personnel and equipment consistent with mission analysis, commander's intent, and concept of operations.

**EVENT COMPONENTS:**

1. Perform mission analysis to include Intelligence preparation of the Battlefield (IPB) and preparation of the engineer battlefield assessment.
2. Develop courses of action to include a scheme of engineer operations for each.
3. War game courses of action.
4. Compare courses of action, then present for commander's decision.
5. Develop orders to include engineer annexes and task organization.
6. Transition to produce operations plan or order.
7. Develop branches and sequels, if applicable.

**CHAINED EVENTS:** ENGR-EOPS-6401

**REFERENCES:**

1. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
2. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
3. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
4. JP 3-34 Joint Engineer Operations
5. FM 5-101 Mobility

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**ENGR-EOPS-7902:** Train engineer forces

**SUPPORTED MET(S):** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Train engineer forces in order to sustain proficiency in mobility, counter-mobility, survivability, and general engineering.

**CONDITION:** Given an engineer unit, approved Mission Essential Task List (METL), commander's training guidance, training plans, training schedules, resources and trainers.

**STANDARD:** To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results in accordance with the references.

**EVENT COMPONENTS:**

1. Conduct mission analysis.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.

8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA)
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

CHAINED EVENTS: ENGR-EOPS-6403

RELATED EVENTS: ENGR-EOPS-7901

REFERENCES:

1. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
2. MCWP 3-17 Engineer Operations
3. MCO P3500.72a
4. MCO 1553.2a
5. MCO 1553.3a
6. MCRP 3.0A
7. MCRP 3.0B
8. FM 5-101 Mobility

SUPPORT REQUIREMENTS:

1. Fire and Maneuver Training Area
-

3004. 6000-LEVEL EVENTS

ENGR-MOBL-6801: Conduct mobility operations

SUPPORTED MET(S): 1, 2, 4, 5, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Conduct mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE requirements.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

STANDARD: To provide mobility for maneuver forces in accordance with the commander's intent and concept of operations.

EVENT COMPONENTS:

1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan with the concept of operations.
4. Participate in supported unit planning.
5. Task organize.
6. Complete the engineering portion of the orders.
7. Issue orders.
8. Clear mobility obstructions.
9. Construct and maintain mobility corridors for maneuver forces (routes, breach lanes, ect.).
10. Submit reports as required.

CHAINED EVENTS: ENGR-MOBL-5801, ENGR-MOBL-4801, ENGR-MOBL-3801, 1371-XENG-2011, 1302-MOBL-1002

RELATED EVENTS: ENGR-MOBL-5802, ENGR-MOBL-4802, ENGR-MOBL-4804, ENGR-MOBL0-4805, ENGR-MOBL-3803, ENGR-MOBL-3804, ENGR-MOBL-3805, ENGR-MOBL-3806

REFERENCES:

1. MCWP 3-17 Engineer Operations
  2. MCWP 3-17.4 Engineer Reconnaissance
  3. MCRP 3-17B Engineer Forms and Reports
  4. MCWP 3-17.3 MAGTF Breaching Operations
  5. (MCWP) 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
  6. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
  7. (MCWP) 3-17, Marine Corps Warfighting Publication, Engineer Operations
  8. JP 3-34 Joint Engineer Operations
  9. FM 5-101 Mobility
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ENGR-XENG-6801: Conduct General Engineering Operations

SUPPORTED MET(S): 1, 4, 5, 8

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Conduct general engineering operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE operations.

CONDITION: Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and security element.

STANDARD: To provide general engineering in accordance with commander's intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:

1. Provide engineer reconnaissance and limited survey.
2. Plan, organize and construct obstacle systems.
3. Construct and maintain essential base camp requirements.
4. Provide limited tactical mobile electric power.
5. Provide limited vertical and horizontal construction.
6. Construct expedient helicopter landing zones (HLZ).
7. Provide limited material handling equipment support.

RELATED EVENTS: ENGR-XENG-5801, ENGR-XENG-5802

REFERENCES:

1. MCRP 3-17 Engineer Operations
2. MCWP 3-17.4 Engineer Reconnaissance
3. FM 90-7 Combined Arms Obstacle Integration
4. FM 5-412 Project Management
5. FM 5-424 Theater of Operations Electrical Systems
6. FM 5-33 Terrain Analysis
7. FM 5-410 Military Soils Engineering
8. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
9. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
12. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated
13. Parts Breakdown, AM-2 Airfield Mat and Accessories

SUPPORT REQUIREMENTS: MHE & Earth moving Engineer Equipment

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ENGR-CMOB-6801: Conduct counter-mobility operations

SUPPORTED MET(S): 1, 3, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

**DESCRIPTION:** Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of GCE requirements.

**CONDITION:** Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To turn, block, fix, or disrupt enemy forces in accordance with the commander's intent and concept of operations.

**EVENT COMPONENTS:**

1. Conduct counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

**CHAINED EVENTS:** ENGR-CMOB-3801

**RELATED EVENTS:** ENGR-CMOB-5801

**REFERENCES:**

1. MCRP 3-17 Engineer Operations
2. FM 5-103 Countermobility Operations
3. FM 90-7 Combined Arms Obstacle Integration

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**ENGR-SURV-6801:** Conduct survivability operations

**SUPPORTED MET(S):** 1,4,5,9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, non-explosive and explosive obstacles, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of GCE requirements.

**CONDITION:** Given a mission, commander's intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To provide survivability planning and positions for supported units in accordance with the commander's intent and concept of operations.

**EVENT COMPONENTS:**

1. Perform vulnerability assessment.

2. Conduct survivability planning.
3. Integrate survivability plan with the concept of operations.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
8. Construct and maintain survivability positions as required.
9. Maintain oversight of survivability construction efforts.
10. Receive and submit reports as required.

**CHAINED EVENTS:** ENGR-SURV-5401, ENGR-SURV-4401, ENGR-SURV-3401, 1345-XENG-1005

**RELATED EVENTS:** ENGR-SURV-3801, ENGR-SURV-3802, ENGR-SURV-4902, ENGR-SURV-4903, ENGR-SURV-4904, ENGR-SURV-3903, ENGR-SURV-3402, ENGR-SURV-3403, ENGR-SURV-3404

**REFERENCES:**

1. MCRP 3-17 Engineer Operations
2. FM 5- 103 Survivability
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 5-1 Marine Corps Warfighting Publication, Marine Corps Planning Process
5. FM 34-130 Intelligence Preparation of the Battle Field (IPB)
6. MCWP 3-17, Marine Corps Warfighting Publication, Engineer Operations
7. JP 3-34 Joint Engineer Operations

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**ENGR-MOBL-6701:** Conduct mobility operations

**SUPPORTED MET(S):** 1, 2, 4, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Conduct mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF requirements.

**CONDITION:** Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To provide mobility for maneuver forces in accordance with the commanders' intent and concept of operations.

**EVENT COMPONENTS:**

1. Conduct mobility planning.
2. Conduct engineer reconnaissance.
3. Integrate mobility plan with the concept of operations.
4. Participate in supported unit planning.
5. Task organize.
6. Complete the engineering portion of the orders.
7. Issue orders.
8. Clear mobility obstructions.

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9. Construct and maintain mobility corridors (i.e., roads, routes, bridges, landing zones, ect.).
10. Submit reports as required.

**CHAINED EVENTS:** ENGR-MOBL-5703, ENGR-MOBL-4701

**RELATED EVENTS:** ENGR-MOBL-5704, ENGR-MOBL-5705, ENGR-MOBL-5706, ENGR-MOBL-5709, ENGR-MOBL-4702, ENGR-MOBL-4703, ENGR-MOBL-4706, ENGR-MOBL-4709

**REFERENCES:**

1. FM 5-101 Mobility
2. JP 3-34 Engineer Doctrine for Joint Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 5-1 Marine Corps Planning Process

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17410 Maneuver/Training Area, Light Forces

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**ENGR-CMOB-6701:** Conduct counter-mobility operations

**SUPPORTED MET(S):** 1, 3, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF requirements.

**CONDITION:** Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To turn, block, fix, or disrupt enemy forces in accordance with the commanders' intent and concept of operations.

**EVENT COMPONENTS:**

1. Conduct counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

**CHAINED EVENTS:** ENGR-XENG-3402

REFERENCES:

1. FM 5-102 Countermobility
2. FM 90-7 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces

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ENGR-XENG-6701: Conduct general engineering operations

SUPPORTED MET(S): 1, 4, 6, 8, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Conduct general engineering operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of MAGTF operations.

CONDITION: Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and security element.

STANDARD: To provide general engineering in accordance with commanders' intent, concept of operations and supported unit requirements.

EVENT COMPONENTS:

1. Provide engineer reconnaissance and survey.
2. Repair, improve, and construct standard and non-standard bridging.
3. Construct and maintain expedient roads.
4. Construct, maintain, and improve vertical or short takeoff and landing sites.
5. Construct and maintain mission essential base camp requirements (temporary structures).
6. Provide technical and equipment assistance for erection of pre-engineered buildings.
7. Provide tactical utilities support (mobile electric power, water, potable water production, bath and laundry facilities, and refrigeration services).
8. Provide bulk petroleum handling, storing, and dispensing services.
9. Develop, improve, and maintain drainage systems.
10. Provide technical assistance to support camouflage requirements.
11. Provide expeditionary vertical and horizontal construction.
12. Provide material handling equipment support.
13. Provide EOD support.

CHAINED EVENTS: ENGR-XENG-5701, ENGR-XENG-4701, ENGR-XENG-4401, ENGR-XENG-3404, 1371-MANT-1001, 1345-XENG-1005

RELATED EVENTS: ENGR-XENG-5401, ENGR-XENG-4702, ENGR-XENG-4703, ENGR-XENG-4704, ENGR-XENG-4401, ENGR-XENG-3404, 1341-MANT-1002, 1341-MANT-1003, 1341-MANT-1004

**REFERENCES:**

1. FM 5-33 Terrain Analysis
2. FM 5-410 Military Soils Engineering
3. FM 5-412 Project Management
4. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
5. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
6. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
7. FM 5-434 Earthmoving Operations
8. FM 90-7 Combined Arms Obstacle Integration
9. MCWP 3-17 Engineer Operations .
10. MCWP 3-17.4 Engineer Reconnaissance
11. NAVAIR 00-80T-115 Expeditionary Airfield NATOPS Manual
12. NAVAIR 51-60-A-1 Installation, Maintenance, Repackaging and Illustrated Parts Breakdown, AM-2 Airfield Mat and Accessories

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17931 Medium/Heavy Equipment Training Area

**EQUIPMENT:** Engineer Earthmoving equipment, Engineer Material Handling equipment, Utilities equipment, Refrigeration equipment, Bulk fuel equipment

**UNITS/PERSONNEL:** EOD support Logistical support

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**ENGR-SURV-6701:** Conduct survivability operations

**SUPPORTED MET(S):** 1, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, non-explosive and explosive obstacles, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of MAGTF requirements.

**CONDITION:** Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To provide survivability planning and positions for supported units in accordance with the commanders' intent and concept of operations.

**EVENT COMPONENTS:**

1. Perform vulnerability assessment.
2. Conduct survivability planning.

3. Integrate survivability plan with the concept of operations.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain survivability positions as required.
8. Maintain oversight of survivability construction efforts.
9. Receive and submit reports as required.

CHAINED EVENTS: ENGR-SURV-5401, ENGR-SURV-4401, ENGR-XENG-4401, ENGR-SURV-3402

RELATED EVENTS: ENGR-SURV-5402, ENGR-SURV-5403, ENGR-SURV-4402, ENGR-SURV-4403, ENGR-SURV-4405, ENGR-SURV-3402, ENGR-SURV-3403

REFERENCES:

1. FM 5-103 Survivability
2. JP 3-34 Engineer Doctrine for Joint Operations
3. MCRP 3-17B Engineer Forms and Reports
4. MCWP 3-17 Engineer Operations
5. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer equipment

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FUEL-XENG-6701: Conduct bulk petroleum operations

SUPPORTED MET(S): 7

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Conduct Bulk Petroleum Operations in support of the Marine logistics Group. The engineer support battalion (ESB) is responsible for providing general bulk fuel support to the MEF to include receipt, storage, distribution, and quality surveillance. The ESB has one bulk fuel company to provide this support. When supporting MAGTF airfields, the ESB is responsible for fuel distribution to the airfield. The bulk fuel company of the ESB provides coordination and control with the MAW for transfer of bulk fuel to the airfields.

CONDITION: Given a mission order, location of operation, estimated fuel requirements, required personnel and equipment, a communications plan, necessary support equipment, and current references.

STANDARD: To provide uninterrupted fuel support per mission requirements.

EVENT COMPONENTS:

1. Review mission.
2. Determine type of setup for storage and distribution of fuel per mission requirements
3. Task organize personnel and equipment needed.
4. Coordinate security requirements with supported unit as required.
5. Receipt for supplies.
6. Establish fuel systems communications plan.

7. Develop safety plan for storage and distribution.
8. Plan fuel distribution site for operations.
9. Establish a Petroleum Laboratory Quality Surveillance and Control Program.
10. Submit required reports

**REFERENCES:**

1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-11.6 Bulk Liquid Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17413 Field Training Area  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

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**ENGR-XENG-6601:** Conduct general engineering operations

**SUPPORTED MET(S):** 1, 2, 4, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Conduct general engineering operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of aviation ground support (AGS), cantonment, FARP construction, food service support, medical support, and general engineer services.

**CONDITION:** Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and security element.

**STANDARD:** To provide general engineering in accordance with commanders' intent, concept of operations and supported unit requirements.

**EVENT COMPONENTS:**

1. Providing engineer reconnaissance and survey.
2. Repairing, improving, and maintaining existing road networks for the ACE.
3. Constructing and maintaining expedient roads.
4. Constructing, maintaining, and improving vertical or short takeoff and landing sites.
5. Construct and maintain essential base camp requirements (i.e., bunkers, aircraft revetments, and expeditionary structures).
6. Provide technical and equipment assistance for erection of pre-engineered buildings.
7. Provide utilities support (mobile electric power, water, potable water production, bath and laundry facilities, and refrigeration services).
8. Develop, improve, and maintaining drainage systems.

9. Provide technical assistance to support camouflage requirements.
10. Assessing bomb damage and provide airfield damage repair (ADR).
11. Provide material handling equipment support.
12. Provide bulk petroleum handling, storing, and dispensing services.
13. Provide for EOD support.

**CHAINED EVENTS:** ENGR-XENG-5601, ENGR-XENG-5401, ENGR-XENG-4401, ENGR-XENG-3404, 1341-MANT-1001, 1345-XENG-1005

**RELATED EVENTS:** 1341-MANT-1002, 1341-MANT-1003, 1341-MANT-1004

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17413 Field Training Area  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Engineer support equipment, Engineer Material Handling equipment, Bulk Fuel equipment, Utilities equipment

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**ENGR-SURV-6601:** Conduct survivability operations

**SUPPORTED MET(S):** 1, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 1 month

**DESCRIPTION:** Conduct survivability operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in the construction of mutually supporting bunkers, fighting positions, hardening of existing structures, vehicle defilades, ECP/VCP, berms/barriers, HN support, communications, warning systems, etc., in support of ACE requirements.

**CONDITION:** Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

**STANDARD:** To provide survivability planning and positions for supported units in accordance with the commanders' intent and concept of operations.

**EVENT COMPONENTS:**

1. Perform vulnerability assessment.
2. Conduct survivability planning.
3. Integrate survivability plan with the concept of operations.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Maintain oversight of survivability construction efforts.
8. Construct and maintain survivability position/structures.
9. Receive and submit reports as required.

CHAINED EVENTS: ENGR-SURV-5401, ENGR-SURV-4401, ENGR-XENG-4401, ENGR-SURV-3402

RELATED EVENTS: ENGR-SURV-5402, ENGR-SURV-5403, ENGR-SURV-4402, ENGR-SURV-4403, ENGR-SURV-4405, ENGR-SURV-3402, ENGR-SURV-3403

REFERENCES:

1. FM 5-103 Survivability
2. MCWP 3-17 Engineer Operations

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ENGR-CMOB-6601: Conduct counter-mobility operations

SUPPORTED MET(S): 1, 3, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Conduct counter-mobility operations; includes but is not limited to prepare plans, orders, and to direct, lead and coordinate forces in support of ACE requirements.

CONDITION: Given a mission, commanders intent, available resources, location of adjacent and friendly forces, estimated location and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement (ROE), supporting arms plan, and references.

STANDARD: To turn, block, fix, or disrupt enemy forces in accordance with the commanders' intent and concept of operations.

EVENT COMPONENTS:

1. Conduct counter-mobility planning.
2. Integrate counter-mobility plan with the concept of operations.
3. Participate in supported unit planning.
4. Task organize.
5. Complete the engineering portion of the orders.
6. Issue orders.
7. Construct and maintain obstacles and barriers.
8. Submit reports as required.

CHAINED EVENTS: ENGR-XENG-3402

REFERENCES:

1. FM 5-102 Countermobility
2. FM 90-7 Combined Arms Obstacle Integration
3. MCWP 3-17 Engineer Operations

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ENGR-EOPS-6401: Plan engineer operations

SUPPORTED MET(S): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

**DESCRIPTION:** Conduct planning with focus on mobility, countermobility, survivability, and general engineering in accordance with the Marine Corps Planning Process (MCPPE)

**CONDITION:** Given higher commander's initial guidance, battle space area evaluation, and a warning order or operations order.

**STANDARD:** To identify the best use of engineer personnel and equipment consistent with mission analysis, commanders' intent, and concept of operations.

**EVENT COMPONENTS:**

1. Perform mission analysis to include IPB and preparation of the engineer battlefield assessment.
2. Develop courses of action to include a scheme of engineer operations for each.
3. War game courses of action.
4. Compare courses of action, then present for commanders decision.
5. Develop orders to include engineer annexes and task organization.
6. Transition to produce operations plan or order.
7. Develop branches and sequels, if applicable.

**REFERENCES:**

1. MCWP 5-1 Marine Corps Planning Process
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**ENGR-EOPS-6402:** Command and control engineer forces

**SUPPORTED MET(S):** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces, and coordinate operations with adjacent engineers in the accomplishment of the mission.

**CONDITION:** Given an order and commanders intent

**STANDARD:** To exercise authority and direction over assigned forces, advise the commander on the use of engineer forces, and coordinate operations with adjacent engineers in the accomplishment of the mission.

**EVENT COMPONENTS:**

1. Establish COC and communications with higher, adjacent, supported and subordinate units.
2. Command assigned units.
3. Maintain the engineer common operational picture (COP)
4. Direct and coordinate current engineer operations and initiate appropriate actions.
5. Track commanders CCIRs
6. Maintain status of available engineer resources.
7. Integrate engineer reconnaissance products with intelligence effort.
8. Make recommendations to the commander on the employment of engineer forces.

**REFERENCES:**

1. JP 3-34 Engineer Doctrine for Joint Operations
2. MCWP 3-17 Engineer Operations
3. MCWP 5-1 Marine Corps Planning Process

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area

**EQUIPMENT:** Engineer Material handling equipment

**MATERIAL:** C4I Assets

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**ENGR-EOPS-6403:** Train engineer forces

**SUPPORTED MET(S):** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Train engineer forces in order to sustain proficiency in mobility, counter-mobility, survivability, and general engineering.

**CONDITION:** Given an engineer unit, approved Mission Essential Task List (METL), commanders training guidance, training plans, training schedules, resources and trainers.

**STANDARD:** To ensure that all requirements identified in performance steps (individual performance tasks) or event components (collective tasks) are addressed in sequence so all training evolutions achieve desired results in accordance with the references.

**EVENT COMPONENTS:**

1. Conduct mission analysis.
2. Identify collective training standards.
3. Conduct training assessment.
4. Determine training strategy.
5. Develop training guidance.
6. Develop a long range training plan.
7. Develop a mid-range training plan.
8. Develop a short-range training plan.
9. Develop weekly training schedules.
10. Develop lesson materials.
11. Develop training materials.
12. Conduct Operational Risk Assessment (ORA)
13. Conduct training.
14. Evaluate training.
15. Evaluate unit training plans.

**REFERENCES:**

1. FM 5-101 Mobility
2. MCO 1553.2A Management of Marine Corps Formal Schools and Training

- Detachments (Nov 03)
3. MCO 1553.3A Unit Training Management (UTM) (Jan 04)
  4. MCRP 3-0A Unit Training Management Guide
  5. MCRP 3-0B How to Conduct Training
  6. MCWP 3-17 Engineer Operations
  7. MCWP 5-1 Marine Corps Planning Process

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area

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**ENGR-PINF-6401:** Provide provisional infantry

**SUPPORTED MET(S):** 1

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Offensive operations including attacks, raids, movement to contact, etc. Defensive operations (including withdrawal), patrolling (including checkpoint ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance, TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations.  
ISO Infantry

**CONDITION:** Given a requirement, commander's intent and references.

**STANDARD:** To ensure a deployable detachment is capable of providing task organized forces to a supported unit.

**EVENT COMPONENTS:**

1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and deconflict fires.
8. Employ supporting arms.
9. Establish redundant communications.
10. Treat and evacuate casualties.
11. Process detainees.
12. Send and receive required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. MCDP 1 Warfighting
3. MCWP 3-1 Ground Combat Operations
4. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17413 Field Training Area  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17581 Machine Gun Field Fire Range  
Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17730 Fire And Movement Range

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3005. 5000-LEVEL EVENTS

ENGR-RECN-5901: Conduct cache sweep operations

SUPPORTED MET(S): 2, 5, 9, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Items in a cache may include (but is not limited to): documents, discs, tapes, weapons, explosives, ammunition, chemical materials, bombs, electronic equipment, etc. Appropriate safety and evidentiary preservation measures should be employed during cache sweeps.

CONDITION: Provided a mission, designated area/ building to search for known, potential, or suspected materials that may be used against friendly forces or be of intelligence value.

STANDARD: in order to detect, identify, and secure materials discovered during the course of the search in accordance with the commanders intent.

EVENT COMPONENTS:

1. Analyze search area intelligence.
2. Tasks organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect cache within search area.
6. Identify items within cache(s).
7. Mark cache(s) as required.
8. Reduce captured enemy ammunition as required.
9. Verify cache reduction.
10. Coordinate explosive ordnance disposal activities as required.
11. Coordinate weapons intelligence team activities as required.
12. Coordinate with other specialist personnel as required.
13. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	
M670 Fuse, Blasting Time M700	

M456 Cord, Detonating PETN Type I Class E  
M130 Cap, Blasting Electric M6

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer tools and kits

UNITS/PERSONNEL: Explosive ordnance disposal personnel, Weapons intelligence team, Corpsman

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ENGR-MOBL-5801: Conduct obstacle breaching operations

SUPPORTED MET(S): 2, 5, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Breaching operations are conducted to allow maneuver despite the presence of obstacles. Obstacle breaching is the employment of a combination of tactics and techniques to advance an attacking force to the far side of an obstacle that is covered by fire.

CONDITION: Given a mission, commanders' intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commanders' intent and concept of operations.

EVENT COMPONENTS:

1. Analyze obstacle intelligence.
2. Gather obstacle intelligence as required.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Breach lanes through obstacle(s).
11. Submit required reports.
12. Turnover lane(s) to designated forces.
13. Reconstitute the breach force.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports
10. MCWP 3-17 Engineer Operations

11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
J143 Rocket Motor, 5-inch MK22 Mod 4	
M914 Charge, Demolition Inert Linear M68A	
M913 Charge, Demolition High Explosive Li	

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Combat Engineer Breaching equipment, Engineer Earthmoving equipment, Engineer Material Handling equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-5802:** Conduct route clearance operations

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be cleared while it remains under the control of friendly forces.

**CONDITION:** Provided a mission, designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, Class V, Class IV, and reference.

**STANDARD:** To ensure friendly force mobility on the cleared route (friendly forces are not fixed, turned, blocked, not disrupted) in accordance with the commanders intent, while the route remains in friendly forces control.

**EVENT COMPONENTS:**

1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s) as required.
8. Reduce obstacle(s) as required.
9. Verify obstacle reduction.
10. Identify bypasses as required.
11. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. GTA 5-2-5 Engineer Reconnaissance
9. GTA 5-7-13 Bridge Classification Booklet
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
MN08 Igniter, Time Blasting Fuse with Sho	
MN90 Cap, Blasting, 1000 ft mini-tube M23	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN89 Dual instantaneous shock tube	
M757 Charge, Assembly Demolition M183 Com	

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Combat Engineer demolition equipment Route Clearance equipment

**UNITS/PERSONNEL:** Corpsman, Range Safety officer

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**ENGR-MOBL-5803:** Construct combat roads

**SUPPORTED MET(S):** 2, 4, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To create hasty expedient roads and trails.

**CONDITION:** Provided a mission order, commanders intent, a tactical situation, task organization of engineer equipment and personnel

**STANDARD:** To create hasty expedient roads and trails that meet the minimum traffic support requirements in accordance with the commanders' intent and the mobility plan.

**EVENT COMPONENTS:**

1. Review mission.
2. Conduct engineer reconnaissance and survey.
3. Task organize.
4. Coordinate with supporting units.
5. Issue order.
6. Conduct site preparations as required.
7. Clear the road.
8. Construct drainage structures as required.
9. Conduct expedient soil stabilization as required.
10. Construct road foundation.
11. Crown road.
12. Conduct expedient dust abatement as required.
13. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-335 Drainage
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 5-412 Project Management
8. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
9. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. GTA 5-2-5 Engineer Reconnaissance
12. MCWP 3-17 Engineer Operations
13. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17918 Road/Airfield Construction Training Site

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**ENGR-XENG-5801:** Conduct Horizontal construction

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To conduct horizontal construction in order to shape the terrain to meet the operational requirements of the GCE and includes expedient road construction and/or maintenance; expeditionary HLZs; site preparation for bed down facilities; and ordnance storage facilities.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and references

**STANDARD:** To build the assigned project that will meet or exceed the requirements listed in the design specifications and the commanders' intent.

**EVENT COMPONENTS:**

1. Plan horizontal construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate horizontal construction.
4. Construct a hasty expedient road.
5. Conduct site preparation.
6. Construct an expeditionary HLZ.
7. Conduct dust abatement as required.
8. Conduct non-explosive obstacles as required.
9. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-103 Survivability
4. FM 5-170 Engineer Reconnaissance
5. FM 5-335 Drainage
6. FM 5-34 Engineering Field Data
7. FM 5-412 Project Management
8. FM 5-428 Concrete Masonry
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. JP 3-34 Engineer Doctrine for Joint Operations
13. MCWP 3-17 Engineer Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-41.1 Rear Area Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area

**EQUIPMENT:** Earthmoving equipment, Material Handling equipment, Utilities equipment

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**ENGR-XENG-5802:** Conduct Vertical construction

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To conduct vertical construction is to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the GCE.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references

**STANDARD:** To build/improve facilities that meet minimum requirements listed in the design specifications in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Repair facility as required.
6. Erect prefabricated structure as required.
7. Construct wood frame structure as required.
8. Construct timber structure as required.
9. Construct expedient drainage structure as required.
10. Wire structure for electricity as required.
11. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Earthmoving equipment, Combat engineer tools & kits, Material Handling equipment

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ENGR-MOBL-5701: Conduct obstacle breaching operations

SUPPORTED MET(S): 2, 5, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Breaching operations are conducted to allow maneuver despite the presence of obstacles. Obstacle breaching is the employment of a combination of tactics and techniques to advance an attacking force to the far side of an obstacle that is covered by fire.

CONDITION: Given a mission, commanders' intent, a map, designated area, tasked organized personnel, equipment, and references.

STANDARD: To breach lanes through enemy obstacles to support the commanders' intent and concept of operations.

EVENT COMPONENTS:

1. Analyze obstacle intelligence.
2. Gather obstacle intelligence as required.
3. Determine breach requirement.
4. Task organize obstacle clearing detachment(s) (OCD).
5. Coordinate suppression of enemy over-watching obstacle.
6. Coordinate obscuration of enemy over-watching obstacle.
7. Coordinate security for breach lanes.
8. Coordinate breach with assault force, support force, and support breach team(s).
9. Verify suppression/obscuration effects.
10. Breach lanes through obstacle(s).
11. Submit required reports.
12. Turnover lane(s) to designated forces.
13. Reconstitute the breach force.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports
10. MCWP 3-17 Engineer Operations
11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

DODIC

Quantity

J143 Rocket Motor, 5-inch MK22 Mod 4  
M914 Charge, Demolition Inert Linear M68A  
M913 Charge, Demolition High Explosive Li

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area

**EQUIPMENT:** Combat Engineer Breaching equipment, Engineer Earthmoving equipment, Engineer Material Handling equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-5702:** Conduct breach lane improvement operations

**SUPPORTED MET(S):** 2, 5

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** As the breach force progresses, it creates two lanes in the tactical obstacles. The breach force marks lanes with the initial lane-marking pattern and passes the assault force through the lanes. At this stage of the breaching operation, the TF maintains lanes in the tactical obstacles and controls all movement of forces within the breach area.

**CONDITION:** Given a mission, commanders intent, a map, a breached lane marked to initial standard, tasked organized personnel, equipment, and references.

**STANDARD:** To improve breach lanes through enemy obstacles to support two-way traffic, the commanders' intent and concept of operations.

**EVENT COMPONENTS:**

1. Analyze breach lane reporting.
2. Determine breach lane improvement requirements.
3. Task organize support breach teams.
4. Coordinate receipt of breached lanes.
5. Coordinate security for breach lanes as required.
6. Improve breach lanes for trafficability as required.
7. Widen lanes as required.
8. Mark lanes as required.
9. Submit required reports.
10. Turnover lane(s) to designated forces.
11. Reconstitute the support breach team.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-34 Engineer Field Data - Field Expedient Charges
5. FM 90-13-1 Combined Arms Breaching Operations
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer Breaching equipment

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**ENGR-MOBL-5703:** Conduct route clearance operations

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be cleared while it remains under the control of friendly forces.

**CONDITION:** Provided a mission, designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, Class V, Class IV, and reference.

**STANDARD:** To ensure friendly force mobility on the cleared route (friendly forces are not fixed, turned, blocked, not disrupted) in accordance with the commanders intent, while the route remains in friendly forces control.

**EVENT COMPONENTS:**

1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units.
5. Detect obstacles on route.
6. Identify obstacle(s).
7. Mark obstacle(s) as required.
8. Reduce obstacle(s) as required.
9. Verify obstacle reduction.
10. Identify bypasses as required.
11. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-34 Engineer Field Data - Field Expedient Charges
7. FM 90-13-1 Combined Arms Breaching Operations
8. GTA 5-2-5 Engineer Reconnaissance
9. GTA 5-7-13 Bridge Classification Booklet
10. MCRP 3-17A Engineer Field Data

11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
MN08 Igniter, Time Blasting Fuse with Sho	
MN90 Cap, Blasting, 1000 ft mini-tube M23	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN89 Dual instantaneous shock tube	
M757 Charge, Assembly Demolition M183 Com	

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Combat Engineer demolition equipment, Route Clearance equipment, Engineer equipment, Motor transportation equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-5704:** Install a medium girder bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF. The medium-girder bridge (MGB) is a lightweight, hand-built, easily transportable bridge that can be erected in various configurations to cover a full range of military and emergency bridging requirements. The deck units are fitted between two longitudinal girders to provide a 13-foot-wide roadway. A bridge set has sufficient components to construct one 102-foot bridge in a double-story configuration or three 31-foot bridges in a single-story configuration. The MGB is constructed on rollers and launched using a detachable launching nose. It is transported on 5-7 ton trucks with trailers.

**CONDITION:** Provided a mission, commanders intent, a bridge construction site, Medium Girder Bridge (MGB) components, tools, launch vehicle, task organized personnel, and reference.

**STANDARD:** To meet design specifications and intended bridge classification per the mission, while observing safety precautions during erection and launch per the references.

**EVENT COMPONENTS:**

1. Analyze gap intelligence.
2. Gather gap intelligence as required.
3. Task organize.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare site for construction.
8. Emplace erection set.
9. Build the bridge.
10. Emplace reinforcement components as required.
11. Dress the bridge as required.
12. Submit required reports.
13. Turnover lane(s) to designated forces.
14. Recover as required.

**REFERENCES:**

1. FM 5-101 Mobility
2. MCRP 3-17A Engineer Field Data
3. TM 08676A-10/1-1 Operators Manual Medium Girder Bridge
4. TM 5-5420-212-12 Medium Girder Bridge
5. TM 5-5420-212-12-1 Link Reinforcement Set

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17920 Panel Bridge Area

**EQUIPMENT:** MTRV 7/Ton Truck, Engineer Material Handling equipment

**UNITS/PERSONNEL:** Range safety officer, corpsman, MTRV 7ton truck operator

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**ENGR-MOBL-5705:** Conduct rafting operations

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

**CONDITION:** Provided a mission, commanders intent, a rafting site (wet gap), Improved Ribbon Bridge (IRB) components, Bridge Erection Boats (BEB), tools, vehicles, task organized personnel, and reference.

**STANDARD:** To meet design specifications and intended raft classification per the mission, while observing safety precautions during rafting and boat operations to ensure mobility per the concept of operations.

**EVENT COMPONENTS:**

1. Analyze gap intelligence.
2. Gather gap intelligence as required.
3. Task organize.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare approach(s) as required.
8. Assemble raft(s).
9. Prepare boats for rafting operations.
10. Load vehicles and equipment.
11. Transport vehicle(s) and equipment across the gap.
12. Unload vehicles and equipment.
13. Submit required reports.
14. Recover as required.

**REFERENCES:**

1. FM 5-101 Mobility
2. MCRP 3-17A Engineer Field Data
3. MCWP 3-17 Engineer Operations
4. MCWP 3-17.1 River-Crossing Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

**EQUIPMENT:** Motor Transportation Vehicles

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**ENGR-MOBL-5706:** Install Ribbon Bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

**CONDITION:** Provided a mission, commanders intent, a bridging site (wet gap), Improved Ribbon Bridge (IRB) components, Bridge Erection Boats (BEB), tools, vehicles, task organized personnel, and reference.

**STANDARD:** To meet design specifications and intended bridge classification per the mission, while observing safety precautions during bridging and boat operations to ensure mobility per the concept of operations.

**EVENT COMPONENTS:**

1. Analyze gap/site intelligence.
2. Gather gap/site intelligence as required.
3. Task organize.
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Prepare approach(s) as required.
8. Assemble components for bridge.

9. Anchor bridge as required.
10. Direct vehicles and equipment onto bridge.
11. Direct vehicles and equipment off bridge.
12. Submit required reports.
13. Turnover to designated forces as required.
14. Recover as required.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

**EQUIPMENT:** MK 48/18, IRB Interior Bay, IRB Ramp Bay, MK III BEB

**UNITS/PERSONNEL:** RANGE SAFETY OFFICER, CORPSMAN, MK 48/18, OPERATOR, MK II BEB OPERATOR

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**ENGR-MOBL-5707:** Construct non-standard bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** New-bridge construction requires preliminary information that is adequate for planning and design. The construction method used will depend on site constraints and the availability of equipment, materials, and manpower. A thorough reconnaissance can prevent needless return trips to the proposed site. Before making any final decisions pertaining to construction, consider the following factors: Access roads, Approach roads, Width, Banks, Flow characteristics, Stream bottom, Elevation, and Materials

**CONDITION:** Provided a mission, commanders intent, a gap, bridge MLC requirement, tools, vehicles, task organized personnel, and reference.

**STANDARD:** To construct a bridge that meets design specifications and intended bridge classification per the mission, while observing safety precautions during construction to ensure mobility per the references.

**EVENT COMPONENTS:**

1. Gather gap/site intelligence as required
2. Analyze gap/site intelligence.
3. Determine bridge type based on gap and MLC as required
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.

8. Construct drainage structures/erosion controls as required.
9. Construct abutment(s) as required.
10. Construct intermediate supports as required.
11. Construct substructure components as required.
12. Construct superstructure components as required.
13. Verify MLC classification.
14. Turnover bridge to designated forces.
15. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17920 Panel Bridge Area

**EQUIPMENT:** Motor transportation equipment, Material Handling equipment

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**ENGR-MOBL-5708:** Repair non-standard bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Use existing bridges whenever possible. Bridges located on established routes require less work on the approaches, which saves time and material and permits the release of tactical bridging assets to other areas. Also, bridge repair often eliminates long detours and difficult bypasses. If necessary, determine how the characteristics of the gap will affect additional bents or pile piers and where there are alternate sites.

**CONDITION:** Provided a mission, commanders intent, a damaged bridge, bridge MLC requirement, tools, vehicles, task organized personnel, and reference.

**STANDARD:** To ensure the bridge in functional and repairs meet design specifications and intended bridge classification per the mission, while observing safety precautions to ensure mobility per the references.

**EVENT COMPONENTS:**

1. Gather gap/site intelligence as required
2. Analyze gap/site intelligence.
3. Determine bridge repairs type based on type and MLC as required
4. Coordinate with supported unit.
5. Coordinate with supporting units.
6. Issue order.
7. Conduct site preparations as required.
8. Repair drainage structures/erosion controls as required.
9. Repair abutment(s) as required.
10. Repair intermediate supports as required.
11. Repair substructure components as required.
12. Repair superstructure components as required.
13. Verify MLC classification.

14. Turnover bridge to designated forces.
15. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17920 Panel Bridge Area

**EQUIPMENT:** Motor transportation equipment, Material Handling equipment

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**ENGR-MOBL-5709:** Construct combat roads

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To create hasty expedient roads and trails.

**CONDITION:** Provided a mission order, commander's intent, a tactical situation, task organization of engineer equipment and personnel.

**STANDARD:** To create/repair/maintain expeditionary military roads (unimproved surface, Class C or D) that meets or exceeds the traffic support requirements in accordance with the commanders intent and the mobility plan.

**EVENT COMPONENTS:**

1. Review mission directives to determine class of road.
2. Determine geometric criteria.
3. Determine structural criteria.
4. Determine construction criteria.
5. Conduct engineer reconnaissance and survey.
6. Task organize.
7. Coordinate with supporting units.
8. Issue order.
9. Conduct site preparations as required.
10. Conduct rough grading as required.
11. Cut and fill as required.
12. Conduct soil stabilization as required.
13. Construct drainage structures as required.
14. Shape road.
15. Conduct dust abatement as required.
16. Surface road as required.
17. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-335 Drainage
6. FM 5-34 Engineer Field Data - Field Expedient Charges

7. FM 5-412 Project Management
8. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
9. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
10. FM 5-434 Earthmoving Operations
11. GTA 5-2-5 Engineer Reconnaissance
12. MCWP 3-17 Engineer Operations
13. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17413 Field Training Area  
Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer earthmoving equipment, Combat engineer equipment

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**ENGR-CMOB-5701:** Create obstacle groups

**SUPPORTED MET(S):** 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Obstacles can be explosive or non-explosive in nature.

**CONDITION:** Given a mission, commander's intent, location of adjacent friendly forces, estimated locations and most recent activities of enemy, weather conditions, defined area of operations, routes, rules of engagement, supporting arms, an equipment density list and available personnel.

**STANDARD:** to turn, block, fix, or disrupt the enemy and supports the commanders intent.

**EVENT COMPONENTS:**

1. Develop/review obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine possible obstacle locations and types.
4. Identify the commanders' obstacle priorities.
5. Determine resources.
6. Determine actual work sequence.
7. Determine task organization required.
8. Determine coordination required.
9. Coordinate with supported unit for specific obstacle placement and observation.
10. Coordinate observation and reporting for decision/triggering point(s) for reserve/situational obstacles as required.
11. Emplace explosive obstacle(s).
12. Create non-explosive obstacle(s).
13. Close lanes as required.
14. Submit required reports.
15. Submit required reports.

**REFERENCES:**

1. FM 20-32 Mine/Countermining Operations
2. FM 3-06 Urban Operations
3. FM 5-100 Engineers in Combat Operations
4. FM 5-102 Countermobility
5. FM 5-103 Survivability
6. FM 5-170 Engineer Reconnaissance
7. FM 5-34 Engineer Field Data - Field Expedient Charges
8. FM 90-1 Countermobility
9. FM 90-7 Combined Arms Obstacle Integration
10. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
11. JP 3-34 Engineer Doctrine for Joint Operations
12. MCRP 3-17A Engineer Field Data
13. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Material Handling equipment, Combat Engineer equipment

**UNITS/PERSONNEL:** Range Safety Officer, Corpsman

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**ENGR-XENG-5701:** Conduct Vertical Construction

**SUPPORTED MET(S):** 2, 3, 4, 5, 6, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To conduct vertical construction is to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the MAGTF.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** To build/improve facilities that meet the requirement listed in the design specification and in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Construct concrete block structure as required
6. Repair facility as required.
7. Erect prefabricated structure as required.
8. Construct manufactured steel structure as required.
9. Construct wood frame structure as required.
10. Construct timber structure as required.
11. Construct concrete structure as required.
12. Construct drainage structure as required.

13. Wire structure for electricity as required.
14. Plumb structure as required.
15. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment,  
Motor Transportation equipment

**MATERIAL:** Vertical construction building materials

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**ENGR-MOBL-5601:** Conduct route clearance operations

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be cleared while it remains under the control of friendly forces.

**CONDITION:** Provided a mission, designated route with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, Class V, Class IV, and reference.

**STANDARD:** To ensure friendly force mobility on the cleared route (friendly forces are not fixed, turned, blocked, not disrupted) in accordance with the commanders intent, while the route remains in friendly forces control.

**EVENT COMPONENTS:**

1. Analyze route intelligence.
2. Task organize.
3. Coordinate with supported unit.
4. Coordinate with supporting units
5. Detect obstacles on route
6. Identify obstacle(s)
7. Mark obstacle(s) as required
8. Reduce obstacle(s) as required
9. Verify obstacle reduction
10. Identify bypasses as required
11. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Combat engineer equipment

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**ENGR-MOBL-5602:** Conduct airfield damage repair

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. May be part of Airfield Damage Repair (ADR) as part of Base Recovery after an Attack (BRAAT).

**CONDITION:** Given a tactical situation, an operations order, commander's intent, an airfield/landing zone requiring repair, task organized personnel and equipment, and references

**STANDARD:** To restore the air field/landing zone operating surfaces to minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Plan airfield damage repair
2. Coordinate airfield damage repair
3. Conduct engineer reconnaissance/damage assessment of airfield operating surfaces and critical facilities

4. Determine minimum operating strip
5. Conduct Explosive Ordnance Disposal (EOD) operations as required
6. Conduct crater repair as required
7. Conduct spall repair as required
8. Conduct foreign object debris clearance as required
9. Repair critical facilities/utilities as required
10. Submit required reports

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-100 Engineers in Combat Operations
5. FM 5-101 Mobility
6. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. FM 5-434 Earthmoving Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Combat Engineer equipment

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**ENGR-XENG-5601:** Conduct Vertical Construction

**SUPPORTED MET(S):** 2, 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To conduct vertical construction in order to build or provide improvements to existing structures or construction of base camps, command posts, and maintenance facilities for use by the ACE.

**CONDITION:** Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and appropriate references

**STANDARD:** To build/improve facilities to meet the requirements listed in the design specifications in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan vertical construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Construct concrete block structure as required
6. Repair facility as required.
7. Erect prefabricated structure as required.
8. Construct manufactured steel structure as required.

9. Construct wood frame structure as required.
10. Construct timber structure as required.
11. Construct concrete structure as required.
12. Construct drainage structure as required.
13. Wire structure for electricity as required.
14. Plumb structure as required.
15. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-163 Sewerage
7. FM 5-335 Drainage
8. FM 5-34 Engineering Field Data
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-553 General Drafting
16. GTA 5-7-13 Bridge Classification Booklet
17. GTA 5-7-6 Bridge Design Card
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 4-11 Combat Service Support
22. TM 5-232 Elements of Construction Surveying
23. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment, Motor Transportation equipment, Combat engineer tools and kits

**MATERIAL:** Vertical construction building materials

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**ENGR-MOBL-5501:** Construct tactical landing zones

**SUPPORTED MET(S):** 1, 2, 4, 5, 7

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Conduct construction of tactical landing zones; includes but is not limited to site selection, construction, repair, and maintenance of

existing or expeditionary airfields, landing zones, and other facilities for takeoff and landing of fixed and rotary wing aircraft in support of MAGTF operations

**CONDITION:** Given a mission, commander's intent, available resources, and references.

**STANDARD:** To create, repair, and maintain tactical landing zones that meet or exceed landing zone requirements listed in the design specifications per the size, type, and number of aircraft.

**EVENT COMPONENTS:**

1. Task organize.
2. Conduct engineer reconnaissance and survey.
3. Estimate engineer equipment requirements.
4. Coordinate necessary support.
5. Finalize construction plan.
6. Issue the order.
7. Construct/repair airfield, landing zone, or other facilities as required.
8. Maintain and improve airfield, landing zone, or other facilities as required.
9. Submit required reports.

**REFERENCES:**

1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-250 Explosives and Demolitions
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. FM 5-36 Route Reconnaissance and Classification
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. FMFM 13 MAGTF Engineer Operations
9. FMFM 4-4 Engineer Operations
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 4-11.3E Multi-service Helicopter Sling Load: Vols I, II and III
13. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

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**ENGR-MOBL-5502:** Conduct area clearance operations

**SUPPORTED MET(S):** 2, 4, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**CONDITION:** Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

**STANDARD:** To eliminate all obstacle(s) [explosive or non-explosive] in an area to provide a secure environment for military operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Task organize.
2. Conduct engineer reconnaissance and survey.
3. Estimate engineer equipment requirements.
4. Coordinate necessary support.
5. Finalize clearing plan.
6. Issue the order.
7. Locate all obstacle(s).
8. Identify all obstacle(s).
9. Reduce obstacle(s).
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Mark cleared area as required.
15. Submit required reports.

**REFERENCES:**

1. FM 20-32 Mine/Countermining Operations
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.119 Improvised Explosive Device (IED) Defeat
5. FM 3-34.210 Explosive Hazard Operations
6. FM 3-34.214 Explosives and Demolitions
7. FM 5-100 Engineers in Combat Operations
8. FM 5-101 Mobility
9. FM 5-101-5-1 Operational Terrain and Symbols
10. FM 5-170 Engineer Reconnaissance
11. FM 90-13-1 Combined Arms Breaching Operations
12. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
13. MCRP 3-17A Engineer Field Data
14. MCRP 3-17B Engineer Forms and Reports
15. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Combat engineer equipment

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**ENGR-XENG-5501:** Conduct Horizontal Construction

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** In order to meet operational requirements of the MAGTF horizontal construction is conducted to shape the terrain for various projects such as but not limited to MSR construction and/or maintenance, expeditionary airfields, site preparation for bed down facilities, and ordnance storage facilities.

**CONDITION:** Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references

**STANDARD:** To create the assigned project that meets or exceed the requirements listed in the design specifications and the commanders' intent.

**EVENT COMPONENTS:**

1. Plan horizontal construction.
2. Conduct engineer reconnaissance and survey.
3. Coordinate horizontal construction.
4. Conduct site preparation.
5. Construct road(s) as required.
6. Construct tactical landing zones as required.
7. Conduct dust abatement as required.
8. Conduct beachhead improvement as required.
9. Construct drainage structures as required.
10. Construct expedient HLZ as required.
11. Construct expeditionary airfield as required.
12. Construct non-explosive obstacles as required.
13. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-101-5-1 Operational Terrain and Symbols
3. FM 5-103 Survivability
4. FM 5-170 Engineer Reconnaissance
5. FM 5-335 Drainage
6. FM 5-34 Engineering Field Data
7. FM 5-412 Project Management
8. FM 5-428 Concrete Masonry
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. JP 3-34 Engineer Doctrine for Joint Operations
13. MCWP 3-17 Engineer Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-41.1 Rear Area Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17413 Field Training Area  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment,  
Utilities equipment

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FUEL-XENG-5501: Construct Bulk Petroleum site

SUPPORTED MET(S): 7

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: This task implies the conduct of construction and setup of fuel storage and distribution systems to accommodate multiple fuel requirements in support of the MAGTF

CONDITION: Provided a bulk fuel plan with a systems layout, a location, task-organized personnel, and engineer equipment.

STANDARD: To meet fuel support requirements in accordance with the commanders' intent and the mobility plan.

EVENT COMPONENTS:

1. Review mission.
2. Determine construction criteria.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supporting units.
5. Issue order.
6. Conduct site preparation as required.
7. Construct drainage structures as required.
8. Construct berms as required.
9. Install tactical fuel system components.
10. Conduct dust abatement as required.
11. Construct access road(s) as required.
12. Submit required reports.

REFERENCES:

1. FM 5-335 Drainage
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-434 Earthmoving Operations
5. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
6. MCWP 3-17.4 Engineer Reconnaissance
7. MCWP 4-11.6 Bulk Liquid Operations
8. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
9. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17933 POL Training Area  
Facility Code 17413 Field Training Area

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment,  
Utilities equipment, Bulk Fuel equipment

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FUEL-XENG-5502: Conduct Tactical Bulk Fuel operations

SUPPORTED MET(S): 7

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Conduct Tactical Bulk fuel Operations.

CONDITION: Given a mission order, location of operation, estimated fuel requirements, required personnel and equipment, a communications plan, necessary support equipment, and current references.

STANDARD: To provide uninterrupted fuel support per mission requirements.

EVENT COMPONENTS:

1. Establish Bulk Fuel Site Security Plan.
2. Construct bulk fuel site(s).
3. Establish Bulk Fuel Site safety/ environmental Plan.
4. Coordinate for fuel receipt.
5. Receive fuel as required.
6. Store fuel.
7. Change Product Types as required.
8. Test fuel quality as required.
9. Coordinate for fuel distribution.
10. Dispense fuel as required.

REFERENCES:

1. FM 10-67-2 Petroleum Laboratory Testing and Operations
2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-25.5 Bulk Liquids Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17933 POL Training Area

EQUIPMENT: Material Handling equipment, Bulk fuel equipment, Utilities equipment

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ENGR-MOBL-5401: Construct expedient HLZ

SUPPORTED MET(S): 2, 4, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Conduct construction of expedient HLZ; includes but is not limited to clearing and grubbing geographical locations for takeoff and landing of rotary wing in support of troop transport, resupply, medvac operations, etc.

**CONDITION:** Given a mission, commander's intent, available resources, and references.

**STANDARD:** To create a landing site that will support rotary wing aircraft for the loading and unloading of personnel, resupply, and equipment in accordance with commanders' intent, concept of operations and supported unit requirements.

**EVENT COMPONENTS:**

1. Task organize
2. Conduct engineer reconnaissance and survey.
3. Coordinate resource requirements.
4. Issue the order.
5. Clear landing site.
6. Maintain and improve landing site as required.
7. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-170 Engineer Reconnaissance
3. FM 5-412 Project Management
4. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
5. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
6. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer Earthmoving equipment, Engineer Material Handling equipment

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**ENGR-XENG-5401:** Provide engineer equipment support

**SUPPORTED MET(S):** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** To support the mission utilizing the required type(s) of Engineer equipment and personnel

**CONDITION:** Given a mission, a support plan, equipment availability, commander's intent, personnel and equipment, an area of operations or support, and references.

**STANDARD:** To provide support and IAW unit SOPs or guidance to support the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Review equipment support plan.

2. Analyze support requirements and location(s).
3. Determine resources.
4. Determine schedule of work.
5. Determine task organization required.
6. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
7. Coordinate with supporting units (logistics, etc).
8. Manage engineer equipment operations.
9. Conduct earthmoving operations as required.
10. Conduct material handling operations as required.
11. Conduct horizontal construction as required.
12. Conduct maintenance as required.
13. Recover engineer equipment as required.
14. Submit required reports.

**REFERENCES:**

1. FM 100-10 Combat Service Support
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. FM 5-434 Earthmoving Operations
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. Appropriate Equipment Manual

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer equipment, Motor Transport equipment, Utilities equipment

**UNITS/PERSONNEL:** Engineer equipment maintainers, Utilities equipment maintainers

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**ENGR-XENG-5402:** Prepare Site for Construction

**SUPPORTED MET(S):** 2, 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** This task includes all types of vertical and horizontal construction- the mission will guide actual event components during execution.

**CONDITION:** Given a mission, a support plan, a site for construction or engineer operations, commanders' intent, task organized personnel and equipment, and references.

**STANDARD:** To prepare a site for construction IAW unit capabilities, SOPs or guidance to support the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Review construction site plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Move to site.
6. Conduct earthmoving operations as required.
7. Conduct demolition operations as required.
8. Conduct material handling operations as required.
9. Conduct vertical construction operations as required.
10. Provide utilities support as required.
11. Submit required reports.

**REFERENCES:**

1. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
2. FM 5-33 Terrain Analysis
3. FM 5-335 Drainage
4. FM 5-412 Project Management
5. FM 5-434 Earthmoving Operations
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment, Motor Transportation equipment, Utilities equipment

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**UTIL-XENG-5401:** Provide Utilities Support

**SUPPORTED MET(S):** 6, 8

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Provide tactical electrical supply and distribution; tactical water supply and hygiene service; heating, ventilation, air conditioning and refrigeration service; and maintenance capabilities for all utilities equipment in accordance with the units mission statement.

**CONDITION:** Given a mission, a support plan, equipment availability, personnel and equipment, and references.

**STANDARD:** To provide support IAW with the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Coordinate supported unit requirements
2. Establish Utilities Plan
3. Establish Utilities Site(s)
4. Provide potable water as required
5. Provide tactical electrical support as required
6. Provide tactical hygiene support as required

7. Provide non-tactical utilities support as required
8. Maintain Utilities Equipment
9. Recover utilities equipment as required.
10. Submit required reports.

**REFERENCES:**

1. 29 CFR 1910.147 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 147 - Control of Hazardous Energy (Lockout/Tagout)
2. 29 CFR 1910.269 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Standard Number 269 - Electrical Power Generation, Transmission, and Distribution
3. 29 CFR 1910.301-399 Chapter 29, Code of Federal Regulations, Part Number 1910 (Occupational Safety and Health Standards), Subpart S, (Standard Numbers 301-399) - Electrical
4. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
5. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
6. FM 10-52 Water Supply in Theaters of Operation
7. FM 10-52-1 Water Supply Point Equipment and Operations
8. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
9. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
10. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons (Oct 89)
11. MCRP 3-17B Engineer Forms and Reports
12. MCRP 4-11.1D Field Hygiene and Sanitation
13. MCRP 4-11B Environmental Considerations in Military Operations (Jun 00)
14. MCWP 3-17 Engineer Operations
15. MCWP 3-17.4 Engineer Reconnaissance
16. MCWP 4-11 Tactical Level Logistics
17. MCWP 4-11.4 Maintenance Operations
18. MCWP 4-11.6 Petroleum and Water Logistics Operations
19. MCWP 5-1 Marine Corps Planning Process
20. NAVMED P-5010-5 Manual of Preventive Medicine, Chapter 5, Water Supply Ashore (Nov 90)
21. NEC (NFPA 70) National Electrical Code - by National Fire Protection Association
22. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
23. TB MED 593 Guidelines for Field Waste Management
24. TC 3-34.489 The Soldier and the Environment
25. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)
26. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
27. Appropriate Technical Manuals

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Utilities equipment, Engineer Material Handling equipment

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**ENGR-RECN-5401:** Conduct engineer reconnaissance

**SUPPORTED MET(S):** 2, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: To conduct a directed effort to obtain detailed engineer information within/ along designated routes, zones, and/or areas.

CONDITION: Given a mission, commanders' intent, task organization of personnel and equipment, and references.

STANDARD: To gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:

1. Review reconnaissance plan.
2. Analyze support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, ground guides, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct zone reconnaissance as required.
6. Conduct area reconnaissance as required.
7. Conduct route reconnaissance as required.
8. Submit required reports.

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ENGR-DEMO-5401: Conduct demolition operations

SUPPORTED MET(S): 2, 3, 4, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

CONDITION: Given a tactical situation, an order, task organized equipment and personnel, specifications, demolition materials, and appropriate references

STANDARD: To achieve desired effects in accordance with commander's intent.

EVENT COMPONENTS:

1. Coordinate demolition operations.
2. Plan demolition operations.
3. Conduct engineer reconnaissance.
4. Destroy captured arms and ammunition as required.
5. Employ demolitions in support of mobility operations as required.
6. Employ demolitions in support of expeditionary operations as required.
7. Employ demolitions in support of survivability position construction.
8. Employ demolitions in support of countermobility operations.
9. Employ demolitions in support of horizontal construction as required.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Combat engineer demolitions kit

**UNITS/PERSONNEL:** Range Safety Officer, Corpsman

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**ENGR-SURV-5401:** Construct survivability positions

**SUPPORTED MET(S):** 3, 8

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To construct positions designed to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection. Positions may include fighting and protective positions.

**CONDITION:** Provided a mission, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

**STANDARD:** that meets the mission requirements and supports the concept of operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Coordinate resources for project.
6. Conduct site preparation.
7. Harden existing structure(s) as required.
8. Emplace pre-fabricated barriers as required
9. Construct field fortification as required.
10. Construct Vehicle Control Point (VCP) as required.
11. Construct Entry Control Point (ECP) as required
12. Construct earth filled barrier/structure as required.
13. Construct individual fighting positions as required.
14. Construct vehicle fighting positions as required.
15. Construct vehicle survivability positions as required.
16. Construct revetment as required.
17. Construct crew-serve weapon positions as required.
18. Construct overhead cover as required.
19. Construct shelter/bunker as required.
20. Construct berms as required.
21. Conduct earth moving operations as required.
22. Construct triggering screen as required.
23. Construct trench as required.
24. Wire position for electricity as required.
25. Submit required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier

2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineering Field Data
10. FM 5-426 Carpentry
11. FM 90-3 Desert Operations
12. FM 90-5 Jungle Operations
13. FMFM 13 MAGTF Engineer Operations
14. FMFRP 12-51 Engineer Operations
15. JP 3-34 Engineer Doctrine for Joint Operations
16. MCRP 3-17A Engineer Field Data
17. MCWP 3-17 Engineer Operations
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Combat Engineer equipment, Engineer Earthmoving equipment, Material Handling equipment, Utilities equipment

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-SURV-5402:** Harden existing structure

**SUPPORTED MET(S):** 3, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To harden positions in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

**CONDITION:** Provided a mission, in an urban environment, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

**STANDARD:** To harden an existing structure that meets the mission requirements and supports the concept of operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan structure hardening.
2. Conduct engineer reconnaissance and survey.
3. Analyze reconnaissance reports.
4. Coordinate with supported unit for specific position requirements.
5. Coordinate resources for project.

6. Conduct site preparation.
7. Construct perimeter security as required.
8. Shore walls/ floors/ roofs as required.
9. Remove/ reinforce windows as required.
10. Compartmentalize interior of structure as required.
11. Emplace prefabricated barriers as required.
12. Construct earth filled barrier/structure as required.
13. Conduct earthmoving operations as required.
14. Construct overhead cover as required.
15. Construct shelter/bunker as required.
16. Construct triggering screen as required.
17. Wire position for electricity as required.
18. Submit required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. MCRP 3-17A Engineer Field Data
8. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer earthmoving equipment, Combat engineer tools & kits, Utilities equipment

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**ENGR-SURV-5403:** Construct field fortifications

**SUPPORTED MET(S):** 3, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To build field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

**CONDITION:** Provided a mission, commanders intent, reconnaissance reports, a task organization of personnel and equipment, and references.

**STANDARD:** that meets the mission requirements and supports the concept of operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Plan survivability construction.
2. Analyze engagement areas, battle positions, and weapons location.
3. Conduct engineer reconnaissance and survey.
4. Coordinate with supported unit for specific position placement and requirements.
5. Construct survivability positions as required.
6. Construct obstacles as required.

7. Conduct vertical construction as required.
8. Conduct earthmoving operations as required.
9. Submit required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-101 Mobility
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. MCRP 3-17A Engineer Field Data
8. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Earthmoving equipment, Combat engineer tools & kits

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**ENGR-MANT-5401:** Maintain engineer equipment

**SUPPORTED MET(S):** 2, 3, 4, 5, 6, 7, 8, 9, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Manage and conduct preventive and corrective maintenance on engineer equipment.

**CONDITION:** With equipment, tools, repair parts, supplies, personnel and references.

**STANDARD:** To sustain equipment in an operational status at or above units' readiness requirements.

**EVENT COMPONENTS:**

1. Monitor Equipment Readiness.
2. Conduct Reconciliation.
3. Assign Tasks
4. Maintain water support equipment as required
5. Maintain electrical equipment as required.
6. Maintain MHE/earthmoving equipment as required.
7. Maintain other organic tactical engineer equipment as required.
8. Manage Maintenance Programs.
9. Submit required reports.

**REFERENCES:**

1. DODI 6055.1 DoD Safety and Occupational Health (SOH) Program (Aug 98)
2. EMC Electric Motor Controls by American Technical Publishers, Inc.
3. MCBUL 3000 Table of Marine Corps Ground Equipment Resources Reporting
4. MCO 4731.1A Oil Analysis Program for Ground Equipment (Nov 90)
5. MCO 4733.1B Marine Corps Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Maintenance Program (CAMP) (Jun 99)
6. MCO 4790.18B Corrosion Prevention and Control (CPAC) Program (Jul 04)
7. MCO 5100.29A Marine Corps Safety Program (Jul 04)
8. MCO P4790.2\_ MIMMS Field Procedures Manual

9. Appropriate Equipment Manual
10. Local Standard Operating Procedures (SOP)

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer tools, sets, kits

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ENGR-INF-5401: Fight as Provisional Infantry

SUPPORTED MET(S): 1

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Offensive operations including attacks, raids, movement to contact, ect... Defensive operations (including withdrawal), patrolling (including check point ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance, TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations.

CONDITION: Given a requirement, commander's intent and references.

STANDARD: To augment supported unit or conduct offensive and defensive operations to support mission requirements.

EVENT COMPONENTS:

1. Conduct planning.
2. Task organize.
3. Issue orders.
4. Conduct inspections, rehearsals, and preparations.
5. Elements employ appropriate formations and tactics.
6. Conduct final preparations.
7. Use, coordinate, and observe fires.
8. Employ supporting arms as required.
9. Establish redundant communications.
10. Treat and evacuate casualties as required.
11. Process detainees as required.
12. Send and receive required reports.

REFERENCES:

1. MCDP 1 Warfighting
2. MCDP 1-3 Tactics
3. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
4. MCRP 3-02G First Aid (Dec 02)
5. MCWP 3-11.2 Marine Rifle Squad

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17730 Fire and Movement Range

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3006. 4000-LEVEL EVENTS

ENGR-MOBL-4901: Conduct Security for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

CONDITION: Provided a mission; permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, booby-traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Coordinate w/clearance unit on site (as required)
6. Establish area clearance security measures (as required).
7. Visually identify other potential hazards within area.
8. Visually identify potential suspects/civilians in area.
9. Control/cordon all movement going into area (as required).
10. Maintain communications w/clearance/sweep unit.
11. Submit required reports.

REFERENCES:

1. FM 3-34.210 Explosive Hazard Operations
2. FM 5-101 Mobility
3. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17730 Fire and Movement Range

Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment, Squad & Fire team weapons

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-MOBL-4902: Detect Obstacles for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: The mission of the detection element is to scan the medians and shoulders of a route and sweep them for EH, using visual, metallic, and electronic detection capabilities. The element pinpoints the location and remotely investigates suspected EH, marks and reports UXO, and secures and reports IEDs. Trained personnel use robotics or other means to conduct standoff neutralization, when required, to provide assured mobility to the maneuver commander.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, booby traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, booby-traps, and unexploded ordnance within area if possible.
8. Operate dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-101 Mobility
4. FM 5-101-5-1 Operational Terrain and Symbols
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports

8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Motor Transportation, Material Handling, Engineer equipment and lifting capability

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**ENGR-MOBL-4903:** Breach Obstacles for Route Clearance/ Sweep Operations

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

**CONDITION:** Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

**STANDARD:** To ensure all mines, booby-traps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

**EVENT COMPONENTS:**

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Visually identify all non-explosive obstacles within area.
6. Visually detect mines, booby-traps, and unexploded ordnance within area if
7. Operate dismounted mine detectors as required.
8. Operate mounted mine detectors as required.
9. Operated other detection equipment as required.
10. Conduct earthmoving operations to detect obstacles as required.
11. Alternate detector operators as required to prevent fatigue.
12. Mark obstacles for reduction as required.
13. Reduce obstacles (explosively and non-explosively) as required.
14. Proof obstacles as required.
15. Submit required reports.

**RELATED EVENTS:** 1371-MOBL-1003

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations

3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
MN90 Cap, Blasting, 1000 ft mini-tube M23	
MN89 Dual instantaneous shock tube	
MN88 Cap, Blasting, 500 ft mini-tube M21	
M456 Cord, Detonating PETN Type I Class E	
G982 Grenade, Hand Practice Smoke TA M83	
M670 Fuse, Blasting Time M700	
MN08 Igniter, Time Blasting Fuse with Sho	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	

**RANGE/TRAINING AREA:**

Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17730 Fire And Movement Range

**EQUIPMENT:** Kevlar helmet, flak vest, hearing protection, demolition kit, AN/PRC 119, firing device (M34, MK152 remote firing device, CD450-4J blasting machine

**MATERIAL:** Engineer stakes, rope, sledge hammer, stake driver, gloves

**UNITS/PERSONNEL:** Range safety officer, corpsman

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**ENGR-CMOB-4901:** Create an Explosive Obstacle

**SUPPORTED MET(S):** 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Explosive obstacles include minefields, booby-traps, and improvised anti-personnel and anti-tank mines.

**CONDITION:** Given a mission, commanders intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, etc.).

**STANDARD:** That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment.

**EVENT COMPONENTS:**

1. Analyze obstacle plan.

2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Emplace minefield controls/ marking.
8. Emplace hasty protective row minefield as required.
9. Emplace hasty row minefield as required.
10. Emplace booby-traps as required.
11. Emplace improvised anti-personnel and/or anti-tank mines as required.
12. Account for all personnel and equipment prior to returning to friendly lines.
13. Coordinate lane closure plan with supported unit as required.
14. Submit required reports.

**REFERENCES:**

1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineer Field Data - Field Expedient Charges
10. FM 5-36 Route Reconnaissance and Classification
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. FMFM 4-4 Engineer Operations
14. MCRP 3-17A Engineer Field Data
15. MCWP 3-17 Engineer Operations
16. UNIT SOP Unit's Standing Operating Procedures

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17830 Light Demolition Range  
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat engineer equipment, Material Handling equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-CMOB-4902: Create an Non- Explosive Obstacle

SUPPORTED MET(S): 3

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Non-explosive obstacles include constructed and field expedient obstacles that support countermobility operations for offensive and defensive missions.

CONDITION: Given a mission, commanders intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, natural terrain, battlefield materials, etc.).

STANDARD: that is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment.

EVENT COMPONENTS:

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Move to obstacle site.
8. Tie obstacles into natural/existing obstacles as required
9. Emplace mobility obstacles (barriers, hedgehogs, ect.) as required.
10. Emplace wire obstacles as required.
11. Emplace field expedient obstacles (logs, abatis, rubble, ect.) as required.
12. Create craters as required.
13. Emplace phony obstacles as required.
14. Emplace tank ditches as required.
15. Account for all personnel and equipment prior to returning to friendly lines.
16. Coordinate lane closure plan with supported unit as required.
17. Submit required reports.

REFERENCES:

1. FM 3-06 Urban Operations
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17730 Fire And Movement Range

EQUIPMENT: Combat engineer equipment, Material Handling equipment,  
Earthmoving Equipment

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-RECN-4901: Conduct Zone Reconnaissance

SUPPORTED MET(S): 2, 3, 4, 5, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: To reconnoiter a delineated area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, zone infrastructure, and CBRN.

CONDITION: Given a mission, commanders' intent, task organization of personnel and equipment, and references.

STANDARD: In order to gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:

1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct final rehearsals and immediate action drills as required.
6. Reconnoiter for enemy threat as required.
7. Reconnoiter routes as required.
8. Reconnoiter infrastructures as required.
9. Reconnoiter for CBRN as required.
10. Reconnoiter for obstacles as required.
11. Submit required reports.

**REFERENCES:**

1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance
7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17730 Fire And Movement Range

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**ENGR-REC-4902:** Conduct Route Reconnaissance

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To reconnoiter specific routes to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, infrastructure, and CBRN.

**CONDITION:** Given a mission, commanders' intent, task organization of personnel and equipment, and references.

**STANDARD:** In order to, gather all relevant data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security,
5. Conduct final coordination with supporting units as required.
6. Conduct final rehearsals and immediate action drills as required.
7. Reconnoiter roads/routes as required.
8. Reconnoiter tunnels as required.
9. Reconnoiter bridges as required.
10. Reconnoiter for fords/ferries as required.
11. Reconnoiter for landing zones as required.
12. Submit required reports.

**REFERENCES:**

1. FM 5-102 Countermobility
2. FM 5-170 Engineer Reconnaissance
3. FM 5-34 Engineer Field Data - Field Expedient Charges
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Combat engineer equipment

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**ENGR-RECN-4903:** Conduct Area Reconnaissance

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To reconnoiter an area to compile pertinent information and to clarify the threat situation, gather obstacle/terrain intelligence, area infrastructure, and CBRN in established lateral boundaries.

**CONDITION:** Given a mission, commanders' intent, task organization of personnel and equipment, and references.

**STANDARD:** In order to, gather all relevant data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Issue the order.
3. Coordinate support requirements.
4. Conduct final coordination with supported unit (location, requirements, security, etc.).
5. Conduct final coordination with supporting units as required.
6. Conduct final rehearsals and immediate action drills as required.
7. Reconnoiter roads/routes to specified area as required.
8. Reconnoiter facilities in specified area as required.
9. Reconnoiter obstacles in specified area as required.
10. Reconnoiter structures in specified area as required.
11. Reconnoiter CBRN existing\capabilities in specified area as required.
12. Submit required reports.

**REFERENCES:**

1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance

7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Combat engineer equipment

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**ENGR-REC-4904:** Conduct Engineer Reconnaissance

**SUPPORTED MET(S):** 2, 3, 4, 5, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Specific mission to compile pertinent engineer information on all aspect pertaining to mobility, counter-mobility, survivability, and general engineering while conducting a zone, area, or route reconnaissance that has any engineer implications.

**CONDITION:** Given a mission, commanders' intent, task organization of personnel and equipment, and references.

**STANDARD:** In order to, gather all relevant engineer data, and produce an engineer estimate (or designated products IAW unit SOPs or guidance) to support the concept of operations and in accordance with commander's intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Coordinate support requirements and location(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.).
4. Conduct final coordination with supporting units (logistics, etc).
5. Conduct final rehearsals and immediate action drills as required.
6. Reconnoiter for engineer equipment as required.
7. Reconnoiter for facilities as required.
8. Reconnoiter structures as required.
9. Reconnoiter for trafficability on routes as required.
10. Reconnoiter for obstacles as required.
11. Reconnoiter for water points as required.
12. Reconnoiter airfields\landing zones as required.
13. Reconnoiter for bivouac sites as required.
14. Conduct humanitarian assistance analysis as required.
15. Conduct disaster relief analysis as required.
16. Submit required reports.

**REFERENCES:**

1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-101 Mobility
3. FM 5-102 Countermobility
4. FM 5-170 Engineer Reconnaissance
5. FM 5-34 Engineer Field Data - Field Expedient Charges
6. GTA 5-2-5 Engineer Reconnaissance
7. GTA 5-7-13 Bridge Classification Booklet
8. JP 3-34 Engineer Doctrine for Joint Operations
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17730 Fire And Movement Range

**EQUIPMENT:** Combat Engineer equipment

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**ENGR-RECN-4905:** Conduct Cache Sweep

**SUPPORTED MET(S):** 4, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Employ engineer assets to detect for suspected caches of ordnance, to include: munitions, mines, ammunition, weapons, and explosives.

**CONDITION:** Provided a mission order, task organized personnel and equipment, and references.

**STANDARD:** To locate and mark undiscovered ordnance, munitions, mines ammunition, weapons, and explosives per commanders intent and mission requirement.

**EVENT COMPONENTS:**

1. Review the mission.
2. Coordinate with supporting unit.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment for operation.
5. Move to site.
6. Detect primary/secondary markers.
7. Conduct cache sweep.
8. Locate and mark cache.
9. Identify the component(s) of cache.
10. Sweep area for secondary/other ordnance caches.
11. Reconstitute sweep force.
12. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
MN08 Igniter, Time Blasting Fuse with Sho	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	

**RANGE/TRAINING AREA:**

Facility Code 17413 Field Training Area  
Facility Code 17730 Fire And Movement Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Combat Engineer detection equipment

**UNITS/PERSONNEL:** Explosive Ordnance Personnel, Weapons Intelligence team, Corpsman

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**ENGR-XENG-4901:** Rig Expedient Lifting Devices

**SUPPORTED MET(S):** 2, 3, 4, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Task involves techniques and procedures used for field expedient lifting of heavy objects and equipment with the use of organic equipment assets and fabricated supports (gin poles, tripods, shear poles, etc.). Object of rigging devices support conduct of using pulleys for mechanical advantage to allow loads to be lifted, moved, and/or displaced to desired area.

**CONDITION:** Given a tactical situation, requirement to use rigging equipment, personnel, tools, and references.

**STANDARD:** To lift tools, equipment, or components of structures for accomplishment of tactical missions and in accordance with concept of operations.

**EVENT COMPONENTS:**

1. Review the mission.
2. Coordinate for logistical requirements.
3. Acquire necessary materials as required.
4. Compute safe working load as required.
5. Rig lifting system as required.

6. Erect lifting system as required.
7. Crib as required.
8. Install block(s) as required.
9. Install anchor systems as required.
10. Operate lifting system.

**REFERENCES:**

1. MCRP 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

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**ENGR-MOBL-4801:** Conduct Deliberate Breach

**SUPPORTED MET(S):** 2

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task describes both mounted and dismounted deliberate breaches. A breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with Assault Breacher Vehicles, M9 Armored Combat Excavators, Joint Assault Bridges, Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. The assault force and the support force are also part of the breaching task force.

**CONDITION:** Provided a tactical scenario, mission, a minefield (or other suitable obstacle), a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

**STANDARD:** To reduce, proof, and mark lane through a minefield/obstacle in accordance mission, commander's intent, while observing safety precautions.

**EVENT COMPONENTS:**

1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing with Joint Assault Bridge as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.

16. Submit required reports.
17. Reconstitute the breach force.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection,

**MATERIAL:** Engineer stakes, rope, sledge hammer, stake driver, gloves

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-4802:** Conduct Hasty/In-stride Breach

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task describes both mounted and dismounted hasty/ in-stride breaches. This is a battle-drill against weakly defended obstacles using organic task organization, in order to maintain momentum of maneuver forces. The element designated as the breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with Assault Breacher Vehicles, M9 Armored Combat Excavators, Joint Assault Bridges, Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. A hasty breach may need to transition to a deliberate breach if initial attempts are unsuccessful due to enemy action.

**CONDITION:** Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

**STANDARD:** To reduce, proof, and mark lane through a minefield/obstacle in accordance mission, commander's intent, while observing safety precautions.

**EVENT COMPONENTS:**

1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with element acting as assault force and support force.
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing with Joint Assault Bridge as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

**RANGE/TRAINING AREA:**

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection,

**MATERIAL:** Engineer stakes, rope, sledge hammer, stake driver, gloves

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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ENGR-MOBL-4803: Conduct Covert Breach

SUPPORTED MET(S): 2, 5, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: This task describes both mounted and dismounted non-explosive breaches that are conducted under cover of darkness/ periods of limited visibility that do not alert enemy forces. If the breach attempt is discovered by enemy forces, it will rapidly transition to either a deliberate or a hasty breach.

CONDITION: Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

STANDARD: To reduce, proof, and mark lane through a minefield/obstacle, without alerting enemy forces in accordance with the mission, commander's intent, while observing safety precautions.

EVENT COMPONENTS:

1. Verify obstacle intelligence as required.
2. Coordinate suppressive fires and obscuration of enemy over-watching obstacle if breach is discovered.
3. Coordinate security for breach lane.
4. Coordinate breach with element acting as assault force and support force.
5. Employ deception plan as required.
6. Covertly move to breach site.
7. Covertly reduce lane through obstacle.
8. Covertly proof lane through obstacle.
9. Covertly mark lane through obstacle.
10. Conduct hasty breach as required.
11. Conduct deliberate breach as required.
12. Coordinate passage of assault force through breached lane.
13. Submit required reports.
14. Reconstitute the breach force.

REFERENCES:

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

RANGE/TRAINING AREA:

Facility Code 17420 Maneuver/Training Area, Heavy Forces

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection

**MATERIAL:** Engineer stakes, rope, sledge hammer, stake driver, gloves

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-4804:** Conduct Assault Breach

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** This task describes both mounted and dismounted assault breaches through the final protective obstacles of an enemy position in order to continue.

**CONDITION:** Provided a tactical scenario, mission, a wire obstacle, minefield or other suitable obstacle, and an element designated as a breach force within the assault forces, and references.

**STANDARD:** To reduce, proof, and mark a lane through protective obstacle in accordance with the mission, commander's intent and unit SOP.

**EVENT COMPONENTS:**

1. Verify suppression/obscuration effects.
2. Coordinate with supporting elements as required.
3. Move to breach site.
4. Reduce lane through obstacle.
5. Proof lane through obstacle.
6. Mark lane through obstacle.
7. Coordinate passage of assault force through breached lane.
8. Widen breach lane as required.
9. Submit required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	

M914 Charge, Demolition Inert Linear M68A  
J143 Rocket Motor, 5-inch MK22 Mod 4

RANGE/TRAINING AREA:

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection

MATERIAL: Engineer stakes, rope, sledge hammer, stake driver, gloves

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-MOBL-4805: Conduct Dismounted Route Sweep operations

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: A sweep team consists of a command element, detection team(s) (the ear), marking team(s) (the finger), and a demolition team(s).

CONDITION: Given a mission, commanders' intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all mines, booby-traps, obstacles, and unexploded ordnance are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze search route intelligence.
2. Coordinate with supported unit for security as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s) as required.
9. Reduce obstacle as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Submit required reports.

REFERENCES:

1. FM 20-32 Mine/Countermining Operations

2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. FM 5-34 Engineering Field Data
7. FMFM 13 MAGTF Engineer Operations
8. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Kevlar helmet, flak vest, AN/PRC 119, AN/PSS 14/12 mine detector, probe, T-tool, compass, protractor, DA FORM 1355-1-R

**MATERIAL:** Engineer tape, concertina wire, barbed wire, engineer stakes, tie wire, mine signs, sandbags

**UNITS/PERSONNEL:** Range safety officer, corpsman

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-MOBL-4806:** Conduct Route Improvement

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Route improvement supports route clearance operations and may be required to prevent/ limit explosive hazard concealment opportunities for the enemy.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

**STANDARD:** To maintain the route in support of route clearance operations and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards as required.

7. Operate engineer equipment as required.
8. Remove rubble/ debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.
13. Fill holes/ trenches/ depressions as required.
14. Place additional fill/ stabilization/ reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer equipment, Combat engineer equipment

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**ENGR-MOBL-4807:** Install Rope Bridge

**SUPPORTED MET(S):** 2, 4, 5

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** There are two types of rope bridges, a one rope and a two rope bridge. To construct a one-rope bridge using a 36 1/2-meter rope; however do not bridge obstacles that exceed 20 meters with that rope length. Anchor the rope with an anchor knot (round turn with two half hitches) on the far side of the obstacle, and tie it off at the near end with a tightening system. You can build a one-rope bridge in many ways, depending on the tactical situation and area you are to cross. Regardless, all one-rope bridges require similar elements for you to emplace safely: Two suitable anchors, Good loading and unloading platforms, one rope about 1-meter high for loading and unloading, a tightening system, and a rope tight enough for ease of crossing. Construct a two-rope bridge the same as a one-rope bridge except use two ropes. Space the ropes about 1 1/2 meters apart at the anchor points. The two-rope bridge is ideal for a platoon-size element. This bridge, however, does requires more time and equipment to construct than the

one-rope bridge: Two climbing ropes, two snaplinks, seven marines for construction, one sling rope and two snaplinks for those using the bridge.  
NOTE: Construct the top rope using any transport-tightening system technique.

**CONDITION:** Provided a mission, commanders intent, wet or dry gap crossing site, rigging components, tools, task organized personnel, and references.

**STANDARD:** To meet design specifications, concept of operations and commanders intent, while observing safety precautions during assembly and installation per the references.

**EVENT COMPONENTS:**

1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify gap physical characteristics.
4. Brief/instruct the squad on the mission/assignment.
5. Construct/ emplace near shore anchor.
6. Construct initial rope bridge on near shore.
7. Construct far shore anchor.
8. Position initial bridge.
9. Upgrade bridge to desired characteristics.
10. Submit required reports.

**REFERENCES:**

1. MCRP 3-17A Engineer Field Data
2. MCRP 3-17B Engineer Forms and Reports
3. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
4. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

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**ENGR-XENG-4801:** Conduct Vertical Construction

**SUPPORTED MET(S):** 2, 4, 5, 8

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To conduct vertical construction (limited) is to build or provide improvements to existing structures or construction of strong backs, sea huts, command posts, and facilities for use by the GCE.

**CONDITION:** Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and appropriate references

**STANDARD:** To build/improve structures that meet the requirements listed in the design specification and in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review vertical construction requirements.
2. Review engineer reconnaissance and survey.
3. Coordinate resources for project.
4. Conduct site preparation.
5. Operate tools and equipment as required.
6. Repair structures as required.

7. Construct wood frame structures as required.
8. Assist in erecting prefabricated structure as required.
9. Assist in construction manufactured steel structure as required.
10. Construct timber structure(s) as required.
11. Provide electrical power and lighting as required.
12. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions
9. FM 5-335 Drainage
10. FM 5-34 Engineering Field Data
11. FM 5-412 Project Management
12. FM 5-426 Carpentry
13. FM 5-428 Concrete Masonry
14. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
15. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
16. FM 5-434 Earthmoving Operations
17. FM 5-446 Military Non-Standard Fixed Bridges
18. FM 5-553 General Drafting
19. FMFM 13 MAGTF Engineer Operations
20. GTA 5-7-13 Bridge Classification Booklet
21. GTA 5-7-6 Bridge Design Card
22. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
23. JP 3-34 Engineer Doctrine for Joint Operations
24. MCWP 3-17 Engineer Operations
25. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
26. MCWP 3-41.1 Rear Area Operations
27. MCWP 4-11 Combat Service Support
28. TM 5-232 Elements of Construction Surveying
29. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Earthmoving equipment, Combat engineer equipment, Utilities equipment, Engineer Material Handling equipment

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**ENGR-XENG-4802:** Construct Wood Frame Structure

**SUPPORTED MET(S):** 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Construction of wood frame structures for use in all operations conducted to include but not limited to strong backs, sheds, facilities, sea huts, etc..., or may be specified in mission directives in support of the GCE.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** To meet the requirements listed in the design specifications in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers as required.
7. Construct/install flooring structure as required
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure as required.
10. Construct/install doors as required.
11. Construct/install windows as required.
12. Finish interior as required.
13. Finish exterior as required.
14. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-412 Project Management
5. FM 5-426 Carpentry

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**ENGR-XENG-4803:** Construct Timber Structure

**SUPPORTED MET(S):** 3, 4, 5, 8

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Construction of timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions in support of the GCE.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** To meet the survivability requirements and in accordance with the commanders intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.

6. Construct/prefabricate structures as required.
7. Emplace structures as required.
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure/components as required.
10. Construct/install doors as required.
11. Construct/install portholes as required.
12. Sandbag structure as required
13. Camouflage as required.
14. Install grenade sumps as required.
15. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations.
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Material Handling equipment Combat Engineer tools and kits

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**ENGR-XENG-4804:** Repair existing structures

**SUPPORTED MET(S):** 4, 5, 9

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Any type of structure (wood, concrete, steel, bridges, etc.) or facilities that has been damaged from military operations or due to structural integrity being flawed/incorrect per design specifications in support of the GCE. Repairing structures that can be conducted within capabilities of unit performing the task.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and appropriate references.

**STANDARD:** To meet the original design requirements/specifications of the structures or facilities and in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics as required.
2. Review engineer reconnaissance and survey as required.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components as required.
7. Repair/replace electrical as required.
8. Repair bridge abutments as required.
9. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Material Handling equipment, Combat Engineer tools and kits

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**ENGR-DEMO-4801:** Employ Demolitions In support of Counter-Mobility Operations

**SUPPORTED MET(S):** 3, 5

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Employ Class V munitions to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

**CONDITION:** Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

**STANDARD:** To construct counter-mobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commanders' intent, concept of operations, and mission requirement.

**EVENT COMPONENTS:**

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s) as required.
10. Inspect obstacle(s) as required.
11. Improve obstacle site with support equipment as required.
12. Reconstitute the force.
13. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data

6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
ML03 Firing Device, Demolition Multi-Purp	
M023 Charge, Demolition Block M112 1-1/4	
M591 Dynamite, Military M1	
M421 Charge, Demolition Shaped M3 Series	
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Engineer Material Handling equipment, Combat engineer Demolitions kit

**UNITS/PERSONNEL:** Range Safety Officer, Corpsman

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**ENGR-MOBL-4701:** Maneuver a Standard Military Ribbon Raft

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

**CONDITION:** Given a mission, commander's intent, task organization of equipment and personnel, an assembled ribbon raft, a wet gap, and references.

**STANDARD:** To meet the mission requirements while observing safety precautions during all rafting operations in accordance with the mission and commanders intent.

**EVENT COMPONENTS:**

1. Review gap specific engineer reconnaissance information.
2. Verify wet gap physical characteristics.
3. Supervise loading/stowage of vehicles/equipment.
4. Distribute personal floatation devices as required.
5. Coordinate emergency procedures with safety boat(s).
6. Command rafting operations.
7. Land raft.
8. Supervise unloading/offload of vehicles/equipment.
9. Repeat as required.
10. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FMFM 13 MAGTF Engineer Operations
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.1 River-Crossing Operations
7. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
8. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

**EQUIPMENT:** Engineer Material Handling equipment, Motor transportation, CRRC/Safety boat

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**ENGR-MOBL-4702:** Assemble Medium Girder Bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** This task applies to Bridge companies with organic equipment readily available to perform mobility operations in support of the MAGTF.

**CONDITION:** Provided a mission, commanders intent, a bridge construction site, Medium Girder Bridge (MGB) components, tools, launch vehicle, task organized personnel, and reference.

**STANDARD:** To meet design specifications and intended bridge classification per the mission, while observing safety precautions during erection and launch per the references.

**EVENT COMPONENTS:**

1. Review gap specific engineer reconnaissance information.
2. Verify gap physical characteristics.
3. Prepare site for construction.
4. Assemble bridge erection set.
5. Assemble end of bridge components.
6. Assemble bridge components (top panels, bottom panels, reinforcement, etc) as required.
7. Assemble launching nose components.
8. Boom/launch bridge to specified panel point.
9. Assemble far shore components.
10. Lower bridge to deck.
11. Complete reinforcement of bridge as required.
12. Recover bridge erection set and far shore components.
13. Dress the bridge.
14. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17921 Armored Vehicle Launch Bridge, Raft, And Ford Area

**EQUIPMENT:** Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment

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**ENGR-MOBL-4703:** Assemble Ribbon Bridge

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** The ribbon bridge is a floating modular asset with an integral superstructure and floating supports. Individual bays are joined to form rafts or bridges for river-crossing operations. Ribbon bridges and rafts provide a reliable and responsive means of crossing wet gaps.

**CONDITION:** Provided a mission, commanders intent, wet gap crossing site, improved ribbon bridge components, tools, bridge erection boats, fuel, task organized personnel, and references.

**STANDARD:** To meet design specifications and mobility requirements while observing safety precautions during erection and launch per the references.

**EVENT COMPONENTS:**

1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify wet gap physical characteristics.
4. Brief/instruct the crew on the mission/assignment.
5. Off load bridge erection boats.
6. Off load bridge bays.
7. Connect interior bays.
8. Connect ramp bays.
9. Position Bridge.
10. Lower ramps on banks.
11. Anchor bridge as required.
12. Coordinate emergency procedures with safety boat(s).
13. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

**EQUIPMENT:** Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment, Motor Transportation

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**ENGR-MOBL-4704:** Assemble ribbon raft

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** The ribbon bridge is a floating modular asset with an integral superstructure and floating supports. Individual bays are joined to form rafts or bridges for river-crossing operations. Ribbon bridges and rafts provide a reliable and responsive means of crossing wet gaps.

**CONDITION:** Provided a mission, commanders intent, wet gap crossing site, bridge components, bridge erection equipment, tools, bridge erection boats, fuel, task organized personnel, and references.

**STANDARD:** To meet design specification while observing safety precautions during erection and launch per the references.

**EVENT COMPONENTS:**

1. Review references/directives/specifications.
2. Review gap specific engineer reconnaissance information.
3. Verify wet gap physical characteristics.
4. Brief/instruct the crew on the mission/assignment.
5. Off load bridge erection boats.
6. Off load bridge bays.
7. Connect interior bays.
8. Connect ramp bays.
9. Connect boats to raft.
10. Position raft.
11. Prepare to load/stow vehicles/equipment.
12. Coordinate emergency procedures with safety boat(s).
13. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. FM 5-446 Military Non-Standard Fixed Bridges
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. TM 5-1940-277-10 Operators Manual Bridge Erection Boat USCSBMK 1&2
6. TM 5420-209-12 Operators and Organizational Manual Improved Floating Bridge (Ribbon Bridge)

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

**EQUIPMENT:** Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat engineer equipment, Motor Transportation

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**ENGR-MOBL-4705:** Conduct Deliberate Breach

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** This task describes both mounted and dismounted deliberate breaches. A breach force (also might be called an Obstacle Clearance Detachment (OCD)) may be task organized with linear demolition charges, M9 Armored Combat Excavators (or other earthmoving equipment), Amphibious Assault Vehicles (with or without towed or internal linear demolition charges), and other vehicles equipment as the situation may dictate. The assault force and the support force are also part of the breaching task force.

**CONDITION:** Provided a tactical scenario, mission, a minefield (or other suitable obstacle), and a task-organized breach force with personnel, equipment, and demolitions or explosives in their assault position.

**STANDARD:** To reduce, proof, and mark lane through a minefield/obstacle in accordance mission, commander's intent, while observing safety precautions.

**EVENT COMPONENTS:**

1. Verify obstacle intelligence as required.
2. Coordinate suppression of enemy over-watching obstacle.
3. Coordinate obscuration of enemy over-watching obstacle.
4. Coordinate security for breach lane.
5. Coordinate breach with assault force, support force, and support breach team(s).
6. Verify suppression/obscuration effects.
7. Employ deception plan as required.
8. Move to breach site.
9. Reduce lane through obstacle.
10. Conduct gap crossing with Joint Assault Bridge as required.
11. Conduct earthmoving operations as required.
12. Proof lane through obstacle.
13. Mark lane through obstacle.
14. Coordinate passage of assault force through breached lane.
15. Turnover lane to designated forces.
16. Submit required reports.
17. Reconstitute the breach force.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. TM 08982A-14&P/2B Operator's Manual for MK 155 Mine Clearance System

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer Breaching equipment, Demolition kit, Firing device (M34, MK 152 Remote firing device, CD450-4J Blasting machine, AN/PRC 119, Kevlar helmet, flak vest, hearing protection

**MATERIAL:** Engineer stakes, rope, sledge hammer, stake driver, gloves

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-4706:** Conduct Route Improvement

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES **SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Route improvement supports route clearance operations and may be required to prevent/limit explosive hazard concealment opportunities for the enemy.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

**STANDARD:** To improve the route in support of route clearance operations and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards as required.
7. Operate engineer equipment as required.
8. Remove rubble/debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.

13. Fill holes/trenches/depressions as required.
14. Place additional fill/stabilization/reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment,  
Combat Engineer equipment

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**ENGR-MOBL-4707:** Repair Runway Crater

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT).

**CONDITION:** Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

**STANDARD:** To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate crater repair.
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Operate motor transport equipment as required.

7. Remove upheaval to required specifications.
8. Remove ejecta from operating surfaces.
9. Fill hole.
10. Compact fill materials required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/stabilization/reinforcement materials as required.
14. Surface repair with foreign object debris cover as required.
15. Reconstitute crater repair team.
16. Submit required reports

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment, Combat engineer equipment

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**ENGR-MOBL-4708:** Repair Spall(s)

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. This task may be part of Airfield Damage Repair (ADR), and Base Recovery after an Attack (BRAAT). Damage classified as a spall does not reach the base course underneath the operating surface of an airfield or road.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

**STANDARD:** To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance/damage assessment report(s).
2. Coordinate spall repair(s).

3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Remove ejecta from operating surfaces.
7. Fill damaged area with materials suitable for airfield operating surface.
8. Square hole as required.
9. Tamp repair as required.
10. Screed as required.
11. Reconstitute spall repair team.
12. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment, Motor transportation equipment, Combat engineer tools and kits, Combat engineer equipment

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**ENGR-MOBL-4709:** Repair Road Crater

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, a roadway operating surface requiring repair, task organized personnel and equipment, engineer reconnaissance reports, and references

**STANDARD:** To return the road operating surface to a minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance report(s).
2. Coordinate crater repair (materials, logistics, security, etc.).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.

6. Operate motor transport equipment as required.
7. Remove upheaval to required specifications.
8. Remove debris from operating surfaces as required.
9. Fill hole.
10. Compact fill materials required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/stabilization/reinforcement materials as required.
14. Repair shape of road as required.
15. Surface repair as required.
16. Repair drainage structures as required.
17. Reconstitute crater repair team.
18. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment, Combat engineer tools and kits, Combat engineer equipment, Motor transportation equipment

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**ENGR-XENG-4701:** Construct Wood Frame Structure

**SUPPORTED MET(S):** 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Construction of wood frame structures for use in all operations conducted to include but not limited to strong backs, sheds, facilities, sea huts, ect. or may be specified in mission directives.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** That meets the requirements listed in the design specifications in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.

3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install footers as required.
7. Construct/install flooring structure as required.
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure as required.
10. Construct/install doors as required.
11. Construct/install windows as required.
12. Finish interior as required.
13. Finish exterior as required.
14. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
  2. FM 5-100 Engineers in Combat Operations
  3. FM 5-103 Field Fortifications
  4. FM 5-412 Project Management
  5. FM 5-426 Carpentry
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**ENGR-XENG-4702:** Construct Concrete Block Structure

**SUPPORTED MET(S):** 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To conduct concrete block and other masonry construction as directed. Task emphasizes type of material, placement, finishing, and equipment used to build structures and foundations. This task also implies use of wood frame components for roofs and opening enclosures (doors, windows, ect.).

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation as required.
7. Construct/install wall structure(s) as required.
8. Place opening(s) as required.
9. Construct/place roof as required
10. Construct/install doors as required.
11. Construct/install windows as required.
12. Submit required reports.

13. Construct/install windows as required.
14. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
  2. FM 5-100 Engineers in Combat Operations
  3. FM 5-103 Field Fortifications
  4. FM 5-412 Project Management
  5. FM 5-426 Carpentry
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**ENGR-XENG-4703:** Construct Timber Structure

**SUPPORTED MET(S):** 3, 4, 5, 8

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Construction of timber structures for survivability of personnel and equipment. Structures consist of but not limited to bunkers, shelters, overhead cover, guard posts, crew-serve weapons positions, and individual fighting positions in support of the GCE.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** To meet the survivability requirements and in accordance with the commanders intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/prefabricate structures as required.
7. Emplace structures as required.
8. Construct/install wall structure(s) as required.
9. Construct/install roof structure/components as required.
10. Construct/install doors as required.
11. Construct/install portholes as required.
12. Sandbag structure as required
13. Camouflage as required.
14. Install grenade sumps as required.
15. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Material Handling equipment, Combat Engineer tools and kits

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**ENGR-XENG-4704:** Repair Existing Structures

**SUPPORTED MET(S):** 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** This task is for any type of structure (wood, concrete, steel, bridges, etc.) or facilities that has been damaged from military operations or due to structural integrity being flawed/incorrect per design specifications.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, structure/facility in need of repair, construction materials and appropriate references.

**STANDARD:** To meet the original design requirements/specifications to restore structure or facilities and in accordance with the commanders intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics as required.
2. Review engineer reconnaissance and survey as required.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Repair/replace structural components as required.
7. Repair/replace electrical as required.
8. Repair bridge abutments as required.
9. Repair/replace plumbing as required.
10. Submit required reports.

**REFERENCES:**

1. FM 3-07 Stability Operations (2008)
2. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
3. FM 5-100 Engineers in Combat Operations
4. FM 5-103 Field Fortifications
5. FM 5-103 Survivability
6. FM 5-412 Project Management
7. FM 5-426 Carpentry

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Material Handling equipment, Combat Engineer tools and kits

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ENGR-XENG-4705: Construct Concrete Structure

SUPPORTED MET(S): 4

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Construction of concrete structures for use in all operations conducted to include but not limited to wing walls, buildings, foundations, retaining walls, ect., or may be specified in mission directives in support of the MAGTF.

CONDITION: Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: To meet the requirements listed in the design specifications in accordance with the commanders' intent.

EVENT COMPONENTS:

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install form work for footers as required.
7. Construct/install form work for walls as required.
8. Place reinforcement material as required.
9. Place concrete for footer(s) as required.
10. Place concrete for wall(s) as required.
11. Place concrete for slab(s) as required.
12. Consolidate concrete as required.
13. Finish concrete as required.
14. Remove forms as required.
15. Submit required reports.

REFERENCES:

1. FM 3-07 Stability Operations (2008)
2. FM 5-100 Engineers in Combat Operations
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-412 Project Management
6. FM 5-426 Carpentry
7. FM 5-428 Concrete Masonry

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Material Handling equipment Combat Engineer tools and kits

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ENGR-XENG-4706: Construct expedient drainage structure

SUPPORTED MET(S): None

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

**DESCRIPTION:** Construction of expedient drainage structures (ditching, culverts, etc.) are designed for temporary conduit for water runoff from existing or proposed base camps, roads, airfields and watersheds until a permanent structure(s) can be installed.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

**STANDARD:** To meet the requirements listed in the design specifications in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct expedient ditch relief culverts.
7. Construct expedient log culverts
8. Construct oil drum culvert
9. Construct sandbag culvert
10. Cover expedient culverts as required.
11. Construct expedient head/wing walls as required.
12. Submit required reports.

**REFERENCES:**

1. FM 5-335 Drainage
2. FM 5-412 Project Management
3. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
4. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer equipment, Combat engineer equipment, Utilities equipment

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**UTIL-XENG-4701:** Provide potable water

**SUPPORTED MET(S):** 6

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 1 month

**CONDITION:** With a Utilities Plan, required equipment and personnel.

**STANDARD:** To meet planning requirements.

EVENT COMPONENTS:

1. Perform Water Recon
2. Establish Water Point
3. Produce Potable Water
4. Store Potable Water
5. Establish Water Distribution Points

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. Joint Pub 4-03 Joint Bulk Petroleum and Water Doctrine
4. MCWP 4-11.6 Petroleum and Water Logistics Operations
5. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
6. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, PPE

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FUEL-XENG-4701: Coordinate Bulk Petroleum Operations

SUPPORTED MET(S): 7

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Given a mission order, location of the operation, estimated fuel requirements, personnel, and required equipment coordinate bulk petroleum operations, to support mission requirements per concept of operations and commanders intent.

CONDITION: Given a mission order, location of the operation, estimated fuel requirements, personnel, and required equipment.

STANDARD: To support mission requirements per concept of operations and commanders intent.

EVENT COMPONENTS:

1. Review mission.
2. Determine type of setup for storage and distribution of fuel per mission requirements.
3. Task organize personnel and equipment needed.
4. Coordinate security requirements with supported unit as required.
5. Coordinate receipt of supplies.
6. Determine fuel systems communications plan.
7. Develop safety plan for storage and distribution.
8. Plan fuel distribution site for operations.
9. Establish a Petroleum Laboratory Quality Surveillance and Control Program.
10. Submit required reports.

REFERENCES:

1. FM 10-67-2 Petroleum Laboratory Testing and Operations

2. FM 10-68 Aircraft Refueling
3. FM 10-69 Petroleum Supply Point Equipment and Operations
4. MCWP 4-11.6 Bulk Liquid Operations
5. MIL HDBK 200 Quality Surveillance Handbook for Fuels, Lubricants, and Related Products
6. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
7. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17933 POL Training Area

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**FUEL-XENG-4702:** Construct Bulk Petroleum Site

**SUPPORTED MET(S):** 7

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** This task implies the conduct of construction and setup of fuel storage and distribution systems to accommodate multiple fuel requirements in support of the MAGTF.

**CONDITION:** Provided a fuel distribution plan with a system layout, tasked organized personnel and equipment, and references.

**STANDARD:** To ensure proper set-up for bulk petroleum operations per the concept of operations and commanders intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Review plan for storage and distribution of fuel.
3. Task organize personnel and equipment as required.
4. Coordinate security requirements with supported unit as required.
5. Clear site as required.
6. Construct berms as required.
7. Layout fuel storage and distribution components as required.
8. Connect components as required.
9. Construct fuel distribution point(s) as required.
10. Place safety equipment as required.
11. Submit required reports.

**REFERENCES:**

1. NAVAIR 00-80T-109 Aircraft Refueling NATOPS Manual
2. TM 3835-OI/1A Marine Corps Tactical Fuel Systems

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17933 POL Training Area

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**ENGR-MOBL-4601:** Conduct Security for Route Clearance/ Sweep operations

**SUPPORTED MET(S):** 2, 5

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: The security element consists of the forward, flank, and rear sections. The mission of the security element is to provide traffic control, crew-served weapons support, and protection and can dismount as necessary. The mission of the forward security section is to observe oncoming traffic for threats, identify hazards or obstructions in the route, and cordon suspect vehicles identified by other elements. The mission of the flank security section is to protect the main body from threats on the shoulder or traffic traveling in the opposite direction and observe vehicles passing through the work area for threats and provide traffic control within the work area. The mission of the rear security section is to observe approaching traffic for threats, provide a visual warning to traffic that the RRC team is ahead on the route, contain suspect vehicles, and provide limited traffic control. The three security teams must be integrated and centrally controlled.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if possible.
8. Operate dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:

1. FM 3-34.210 Explosive Hazard Operations
2. FM 3-34.214 Explosives and Demolitions
3. FM 5-101 Mobility
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations
8. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17730 Fire and Movement Range

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-MOBL-4602: Detect Obstacles for Route Clearance/ Sweep operations

SUPPORTED MET(S): 2, 4, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: The mission of the detection element is to scan the medians and shoulders of a route and sweep them for EH, using visual, metallic, and electronic detection capabilities. The element pinpoints the location and remotely investigates suspected EH, marks and reports UXO, and secures and reports IEDs. Trained personnel use robotics or other means to conduct standoff neutralization, when required, to provide assured mobility to the maneuver commander.

CONDITION: Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

STANDARD: To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, booby-traps, and unexploded ordnance within area if possible.
8. Operate dismounted mine detectors as required.
9. Operate mounted mine detectors as required.
10. Operated other detection equipment as required.
11. Conduct earthmoving operations to detect obstacles as required.
12. Alternate detector operators as required to prevent fatigue.
13. Mark obstacles for reduction as required.
14. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 5-101 Mobility

4. FM 5-101-5-1 Operational Terrain and Symbols
5. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:**

Facility Code 17918 Road/Airfield Construction Training Site  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Motor Transportation, Material Handling, Engineer equipment and lifting capability

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**ENGR-MOBL-4603:** Breach Obstacles for Route Clearance/ Sweep Operations

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** The purpose of breaching is to project combat power to the far side of an obstacle, and breaching usually occurs under enemy fire. Route-clearance operations focus on opening and maintaining LOC to ensure the safe passage of combat, CS, and CSS organizations. Like breaching, route-clearance operations require extensive coordination. Planning considerations should be used by the Task force when planning route-clearance operations. The obstacle template produced from this process determines which method and type of route clearance is required.

**CONDITION:** Provided a mission, permissive environment, hours of daylight, designated area with known/potential/suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolitions tools, explosives, and references.

**STANDARD:** To ensure all mines, boobytraps, and unexploded ordnance are detected, identified, and removed or destroyed to support the concept of operations and commanders intent.

**EVENT COMPONENTS:**

1. Analyze intelligence for designated area.
2. Coordinate with supported unit as required.
3. Coordinate with supporting units as required.
4. Move to area to be cleared.
5. Confirm area clearance controls.
6. Visually identify all non-explosive obstacles within area.
7. Visually detect mines, boobytraps, and unexploded ordnance within area if possible.
8. Operate mounted mine detectors as required.
9. Operated other detection equipment as required.
10. Conduct earthmoving operations to detect obstacles as required.
11. Alternate detector operators as required to prevent fatigue.

12. Mark obstacles for reduction as required.
13. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. MCWP 3-17.4 Engineer Reconnaissance

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
M670 Fuse, Blasting Time M700	
MM56 Detonator, Non-Electric MK123 Mod 0	
MN08 Igniter, Time Blasting Fuse with Sho	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN89 Dual instantaneous shock tube	
MN90 Cap, Blasting, 1000 ft mini-tube M23	
M456 Cord, Detonating PETN Type I Class E	

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Combat engineer detection equipment, Engineer Material Handling equipment, Combat engineer breaching equipment

**UNITS/PERSONNEL:** Range Safety officer Corpsman

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**ENGR-MOBL-4604:** Conduct Route Improvement

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Route improvement supports route clearance operations and may be required to prevent/limit explosive hazard concealment opportunities for the enemy.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, a route to be improved, task organized personnel and equipment, engineer reconnaissance reports, and references.

**STANDARD:** To improve the route in support of route clearance operations and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance report(s).
2. Coordinate with route clearance mission commander (for repair materials, logistics, security, etc.).
3. Confirm improvement requirements.
4. Move to improvement area.
5. Operate as part of route clearance team.
6. Visually detect explosive and other hazards as required.
7. Operate engineer equipment as required.
8. Remove rubble/debris as required.
9. Remove vegetation as required.
10. Remove trash as required.
11. Remove upheaval to required specifications.
12. Remove berms as required.
13. Fill holes/trenches/depressions as required.
14. Place additional fill/stabilization/ reinforcement materials as required.
15. Identify surface repairs as required.
16. Identify drainage structure repairs as required.
17. Conduct culvert denial activities as required.
18. Conduct immediate actions as required.
19. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment

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**ENGR-MOBL-4605:** Repair Road Crater

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. May be part of Airfield Damage Repair (ADR) as part of Base Recovery after an Attack (BRAAT).

**CONDITION:** Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

**STANDARD:** To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance report(s).
2. Coordinate crater repair
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Operate motor transport equipment as required.
7. Remove upheaval to required specifications.
8. Remove ejecta from operating surfaces.
9. Fill hole.
10. Compact fill materials required.
11. Square hole as required.
12. Place geotextile layer(s) as required.
13. Place additional fill/ stabilization/ reinforcement materials as required.
14. Surface repair with foreign object debris cover as required.
15. Reconstitute crater repair team.
16. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 90-13-1 Combined Arms Breaching Operations
7. GTA 5-2-5 Engineer Reconnaissance
8. GTA 5-7-13 Bridge Classification Booklet
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment, Combat engineer tools and kits, Combat engineer equipment, Motor transportation equipment

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**ENGR-MOBL-4606:** Repair Spall(s)

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** These repairs may be required due to enemy or friendly action/damage, lack of maintenance, poor construction techniques (for existing surfaces), or environmental damage. May be part of Airfield Damage Repair

(ADR) as part of Base Recovery after an Attack (BRAAT). Damage classified as a spall does not reach the base course underneath the operating surface of an airfield or road.

**CONDITION:** Given a tactical situation, an operations order, commander's intent, an airfield operating surface requiring repair, task organized personnel and equipment, damage assessment reports, and references

**STANDARD:** To return the air field operating surface to a minimum operational capability within the design criteria and the commander's intent.

**EVENT COMPONENTS:**

1. Analyze engineer reconnaissance/ damage assessment report(s).
2. Coordinate spall repair(s).
3. Confirm repair requirements.
4. Conduct Explosive Ordnance Disposal (EOD) operations as required.
5. Operate engineer equipment as required.
6. Remove ejecta from operating surfaces.
7. Fill damaged area with materials suitable for airfield operating surface.
8. Square hole as required.
9. Tamp repair as required.
10. Screed as required.
11. Reconstitute spall repair team.
12. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
7. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
8. GTA 5-2-5 Engineer Reconnaissance
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17918 Road/Airfield Construction Training Site

**EQUIPMENT:** Engineer equipment, Motor transportation equipment, Combat engineer tools and kits, Combat engineer equipment

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**ENGR-CMOB-4601:** Create an Explosive Obstacle

**SUPPORTED MET(S):** 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Explosive obstacles include minefields, boobytraps, and improvised anti-personnel and anti-tank mines.

**CONDITION:** Given a mission, commanders intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, etc.).

**STANDARD:** That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment.

**EVENT COMPONENTS:**

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Emplace minefield controls/markings.
8. Emplace hasty protective row minefield as required.
9. Emplace hasty row minefield as required.
10. Emplace booby-traps as required.
11. Emplace improvised anti-personnel and/or anti-tank mines as required.
12. Account for all personnel and equipment prior to returning to friendly lines.
13. Coordinate lane closure plan with supported unit as required.
14. Submit required reports.

**REFERENCES:**

1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-34 Engineer Field Data - Field Expedient Charges
10. FM 5-36 Route Reconnaissance and Classification
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. FMFM 4-4 Engineer Operations
14. MCRP 3-17A Engineer Field Data
15. MCWP 3-17 Engineer Operations
16. UNIT SOP Unit's Standing Operating Procedures

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	

K143 Mine, Antipersonnel M18A1 with M57 F  
K180 Mine, Antitank Heavy M15  
K181 Mine, Antitank Heavy M21  
ML03 Firing Device, Demolition Multi-Purp

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17830 Light Demolition Range  
Facility Code 17730 Fire and Movement Range

**EQUIPMENT:** Combat engineer equipment, Material Handling equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-CMOB-4602:** Create a Non-Explosive Obstacle

**SUPPORTED MET(S):** 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Non-explosive obstacles include constructed and field expedient obstacles that support countermobility operations for offensive and defensive missions.

**CONDITION:** Given a mission, commanders intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, natural terrain, battlefield materials, etc.).

**STANDARD:** That is part of an obstacle group, intended to turn, block, fix, or disrupts enemy personnel or equipment.

**EVENT COMPONENTS:**

1. Analyze obstacle plan.
2. Analyze engagement areas, battle positions, and weapons location.
3. Determine actual work sequence.
4. Finalize coordination with supported unit for specific obstacle placement and observation.
5. Coordinate overwatch/security for obstacle construction.
6. Move to obstacle site.
7. Tie obstacles into natural/existing obstacles as required
8. Emplace mobility obstacles (barriers, hedgehogs, ect.) as required.
9. Emplace wire obstacles as required.
10. Emplace field expedient obstacles (logs, abatis, rubble, ect.) as required.
11. Create craters as required.
12. Emplace phony obstacles as required.
13. Emplace tank ditches as required.
14. Account for all personnel and equipment prior to returning to friendly lines.
15. Coordinate lane closure plan with supported unit as required.
16. Submit required reports.

**REFERENCES:**

1. FM 3-06 Urban Operations

2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17931 Medium/Heavy Equipment Training Area

**EQUIPMENT:** Combat engineer equipment, Material Handling equipment,  
Earthmoving Equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-CMOB-4603:** Construct an Non- Explosive Obstacle

**SUPPORTED MET(S):** 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** Constructed obstacles are those reinforcing obstacles that are built by marines and machinery, generally without the use of explosives. Typical examples are: Wire, Tank ditches, Log cribs, Steel H beam post obstacles, falling or tumble blocks, Dragons teeth, hedgehogs, and tetrahedrons and non-explosive abatis.

**CONDITION:** Given a mission, commanders intent, location to emplace the obstacle, task organized personnel and equipment, and resources (Class IV, V, natural terrain, battlefield materials, etc.).

**STANDARD:** To construct or create an obstacle that is part of an obstacle plan intended to turn, block, fix, or disrupts enemy personnel or equipment.

**EVENT COMPONENTS:**

1. Review mission and schematics

2. Determine actual work sequence.
3. Coordinate logistical requirements
4. Coordinate overwatch/security for obstacle construction.
5. Move to obstacle site.
6. Tie obstacles into natural/existing obstacles as required
7. Construct/place mobility obstacles (barriers, hedgehogs, ect.) as required.
8. Construct wire obstacles as required.
9. Construct/place field expedient obstacles (logs, abatis, rubble, ect.) as required.
10. Create craters as required
11. Construct/create phony obstacles as required.
12. Construct tank ditches as required
13. Submit required reports.

**REFERENCES:**

1. FM 3-06 Urban Operations
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. FM 5-36 Route Reconnaissance and Classification
5. FM 90-7 Combined Arms Obstacle Integration
6. FMFM 13 MAGTF Engineer Operations
7. FMFM 4-4 Engineer Operations
8. MCRP 3-17A Engineer Field Data
9. MCWP 3-17 Engineer Operations
10. UNIT SOP Unit's Standing Operating Procedures

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M327 Coupling Base, Firing Device with Pr	
K143 Mine, Antipersonnel M18A1 with M57 F	
K180 Mine, Antitank Heavy M15	
K181 Mine, Antitank Heavy M21	
ML03 Firing Device, Demolition Multi-Purp	

**RANGE/TRAINING AREA:**

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17931 Medium/Heavy Equipment Training Area  
Facility Code 17730 Fire and Movement Range

**EQUIPMENT:** Combat engineer equipment, Material Handling equipment,  
Earthmoving Equipment

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-REC-4601:** Conduct Cache Sweep

**SUPPORTED MET(S):** 2, 5, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Employ engineer assets to detect for suspected caches of ordnance, to include: munitions, mines, ammunition, weapons, and explosives.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To locate and mark undiscovered ordnance, munitions, mines ammunition, weapons, and explosives per commanders intent and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment for operation.
5. Move to site.
6. Detect primary/secondary markers.
7. Conduct cache sweep.
8. Locate and mark cache.
9. Identify the component(s) of cache.
10. Sweep area for secondary/other ordnance caches.
11. Reconstitute sweep force.
12. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. MCWP 3-1 Ground Combat Operations
5. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M131 Cap, Blasting Non-Electric M7	
M023 Charge, Demolition Block M112 1-1/4	
M130 Cap, Blasting Electric M6	
MN08 Igniter, Time Blasting Fuse with Sho	

RANGE/TRAINING AREA:

Facility Code 17730 Fire And Movement Range  
Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17413 Field Training Area

EQUIPMENT: Combat Engineer detection equipment

UNITS/PERSONNEL: Explosive Ordnance Disposal personnel Weapons  
Intelligence team Corpsman

ENGR-MOBL-4501: Conduct Dismounted Route Sweep operations

SUPPORTED MET(S): 2, 4

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: A sweep team consists of a command element, detection team(s) (the ear), marking team(s) (the finger), and a demolition team(s).

CONDITION: Given a mission, commanders' intent, a permissive or semi-permissive environment, a route to be swept, task organized personnel and equipment, and references.

STANDARD: To ensure all mines, boobytraps, obstacles, and unexploded ordnance are detected, identified, reduced, proofed, and/or marked to provide sufficient mobility to support the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Analyze search route intelligence.
2. Coordinate with supported unit for security as required.
3. Coordinate with supporting units.
4. Move to search area.
5. Detect obstacles along route.
6. Alternate detector operators as required to prevent fatigue.
7. Identify explosive components of obstacle(s).
8. Mark obstacle(s) as required.
9. Reduce obstacle as required.
10. Verify obstacle reduction.
11. Coordinate explosive ordnance disposal activities as required.
12. Coordinate weapons intelligence team activities as required.
13. Coordinate with other specialist personnel as required.
14. Submit required reports.

REFERENCES:

1. FM 20-32 Mine/Countermining Operations
2. FM 3-34.119 Improvised Explosive Device (IED) Defeat
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-101 Mobility
6. FM 5-34 Engineering Field Data
7. FMFM 13 MAGTF Engineer Operations
8. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
9. MCRP 3-17A Engineer Field Data
10. MCRP 3-17B Engineer Forms and Reports
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Kevlar helmet, flak vest, AN/PRC 119, AN/PSS 14/12 mine detector, probe, T-tool, compass, protractor, DA FORM 1355-1-R

MATERIAL: Engineer tape, concertina wire, barbed wire, engineer stakes, tie wire, mine signs, sandbags

UNITS/PERSONNEL: Range safety officer, corpsman

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-XENG-4501: Conduct Vertical Construction

SUPPORTED MET(S): 2, 4, 5, 8

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Vertical construction consists of building or providing improvements to existing structures, constructing base camps, command posts, and maintenance facilities for use by the MAGTF.

CONDITION: Given a mission, commanders intent, tactical situation, task organized equipment and personnel, design specifications, construction materials and appropriate references.

STANDARD: In order to build or repair facilities that meet the requirements listed in the design specifications and in accordance with the commanders' intent.

EVENT COMPONENTS:

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct concrete structure as required.
7. Construct concrete block structure as required
8. Repair facility as required.
9. Erect prefabricated structure as required.
10. Construct manufactured steel structure as required.
11. Construct wood frame structure as required.
12. Construct timber structure as required.
13. Construct drainage structure as required.
14. Wire structure for electricity as required.
15. Plumb structure as required.
16. Submit required reports.

REFERENCES:

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions

9. FM 5-335 Drainage
10. FM 5-412 Project Management
11. FM 5-426 Carpentry
12. FM 5-428 Concrete Masonry
13. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
14. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
15. FM 5-434 Earthmoving Operations
16. FM 5-553 General Drafting
17. FMFM 13 MAGTF Engineer Operations
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-11 Combat Service Support
24. TM 5-232 Elements of Construction Surveying
25. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment

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**ENGR-XENG-4502:** Construct Manufactured Steel Structure

**SUPPORTED MET(S):** 2, 4

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Any manufactured steel structures to include but not limited to K-Spans, Butler Buildings, Pre-engineered buildings, Framed Shelters w/vinyl covers, ect.

**CONDITION:** Given a mission, commanders intent, tactical situation, task organized equipment and personnel, steel structure components, design specifications, construction materials and appropriate references.

**STANDARD:** that meets the requirements listed in the manufacturer specifications and in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review construction plans and schematics.
2. Review engineer reconnaissance and survey.
3. Acquire resources needed for project.
4. Conduct site preparation as required.
5. Operate/employ engineer equipment and kits.
6. Construct/install foundation as required.
7. Construct/install flooring as required
8. Construct/install structure(s) as required.

9. Construct/install doors as required.
10. Construct/install windows as required.
11. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 3-34.471 Plumbing, Pipefitting, and Sewerage
6. FM 5-103 Field Fortifications
7. FM 5-163 Sewerage
8. FM 5-250 Explosives and Demolitions
9. FM 5-335 Drainage
10. FM 5-412 Project Management
11. FM 5-426 Carpentry
12. FM 5-428 Concrete Masonry
13. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
14. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
15. FM 5-434 Earthmoving Operations
16. FM 5-553 General Drafting
17. FMFM 13 MAGTF Engineer Operations
18. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
19. JP 3-34 Engineer Doctrine for Joint Operations
20. MCWP 3-17 Engineer Operations
21. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
22. MCWP 3-41.1 Rear Area Operations
23. MCWP 4-11 Combat Service Support
24. TM 5-232 Elements of Construction Surveying
25. TM 5-760 Interior Wiring

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment,

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**ENGR-XENG-4503:** Conduct horizontal construction

**SUPPORTED MET(S):** 2, 4, 5, 8

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** To conduct horizontal construction as required to shape the terrain to meet the operational requirements of the MAGTF and includes MSR construction and/or maintenance; expeditionary airfields; site preparation for bed down facilities; and ordnance storage facilities.

**CONDITION:** Given a mission, commanders intent, tactical situation, a map, task organized equipment and personnel, design specifications, construction materials and references

**STANDARD:** To construct the assigned project to meet or exceed the requirements listed in the design specifications and the commanders' intent.

**EVENT COMPONENTS:**

1. Review horizontal construction plans.
2. Review engineer reconnaissance and survey.
3. Coordinate support for horizontal construction.
4. Operate/employ engineer equipment and kits.
5. Clear site for construction.
6. Conduct beachhead lane improvement as required.
7. Construct base course for road(s) as required.
8. Emplace soil stabilization as required.
9. Conduct ditching for roads as required.
10. Emplace road surface as required
11. Construct tactical landing zones as required.
12. Emplace dust abatement material as required.
13. Construct expedient HLZ as required.
14. Construct drainage structures as required.
15. Construct expeditionary airfield as required.
16. Submit required reports.

**REFERENCES:**

1. FM 21-10 Field Hygiene and Sanitation
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-06 Urban Operations
4. FM 3-07 Stability Operations (2008)
5. FM 5-163 Sewerage
6. FM 5-250 Explosives and Demolitions
7. FM 5-335 Drainage
8. FM 5-412 Project Management
9. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
10. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
11. FM 5-434 Earthmoving Operations
12. FMFM 13 MAGTF Engineer Operations
13. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
14. JP 3-34 Engineer Doctrine for Joint Operations
15. MCWP 3-17 Engineer Operations
16. MCWP 3-17.4 Engineer Reconnaissance
17. MCWP 3-35.3 Military Operations on Urbanized Terrain (MOUT)
18. MCWP 3-41.1 Rear Area Operations
19. MCWP 4-11 Combat Service Support
20. TM 5-232 Elements of Construction Surveying

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer Earthmoving equipment, Material Handling equipment, Combat engineer equipment, Utilities equipment,

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UTIL-XENG-4501: Provide Tactical Hygiene Support

SUPPORTED MET(S): 6

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

CONDITION: With a Utilities plan, required equipment and personnel

STANDARD: To meet planning requirements and IAW commanders' intent.

EVENT COMPONENTS:

1. Establish shower facilities
2. Establish laundry facilities
3. Supervise field sanitation

REFERENCES:

1. MCRP 4-11.1D Field Hygiene and Sanitation
2. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Utilities equipment, Material Handling equipment

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ENGR-DEMO-4501: Employ Demolitions In support of Counter-Mobility Operations

SUPPORTED MET(S): 3, 5

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ Class V munitions to create mobility obstacles (explosively) such as craters, ditches or to destroy structures (bridges, tunnels, etc). This could include field expedient explosive obstacles (improvised anti-vehicular/anti-personnel explosive devices) to destroy enemy personnel and equipment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To construct counter-mobility obstacles at designated areas/routes to fix, delay, disrupt enemy vehicles and personnel per commanders' intent, concept of operations, and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.

4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Create obstacle(s) as required.
10. Inspect obstacle(s) as required.
11. Improve obstacle site with support equipment as required.
12. Reconstitute the force.
13. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
ML03 Firing Device, Demolition Multi-Purp	
M023 Charge, Demolition Block M112 1-1/4	
M591 Dynamite, Military M1	
M421 Charge, Demolition Shaped M3 Series	
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Engineer Material Handling equipment, Combat engineer Demolitions kit

**UNITS/PERSONNEL:** Range Safety Officer, Corpsman

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**ENGR-PINF-4401:** Fight as Provisional Infantry

**SUPPORTED MET(S):** 1

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Offensive operations including attacks, raids, movement to contact, ect. Defensive operations (including withdrawal), patrolling (including checkpoint ops), mobility (including screening, convoy ops), and employment of organic weapons. Operations other than war (civil disturbance,

TRAP, cordon and search), MOUT (attack, defend, patrol, clear a building, vehicle check point). Participate in amphibious assault and raid operations.

CONDITION: Given a requirement, task organized personnel and equipment, commanders' intent and references.

STANDARD: To augment a supported unit during the conduct of offensive or defensive operations.

EVENT COMPONENTS:

1. Receive orders.
2. Conduct inspections, rehearsals, and preparations.
3. Conduct final preparations.
4. Employ appropriate squad formations and tactics as required.
5. Employ organic weapons as required.
6. Employ communications as required.
7. Treat and evacuate casualties as required.
8. Process detainees as required.
9. Submit required reports.

REFERENCES:

1. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
2. MCWP 3-11.2 Marine Rifle Squad
3. MCWP 5-1 Marine Corps Planning Process

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17413 Field Training Area

Facility Code 17420 Maneuver/Training Area, Heavy Forces

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ENGR-XENG-4401: Conduct MHE Operations

SUPPORTED MET(S): 2, 3, 4, 6, 7, 8, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: MHE refers to material handling equipment (forklifts, etc.) to enable handling of loads (equipment, supplies, materials, etc.) exceeding carrying capacity of personnel.

CONDITION: Given a mission, commander's intent, personnel and equipment, and references.

STANDARD: To provide support an IAW unit SOPs or guidance to support the concept of operations and in accordance with commander's intent.

EVENT COMPONENTS:

1. Review tasking.
2. Coordinate with supported unit (location, requirements, security, ground guides, etc.).
3. Operate MHE as required.
4. Load and unload materiel(s) as required.

5. Employ safety measures as required.
6. Submit required reports.

**REFERENCES:**

1. MCRP 3-17B Engineer Forms and Reports
2. MCWP 3-41.1 Rear Area Operations
3. MCWP 4-11 Combat Service Support
4. MCWP 4-11.4 Maintenance Operations

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Material Handling equipment, Engineer support equipment

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**ENGR-SURV-4401:** Harden Existing Structure

**SUPPORTED MET(S):** 3, 4, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To harden positions in order to reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire and as a means to enhance force protection.

**CONDITION:** Provided a mission, in an urban environment, commander's intent, reconnaissance reports, survivability plan, a task organization of personnel and equipment, and references.

**STANDARD:** That meets the mission requirements and supports the concept of operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Review engineer reconnaissance and survey reports.
3. Coordinate with supported unit for specific position requirements.
4. Coordinate resources for project.
5. Conduct site preparation.
6. Construct perimeter security as required.
7. Shore walls/floors/roofs as required.
8. Remove/reinforce windows as required.
9. Compartmentalize interior of structure as required.
10. Emplace prefabricated barrier(s) as required.
11. Construct earth filled barrier/structure(s) as required.
12. Conduct earthmoving operations as required.
13. Construct overhead cover as required.
14. Construct shelter/bunker as required.
15. Construct triggering screen as required.
16. Wire position for electricity as required.
17. Submit required reports.

**REFERENCES:**

1. FM 20-32 Mine/Countermining Operations
2. FM 5-102 Countermobility
3. FM 5-103 Field Fortifications

4. FM 5-103 Survivability
5. FM 5-170 Engineer Reconnaissance
6. FM 5-250 Explosives and Demolitions
7. FM 5-335 Drainage
8. FM 5-34 Engineer Field Data - Field Expedient Charges
9. FM 5-412 Project Management
10. FM 5-426 Carpentry
11. FM 5-428 Concrete Masonry
12. FM 5-430-00-1, Volume 1 Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations
13. FM 5-430-00-2 Planning and design of roads, airfields, and heliports in the theater of operations--Airfield and Heliport design
14. FM 5-434 Earthmoving Operations
15. FM 5-446 Military Non-Standard Fixed Bridges
16. FM 5-553 General Drafting
17. FM 90-7 Combined Arms Obstacle Integration
18. FMFM 13 MAGTF Engineer Operations
19. FMFM 3-1 Command and Staff Action
20. FMFM 4-4 Engineer Operations
21. JP 3-15 Joint Doctrine for Barriers, Obstacles, and Mine Warfare
22. JP 3-34 Engineer Doctrine for Joint Operations
23. MCRP 3-17A Engineer Field Data
24. MCRP 3-17B Engineer Forms and Reports
25. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Material Handling equipment, Engineer Earthmoving equipment, Combat Engineer tools & kits, Utilities equipment

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**ENGR-SURV-4402:** Construct Field Fortifications

**SUPPORTED MET(S):** 3, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 12 months

**DESCRIPTION:** To build field fortifications that reduce the vulnerability of personnel, equipment, weapons, and supplies to enemy fire, increase effectiveness of friendly weapons, and as a means to enhance force protection.

**CONDITION:** Provided a mission, commanders intent, reconnaissance reports, a task organization of personnel and equipment, and references.

**STANDARD:** That meets the mission requirements and supports the concept of operations in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific position placement and

- requirements.
4. Construct survivability positions as required.
  5. Construct wire obstacles as required.
  6. Construct field expedient obstacles as required.
  7. Construct/emplace barrier(s) as required.
  8. Construct/emplace explosive obstacle(s) as required.
  9. Conduct vertical construction as required.
  10. Harden existing structures as required.
  11. Conduct earthmoving operations as required.
  12. Provide electrical power as required.
  13. Submit required reports.

**RELATED EVENTS:** 1371-SURV-1002

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-426 Carpentry
9. FMFM 13 MAGTF Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17420 Maneuver/Training Area, Heavy Forces

**EQUIPMENT:** Engineer Earthmoving equipment, Combat Engineer tools and equipment

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-SURV-4403:** Construct Vehicle Control Point

**SUPPORTED MET(S):** 3, 8

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** To construct a mechanism to control, restrict and monitor movement of personnel and equipment and to gain information/data on suspected vehicles during military operations.

**CONDITION:** Provided a mission, in an urban/rural environment, commanders intent, intelligence reports, task organization of personnel and equipment, Class IV, and references.

**STANDARD:** To enable forces to gain information and maintain control of vehicles, pedestrians, and materials per mission requirement and commanders intent.

**EVENT COMPONENTS:**

1. 1. Review mission.
2. 2. Review intelligence reports.
3. 3. Coordinate with supported unit for specific position requirements.
4. 4. Coordinate resources for project.
5. 5. Coordinate security as required.
6. 6. Conduct site preparation and layout.
7. 7. Construct survivability positions as required.
8. 8. Emplace prefabricated barrier(s) as required.
9. 9. Construct wire obstacles as required.
10. Construct expedient obstacles as required.
11. Construct earth-filled barrier/structure(s) as required.
12. Conduct earthmoving operations as required.
13. Establish vehicle-waiting area as required.
14. Construct search lanes as required.
15. Construct personnel search area(s) as required.
16. Construct/emplace signs as required.
17. Provide electrical support as required.
18. Submit required reports.

**RELATED EVENTS:** 1371-SURV-1002

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations. (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-170 Engineer Reconnaissance
8. FM 5-426 Carpentry
9. FMFM 13 MAGTF Engineer Operations
10. FMFRP 12-51 Engineer Operations
11. JP 3-34 Engineer Doctrine for Joint Operations
12. MCRP 3-17A Engineer Field Data
13. MCWP 3-17 Engineer Operations
14. MCWP 3-41.1 Rear Area Operations
15. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**EQUIPMENT:** Engineer Earthmoving equipment , Combat engineer tools & kits

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-SURV-4404: Construct Entry Control Point

SUPPORTED MET(S): 3, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: To construct a mechanism to prevent unauthorized personnel and vehicle access and with limited impediment to vehicular traffic flow into military facilities.

CONDITION: Provided a mission, commanders intent, intelligence reports, task organization of personnel and equipment, Class IV, and references.

STANDARD: To enable forces to control and monitor access of vehicles, pedestrians, and materials onto military facilities per concept of operations and commanders intent.

EVENT COMPONENTS:

1. Review mission.
2. Review force protection requirements.
3. Coordinate resources for project.
4. Coordinate security as required.
5. Conduct site preparation and layout.
6. Construct survivability positions as required.
7. Emplace prefabricated barrier(s) as required.
8. Construct wire obstacles as required.
9. Construct expedient obstacles as required.
10. Construct earth filled barrier/structure(s) as required.
11. Conduct earthmoving operations as required.
12. Establish vehicle turn-around area as required.
13. Establish pedestrian lanes as required.
14. Construct vehicle search lanes as required.
15. Construct personnel search area(s) as required.
16. Construct/emplace signs as required.
17. Provide electrical support as required.
18. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:

1. FM 100-10 Combat Service Support
2. FM 21-75 Combat Skills of the Soldier
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-103 Field Fortifications
6. FM 5-103 Survivability
7. FM 90-7 Combined Arms Obstacle Integration
8. MCRP 3-17A Engineer Field Data
9. MCRP 3-17B Engineer Forms and Reports

10. MCWP 3-17 Engineer Operations
11. MCWP 3-41.1 Rear Area Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment, Combat Engineer tools & kits

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-SURV-4405: Construct Earth Filled Barrier/Structure

SUPPORTED MET(S): 3, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: To construct earth filled barriers/structures in support of military operations.

CONDITION: Provided a mission, commanders intent, reconnaissance reports, a task organization of personnel and equipment, and references.

STANDARD: That supports the mission requirements and concept of operations in accordance with the commanders' intent.

EVENT COMPONENTS:

1. Review mission.
2. Review engineer reconnaissance and survey.
3. Coordinate with supported unit for specific placement and requirements.
4. Construct/emplace barrier(s) as required.
5. Conduct earthmoving operations as required.
6. Submit required reports.

REFERENCES:

1. FM 100-10 Combat Service Support
2. FM 3-07 Stability Operations (2008)
3. FM 5-103 Field Fortifications
4. FM 5-103 Survivability
5. FM 5-434 Earthmoving Operations
6. MCRP 3-17A Engineer Field Data
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer Earthmoving equipment

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ENGR-DEMO-4401: Employ Demolitions in Support of Mobility Operations

SUPPORTED MET(S): 2, 3, 4, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ Class V munitions to reduce/destroy obstacles (explosive and non-explosive) that present mobility impediments to Operating forces on routes.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To reduce mobility obstacles on designated routes per commanders' intent, concept of operations and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Move to obstacle sites(s).
6. Setup security.
7. Prepare charges.
8. Place charges.
9. Reduce obstacle(s).
10. Proof obstacle(s).
11. Clear site with support equipment as required.
12. Reconstitute obstacle clearing force.
13. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
ML03 Firing Device, Demolition Multi-Purp	
M023 Charge, Demolition Block M112 1-1/4	
M591 Dynamite, Military M1	
M421 Charge, Demolition Shaped M3 Series	
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer  
Demolitions kit

UNITS/PERSONNEL: Range Safety Officer Corpsman

OTHER SUPPORT REQUIREMENTS: Range Safety officer, Corpsman

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ENGR-DEMO-4402: Employ Demolitions in Support of Survivability Operations

SUPPORTED MET(S): 2, 3, 4, 9

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Employ Class V munitions to support survivability operations such as explosive booby traps in defense of friendly positions or clearance of natural/man-made obstacles for fields of fire to eliminate enemy cover and concealment.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To enhance friendly survivability positions and fields of fire to defeat the enemy per the commanders' intent and concept of operations.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare personnel for mission requirements as required.
5. Construct booby traps as required.
6. Clear fields of fire as required.
7. Place expedient explosive devices to support positions as required.
8. Mark fortifications/explosive devices as required.
9. Reconstitute force as required.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	

M670 Fuse, Blasting Time M700  
ML03 Firing Device, Demolition Multi-Purp  
M023 Charge, Demolition Block M112 1-1/4  
M591 Dynamite, Military M1  
M421 Charge, Demolition Shaped M3 Series  
M130 Cap, Blasting Electric M6  
M131 Cap, Blasting Non-Electric M7  
MN08 Igniter, Time Blasting Fuse with Sho

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

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ENGR-DEMO-4403: Employ Demolitions in Support of Expeditionary Operations

SUPPORTED MET(S): 2, 3, 4, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ Class V munitions to reduce/destroy obstacles (explosive and non-explosive) or to create obstacles such as craters, ditches, expedient booby traps in support of expeditionary units.

CONDITION: Provided a mission order, task organized personnel and equipment, Class V, personal protective equipment (PPE), and references.

STANDARD: To provide demolition support that is offensive and defensive in nature per commanders' intent, concept of operations and mission requirement.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit(s).
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Prepare equipment and materials for operation.
5. Create obstacle(s) as required.
6. Reduce obstacle(s) as required.
7. Employ demolitions to support missions as required
8. Employ engineer equipment as required.
9. Reconstitute force.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-102 Countermobility
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M420 Charge, Demolition Shaped M2 Series	
M039 Charge, Demolition Cratering 40-Poun	
M456 Cord, Detonating PETN Type I Class E	
M670 Fuse, Blasting Time M700	
ML03 Firing Device, Demolition Multi-Purp	
M023 Charge, Demolition Block M112 1-1/4	
M591 Dynamite, Military M1	
M421 Charge, Demolition Shaped M3 Series	
M130 Cap, Blasting Electric M6	
M131 Cap, Blasting Non-Electric M7	
MN08 Igniter, Time Blasting Fuse with Sho	

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Engineer Material Handling equipment, Combat engineer Demolitions kit

UNITS/PERSONNEL: Range Safety Officer, Corpsman

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UTIL-XENG-4401: Provide Tactical Electrical Power

SUPPORTED MET(S): 8

EVALUATION-CODED: YES SUSTAINMENT INTERVAL: 6 months

CONDITION: With a Utilities plan, required equipment and personnel

STANDARD: In accordance with the operational order and commander's intent

EVENT COMPONENTS:

1. Establish generator site(s)
2. Establish electrical power grid(s)
3. Supply mobile electric power

REFERENCES:

1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment

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ENGR-RECN-4401: Conduct Site Survey

SUPPORTED MET(S): 4, 5, 6, 7, 8, 9

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Reconnoitering a site or area as part of survey, liaison and reconnaissance party to allow critical planning of specific construction and or operations in support of the MAGTF.

CONDITION: Provided a mission order, task organized personnel and equipment, and references.

STANDARD: To allow for critical planning of facilities and projects per the concept of operations and commanders intent.

EVENT COMPONENTS:

1. Review the mission.
2. Coordinate with supporting unit as required.
3. Conduct final coordination with supported unit (location, requirements, security, etc.) as required.
4. Move to site or area.
5. Gather critical information as required.
6. Make liaisons as required.
7. Develop draft plans and schematics as required.
8. Plan resources as required.
9. Submit required reports.

REFERENCES:

1. FM 5-412 Project Management
2. GTA 5-2-5 Engineer Reconnaissance
3. MCRP 3-17A Engineer Field Data
4. MCRP 3-17B Engineer Forms and Reports
5. MCWP 3-17 Engineer Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

EQUIPMENT: Engineer survey equipment

UNITS/PERSONNEL: Engineer surveyor 1361

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3007. 3000-LEVEL EVENTS

ENGR-MOBL-3901: Create a Lane through an Obstacle

SUPPORTED MET(S): 2, 3

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: A lane is a route through, over, or around an enemy or friendly obstacle that provides safe passage of a passing force. The route may be reduced and proofed as part of a breaching operation, be constructed as part of the obstacle, or be marked as a bypass.

CONDITION: Given a tactical situation, an order, breaching assets, location of lane to be created, current obstacle intelligence, and references.

STANDARD: Per the commander's intent and the references.

EVENT COMPONENTS:

1. Receive the mission.
2. Acquire explosive/non-explosive breaching assets.
3. Conduct battle drills (team) to rehearse the breach of an obstacle.
4. Move to breach site.
5. Execute the breach to allow passage of the maneuver element.
6. Submit required reports.

REFERENCES:

1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

RANGE/TRAINING AREA:

Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-MOBL-3902: Proof a lane through an obstacle

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Proofing verifies that a lane is free of mines and that the width and trafficability of the point of breach are suitable for the assault force. Proofing can be conducted visually (against surface-laid minefields), electronically (mine detectors), or mechanically (mine clearing rollers [MCRs]). Proofing is conducted when the risk of live mines remaining in the lane exceeds the risk of loss (lives and equipment) to enemy fires while waiting to complete proofing. Some mines are resistant to some reduction assets; for example, magnetically fused mines may be resistant to a mine-clearing line charge (MICLIC). Proofing is vitally important, considering the vast variety of mines in use. It should always be planned for a breaching operation; however, the time available, the threat, or the mission may dictate that proofing not be done.

CONDITION: Given a breached lane, task organized equipment and personnel, and references.

STANDARD: To clear a lane of all remnants of explosive and non-explosive obstacles and to allow for rapid passage of assault force per commander's intent.

EVENT COMPONENTS:

1. Receive the mission.
2. Conduct proof of breached lane.
3. Submit required reports.

REFERENCES:

1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-MOBL-3903: Mark a Lane through an Obstacle

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: There are three levels of lane marking initial, intermediate, and full. Each lane-marking level provides an increase in lane signature and capability. Lane requirements change as a breaching operation matures from the passage of the assault force to the passage of larger follow-on forces. Initial lane-marking requirements are driven by the nature of the fight through the obstacle. Marking must be rapid, providing only the bare minimum signature needed to safely pass small units (company teams, platoons) that make up the assault force. This contrasts with lane requirements during later phases of an attack where larger units (battalion and above) are passed to subsequent objectives and mark improvements to be made. Two-way traffic becomes a priority for the simultaneous forward passage of combat units and return traffic (ambulances, empty supply vehicles) necessary to sustain the force. With the increase in traffic volume comes more diverse forces and levels of driver experience. Lane-marking limits must be clear to the most inexperienced driver or crewman; do not assume he has a knowledge of the units SOP. A fully developed lane must support two-way traffic and be completely marked.

CONDITION: Given a proofed lane, task organized equipment and personnel, and references.

STANDARD: To identify a breached lane for rapid passage of assault force per commander's intent.

EVENT COMPONENTS:

1. Receive the mission.
2. Mark the breached lane.
3. Submit required reports.

REFERENCES:

1. FM 5-101 Mobility
2. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
3. MCWP 3-1 Ground Combat Operations
4. MCWP 3-17 Engineer Operations
5. MCWP 3-17.3 MAGTF Breaching Operations
6. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M914 Charge, Demolition Inert Linear M68A	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M913 Charge, Demolition High Explosive Li	

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat Engineer breaching assets

UNITS/PERSONNEL: Range Safety officer, Corpsman

ENGR-MOBL-3904: Remotely Detect Explosive Hazards

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Employ engineer robotics systems to detect explosive hazards to positive identify and mark explosive hazards within engineer scope/capabilities.

CONDITION: Given a tactical situation, an order, combat engineer equipment, field protective equipment, a suspected explosive hazard, commanders decision and references.

STANDARD: To positively identify and mark the explosive hazard.

EVENT COMPONENTS:

1. Visually assess the terrain.
2. Prepare robot for operation.
3. Operate the robot.
4. Conduct robotic reconnaissance.
5. Mark explosive hazard as required.
6. Submit report as required.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer Robot

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ENGR-MOBL-3905: Remotely Reduce Explosive Hazards

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Employing engineer robotics systems to reduce/destroy explosive hazards after positive identification of explosive hazard has been established and with engineer scope/capabilities.

CONDITION: Given a tactical situation, a positively identified explosive hazard, an order, combat engineer equipment, Class V, field protective equipment, commander's decision and references.

STANDARD: By calculating, placing and detonating an explosive charge that will result in the reduction of the explosive hazard and allow for assured mobility.

**EVENT COMPONENTS:**

1. Evaluate go/no go criteria per the explosive hazard decision matrix.
2. Employ protective measures.
3. Build a charge.
4. Prepare robot for operation.
5. Remotely place the charge.
6. Detonate the charge.
7. Remotely verify destruction of explosive hazard.
8. Submit report as required.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. FM 5-101 Mobility

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M023 Charge, Demolition Block M112 1-1/4	
MM56 Detonator, Non-Electric MK123 Mod 0	
MN88 Cap, Blasting, 500 ft mini-tube M21	
MN90 Cap, Blasting, 1000 ft mini-tube M23	

**RANGE/TRAINING AREA:**

Facility Code 17830 Light Demolition Range  
Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Combat engineer robot

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**ENGR-MOBL-3906:** Operate Small craft

**SUPPORTED MET(S):** 2, 5

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Employ Small craft to reconnoiter littoral areas in support of mobility requirements.

**CONDITION:** Given a mission, commanders' intent, a map, task organization of personnel and equipment, waterway to reconnaissance/scout, and the references.

**STANDARD:** : To conduct an engineer reconnaissance of specified waterway, gather all relevant engineer data, produce a report to support the concept of operations and in accordance with commanders' intent.

**EVENT COMPONENTS:**

1. Review the order.
2. Coordinate with supported unit.
3. Prepare equipment for operation.

4. Move to launch point.
5. Launch reconnaissance team.
6. Conduct reconnaissance mission.
7. Recover reconnaissance team.
8. Submit required reports.

**REFERENCES:**

1. FM 5-101 Mobility
2. TM 09665 B-10/1 Combat Rubber Reconnaissance Craft Field Service Manual
3. TM 09665A-13&P/1-1 Operation and Maintenance of the Combat Rubber Reconnaissance Craft
4. TM 09665A-13&P/1-2 Operation and Maintenance of the Combat Rubber Reconnaissance Craft Over-the-Horizon Configuration
5. TM 09665B The 55 HP Engine
6. TM 09665B/10717A Small Craft Propulsion System, CRRC

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17922 Floating Bridge Site

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**ENGR-MOBL-3907:** Employ a medium machinegun team

**SUPPORTED MET(S):** 1, 2

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Employ a medium machinegun in a mounted position in support of mobility requirements.

**CONDITION:** Given an operations order, a medium machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads.

**STANDARD:** To support the scheme of maneuver.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

**REFERENCES:**

1. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery
2. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
A131 Cartridge, 7.62mm 4 Ball M80/1 Trace	
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17581 Machine Gun Field Fire Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT.

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ENGR-MOBL-3908: Employ a Heavy Machinegun team

SUPPORTED MET(S): 1, 2

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: Employ a heavy machinegun in a mounted position in support of mobility requirements.

CONDITION: Given an operations order, a heavy machinegun team, mounted, sectors of fire, targets, FPF, and while wearing fighting loads

STANDARD: To support the scheme of maneuver.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Emplace/mount the weapon.
3. Engage targets.
4. Control fires as directed.
5. Displace according to scheme of maneuver.
6. Prepare for follow-on missions.

REFERENCES:

1. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
A576 Cartridge, Caliber .50 4 API M8/1 AP	
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17581 Machine Gun Field Fire Range

UNITS/PERSONNEL: Range Safety officer, Corpsman

OTHER SUPPORT REQUIREMENTS: ORM

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT.

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ENGR-CMOB-3901: Construct demolition obstacles

SUPPORTED MET(S): 3

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ improvised anti-personnel and anti-tank mines as explosive obstacles.

CONDITION: Given an operations order, personnel, demolitions material, engineer equipment, and while wearing fighting load.

STANDARD: To support the defensive concept of operations.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Prepare site.
3. Build the explosive obstacle.
4. Submit required reports.

REFERENCES:

1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-34.210 Explosive Hazard Operations
4. FM 3-34.214 Explosives and Demolitions
5. FM 5-100 Engineers in Combat Operations
6. FM 5-102 Countermobility
7. FM 5-170 Engineer Reconnaissance
8. FM 5-250 Explosives and Demolitions
9. FM 5-36 Route Reconnaissance and Classification
10. FM 90-1 Countermobility
11. FM 90-7 Combined Arms Obstacle Integration
12. FMFM 13 MAGTF Engineer Operations
13. MCRP 3-17A Engineer Field Data
14. MCWP 3-17 Engineer Operations
15. UNIT SOP Unit's Standing Operating Procedures
16. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M030 Charge, Demolition Block TNT 1/4-Pou	
M131 Cap, Blasting Non-Electric M7	
M456 Cord, Detonating PETN Type I Class E	
M023 Charge, Demolition Block M112 1-1/4	

M130 Cap, Blasting Electric M6  
ML03 Firing Device, Demolition Multi-Purp

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-RECN-3901: Conduct Gap Reconnaissance

SUPPORTED MET(S): 3, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: To identify wet or dry areas to be used to cross. Evaluate gaps, fords, and ferry sites. Identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and reference.

STANDARD: To ensure the crossing is supportable and consistent with the commander's intent, while accounting for all tactical control measures per the references.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter gap as required.
5. Determine wet gap fording/bridging/ferrying sites as required.
6. Identify suitable bypasses.
7. Submit required reports.

REFERENCES:

1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-102 Countermobility
3. FM 5-170 Engineer Reconnaissance
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
10. MCWP 3-1 Ground Combat Operations
11. MCWP 3-17 Engineer Operations
12. MCWP 3-17.3 MAGTF Breaching Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17920 Panel Bridge Area

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ENGR-RECN-3902: Conduct Tunnel Reconnaissance

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Overhead clearances less than 4.3 meters are classified as obstructions. Reconnaissance is conducted to identify appropriate information in relation to commanders' intent.

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references

STANDARD: To evaluate tunnels; identify obstacles; identify suitable bypasses; record any relevant engineer information on the appropriate reconnaissance forms and transfer to a map overlay using correct engineer/tactical symbols per the references.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter tunnel as required.
5. Evaluate tunnel as required.
6. Identify suitable bypasses.
7. Submit required reports.

REFERENCES:

1. FM 5-101 Mobility
2. FM 5-102 Countermobility
3. FM 5-34 Engineer Field Data - Field Expedient Charges
4. GTA 5-2-5 Engineer Reconnaissance
5. GTA 5-7-13 Bridge Classification Booklet
6. JP 3-34 Engineer Doctrine for Joint Operations
7. MCRP 3-17A Engineer Field Data
8. MCRP 3-17B Engineer Forms and Reports
9. MCWP 2-15.3 Ground Reconnaissance Operations (FMFM 2-2)
10. MCWP 3-17 Engineer Operations
11. MCWP 3-17.3 Breaching Operations
12. MCWP 3-17.3 MAGTF Breaching Operations
13. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

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ENGR-RECN-3903: Conduct Ferry Reconnaissance

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: To identify areas to be used to cross. Evaluate ferry sites, identify obstacles, suitable bypasses, and record any other relevant engineer information on the appropriate reconnaissance forms per the references. All information will be transferred to a map overlay using correct engineer/tactical symbols

CONDITION: Provided a mission, a tactical scenario, blank engineer reconnaissance forms (DA Form 1711-R), personnel, equipment, and references

STANDARD: To ensure the crossing is supportable and consistent with the commander's intent, while accounting for all tactical control measures per the references.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Review the map of the route to be taken.
3. Proceed to assigned objective.
4. Reconnoiter ferrying site as required.
5. Determine ferrying sites as required.
6. Identify suitable bypasses.
7. Submit required reports.

REFERENCES:

1. 5-446 Military Non-Standard Fixed Bridge
2. FM 5-102 Countermobility
3. GTA 5-2-5 Engineer Reconnaissance
4. GTA 5-7-13 Bridge Classification Booklet
5. JP 3-34 Engineer Doctrine for Joint Operations
6. MCRP 3-17A Engineer Field Data
7. MCRP 3-17B Engineer Forms and Reports
8. MCWP 3-17 Engineer Operations
9. MCWP 3-17.1 River-Crossing Operations
10. MCWP 3-17.4 Engineer Reconnaissance

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA:

Facility Code 17410 Maneuver/Training Area, Light Forces  
Facility Code 17920 Panel Bridge Area

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ENGR-SURV-3901: Construct vehicle survivability position

SUPPORTED MET(S): 3

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ organic earth moving assets, to include: Medium Crawler Tractor (MTC), M9 ACE, 1150E, 1155, and 644E and 624 TRAMS.

**CONDITION:** Given an operations order, personnel, engineer equipment, and materials.

**STANDARD:** That meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct emplacement as required.
9. Displace equipment as required.
10. Submit required reports.

**RELATED EVENTS:** 1371-SURV-1002

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer equipment

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-SURV-3902:** Construct trenches

**SUPPORTED MET(S):** 2, 3

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

DESCRIPTION: Employ organic hand tools and/or earth moving assets, to include: 420D IT Backhoe, tools and equipment.

CONDITION: Given an operations order, personnel, and engineer equipment.

STANDARD: That allows multiple combatants' protection from direct fire weapons, affords a force the capability to engage targets from front and obliques, meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' intent.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Calculate time required for construction.
3. Prepare equipment for operation.
4. Move to site.
5. Establish safety zone.
6. Dig emplacement as required.
7. Displace equipment as required.
8. Submit required reports.

RELATED EVENTS: 1371-SURV-1002

REFERENCES:

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FMFM 13 MAGTF Engineer Operations
8. FMFRP 12-51 Engineer Operations
9. JP 3-34 Engineer Doctrine for Joint Operations
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Engineer equipment

MATERIAL: MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: ORM

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ENGR-DEMO-3901: Destroy captured arms and ammunition with demolitions

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: All ammunition products and components produced for or used by a foreign force that is hostile to the United States (that is or was engaged in combat against the United States) in the custody of a U.S. military force or under the control of a Department of Defense component. The term includes confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot-control agents; smokes and incendiaries (including bulk explosives); chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of the above. Captured enemy ammunition can also include North Atlantic Treaty Organization or U.S.-manufactured munitions that may not have been under U.S. custody or control.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' intent and mission requirements.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of arms and ammunition.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MM56 Detonator, Non-Electric MK123 Mod 0	
M028 Demolition Kit, Bangalore Torpedo M1	
MN08 Igniter, Time Blasting Fuse with Sho	

M982 Charge, Demolition Sheet 0.161 Inch  
MM30 Charge, Flexible 20 Gram PETN MK140  
MM45 Charge, Demolition Flexible Linear S  
MM44 Charge, Demolition Flexible Linear S  
MM47 Charge, Demolition Flexible Linear S  
MM48 Charge, Demolition Flexible Linear S  
M130 Cap, Blasting Electric M6  
M039 Charge, Demolition Cratering 40-Poun  
M420 Charge, Demolition Shaped M2 Series  
M591 Dynamite, Military M1  
M131 Cap, Blasting Non-Electric M7

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-DEMO-3902: Destroy bridge with demolitions

SUPPORTED MET(S): 2, 4

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: To ensure that the demolition results in either a gap that exceeds the enemy's assault bridging capability by 5 meters, or that leaves demolished components which are unable to provide sufficient bearing capacity for enemy assault breaching assets.

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' intent and mission requirements.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of bridge.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data

6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MM56 Detonator, Non-Electric MK123 Mod 0	
M028 Demolition Kit, Bangalore Torpedo M1	
MN08 Igniter, Time Blasting Fuse with Sho	
M982 Charge, Demolition Sheet 0.161 Inch	
MM30 Charge, Flexible 20 Gram PETN MK140	
MM45 Charge, Demolition Flexible Linear S	
MM44 Charge, Demolition Flexible Linear S	
MM47 Charge, Demolition Flexible Linear S	
MM48 Charge, Demolition Flexible Linear S	
M130 Cap, Blasting Electric M6	
M039 Charge, Demolition Cratering 40-Poun	
M420 Charge, Demolition Shaped M2 Series	
M591 Dynamite, Military M1	
M131 Cap, Blasting Non-Electric M7	

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** PPE

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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**UTIL-XENG-3901:** Establish Tactical Power Distribution System

**SUPPORTED MET(S):** 8

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** With a Utilities Plan, required equipment and personnel establish tactical power distribution system, to ensure operational requirements are met.

**CONDITION:** With a Utilities Plan, required equipment and personnel

**STANDARD:** To ensure operational requirements are met.

**EVENT COMPONENTS:**

1. Coordinate with Supported unit(s).
2. Determine Load Requirements.
3. Plan Power Distribution System(s).
4. Set up Distribution System(s).
5. Inspect Grounding and Connections.

6. Energize System(s).
7. Test System(s).

REFERENCES:

1. FM 5-424 Theater of Operations Electrical Systems (Jun 97)
2. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)
3. TM 9406-15 Grounding Procedures for Electromagnetic Interference Control and Safety (Aug 91)
4. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

EQUIPMENT: Utilities equipment, PPE

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ENGR-MOBL-3801: Engage targets with MK153 SMAW

SUPPORTED MET(S): 2

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

CONDITION: Given a tactical scenario which presents a series of realistic threats, at ranges 150 to 250 meters, wearing a fighting load, operating as an assault team (gunner and assistant gunner) in support of a maneuvering unit, firing from all positions, during day or night operations.

STANDARD: Attain hits on designated/ appropriate targets from suitable tactical positions using spotting rounds and appropriate rockets, maximizing the use of cover to load and engage targets, or suppressing fire/ concealment, when cover is not available. Targets will be engaged in accordance with commander's intent and the target attack guidance matrix. Backblast safety area will not be violated by friendly personnel or equipment.

REFERENCES:

1. TM 08673A-10/1 Launcher, Assault Rocket 83MM (SMAW) MK 153 MOD 0

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
HX07 Rocket, 83mm HEAA Practice MK7 Mod 0	

MISCELLANEOUS:

ADMINISTRATIVE INSTRUCTIONS: This task should be trained on the ISMT before expending live rounds. This task can be accomplished using training rounds. This task can be sustained through ISMT.

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ENGR-MOBL-3802: Conduct area clearance operations

SUPPORTED MET(S): 2, 5

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Engineers conduct area clearance to provide lodgment areas and to prepare field sites that the Army, Air Force, and Marine Corps aviation assets use for stability operations.

CONDITION: Provided a mission, a designated area with known/potential/suspected obstacle(s), engineer tools and equipment, demolition tools, explosives, and references.

STANDARD: To eliminate obstacle(s) [explosive or non-explosive] in an area to provide a secure environment for operations in accordance with the commanders intent and mobility plan.

EVENT COMPONENTS:

1. Visually assess the terrain.
2. Sweep area .
3. Identify and confirm hazards.
4. Reduce explosive or non-explosive hazards.
5. Verify reduction of hazard.
6. Submit required reports.

REFERENCES:

1. FM 20-32 Mine/Countermine Operations
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 3-34.119 Improvised Explosive Device (IED) Defeat
5. FM 3-34.210 Explosive Hazard Operations
6. FM 3-34.214 Explosives and Demolitions
7. FM 5-100 Engineers in Combat Operations
8. FM 5-101 Mobility
9. FM 5-101-5-1 Operational Terrain and Symbols
10. FM 5-170 Engineer Reconnaissance
11. FM 5-250 Explosives and Demolitions
12. FM 90-13-1 Combined Arms Breaching Operations
13. MCRP 2-3A Intelligence Preparation of the Battlefield (FM-34-130)
14. MCRP 3-17A Engineer Field Data
15. MCRP 3-17B Engineer Forms and Reports

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: Combat engineer equipment, Engineer equipment

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ENGR-MOBL-3803: Breach obstacle with the Assault Breacher Vehicle (ABV)

SUPPORTED MET(S): 2, 5, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 6 months

DESCRIPTION: Employ ABV to mechanically breach lanes in support of GCE mobility requirements.

**CONDITION:** As part of an obstacle clearance detachment or breach force, given a tactical situation, an order, breaching assets, commanders decision and references.

**STANDARD:** To create a breached lane per the commander's intent.

**EVENT COMPONENTS:**

1. Receive the mission.
2. Review obstacle intelligence reports.
3. Configure ABV(s) for obstacle breach as required
4. Conduct battle drills (team) to rehearse the breach of an obstacle.
5. Move to breach point.
6. Employ front-end equipment to breach lane as required.
7. Employ front-end equipment to proof lane as required
8. Employ line charge(s) to reduce obstacle as required.
9. Employ lane marking system as required.
10. Coordinate with OCD for additional lane reduction as required.
11. Recover as required.
12. Submit required reports.

**REFERENCES:**

1. FM 5-100 Engineers in Combat Operations
2. FM 5-101 Mobility
3. FM 90-13-1 Combined Arms Breaching Operations
4. MCRP 3-17A Engineer Field Data
5. MCRP 3-17B Engineer Forms and Reports
6. MCWP 3-17 Engineer Operations
7. MCWP 3-17.3 Breaching Operations
8. MCWP 3-17.3 MAGTF Breaching Operations
9. TM 10984A-OI/3 Maintenance Manual (ABV)
10. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
11. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M913 Charge, Demolition High Explosive Li	
J143 Rocket Motor, 5-inch MK22 Mod 4	
M914 Charge, Demolition Inert Linear M68A	

**RANGE/TRAINING AREA:**

Facility Code 17420 Maneuver/Training Area, Heavy Forces  
Facility Code 17830 Light Demolition Range

**EQUIPMENT:** Combat engineer breaching equipment

**UNITS/PERSONNEL:** Range safety officer, corpsman

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**ENGR-MOBL-3804:** Conduct an urban breach

**SUPPORTED MET(S):** 2, 5, 10

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 3 months

**DESCRIPTION:** Employ manual breaching techniques to physically, ballistically, or explosively breach structures in support of GCE mobility requirements.

**CONDITION:** Given a mission, commanders' intent, task organized personnel that are trained and equipped for urban breaching, and references.

**STANDARD:** To gain entry into a structure or compound to provide sufficient mobility to support the concept of operations and commanders intent.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Reconnoiter target, situation permitting.
3. Issue Breachers brief.
4. Construct the charge(s) as required.
5. Verify obscuration, concealment as required.
6. Move to breach site.
7. Place charge(s) as required.
8. Detonate charge(s) as required.
9. Conduct ballistic breach as required.
10. Conduct mechanical breach as required.
11. Conduct manual (follow-on) breach as required.
12. Reconstitute for successive breaches as required.

**REFERENCES:**

1. 590 MILS M590 Shotgun Owner's Manual
2. FM 3-06 Urban Operations
3. FM 3-34.119 Improvised Explosive Device (IED) Defeat
4. FM 3-34.210 Explosive Hazard Operations
5. FM 3-34.214 Explosives and Demolitions
6. FM 5-101 Mobility
7. MCDP 1-3 Tactics
8. MCRP 3-02G First Aid (Dec 02)
9. MCRP 3-17.2 Multiservice Procedures for Explosive Ordnance Disposal (NTTP) in a Joint Environment
10. MCRP 3-17A Engineer Field Data
11. MCRP 3-17B Engineer Forms and Reports
12. MCWP 3-17 Engineer Operations
13. MCWP 3-17.3 MAGTF Breaching Operations
14. MCWP 3-17.4 Engineer Reconnaissance
15. MCWP 3-35.3 Military Operations on Urban Terrain
16. SWO 60-AA-MMA-010 Demolition Materials
17. TM 9-1300-206 Explosive Standards
18. TM 9-1300-214 Military Explosives
19. Guidebook for Assault Entry Techniques
20. Urban Mobility Engineer Guidebook

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

DODIC

Quantity

M456 Cord, Detonating PETN Type I Class E  
MM47 Charge, Demolition Flexible Linear S  
MM56 Detonator, Non-Electric MK123 Mod 0  
MN08 Igniter, Time Blasting Fuse with Sho

A023 Cartridge, 12 Gauge 1 Ounce Slug Com  
M023 Charge, Demolition Block M112 1-1/4  
A024 Cartridge, 12 Gauge Door Breaching M  
A011 Cartridge, 12 Gauge #00 Buckshot M16  
MN14 Firing Device, Dual Mode MK54

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: Combat engineer urban breaching equipment, PPE

UNITS/PERSONNEL: Range safety officer, Corpsman

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ENGR-MOBL-3805: Conduct route clearance operations

SUPPORTED MET(S): 2, 4, 5, 10

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Obstacles may include mines, unexploded ordnance, improvised explosive devices, non-explosive obstacles, and damage to the route that severely limits mobility. The route will only be "cleared" while it remains under the control of friendly forces.

CONDITION: Provided a mission, a designated route with known/ potential/ suspected obstacle(s), personnel, engineer tools and equipment, intelligence support, demolition tools, explosives, and references.

STANDARD: To ensure friendly force mobility on the cleared route [friendly forces are not fixed, turned, blocked, nor disrupted] in accordance with the commanders intent, while the route remains in friendly forces control.

REFERENCES:

1. FM 5-101 Mobility
  2. FM 5-170 Engineer Reconnaissance
  3. FM 5-250 Explosives and Demolitions
  4. FM 5-34 Engineer Field Data - Field Expedient Charges
  5. FM 90-13-1 Combined Arms Breaching Operations
  6. FM 90-3 Desert Operations
  7. FM 90-5 Jungle Operations
  8. GTA 5-2-5 Engineer Reconnaissance
  9. GTA 5-7-13 Bridge Classification Booklet
  10. MCRP 3-17A Engineer Field Data
  11. MCRP 3-17B Engineer Forms and Reports
- 

ENGR-DEMO-3801: Destroy tunnel with demolitions

SUPPORTED MET(S): 2

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

**STANDARD:** To ensure destruction of target per commanders' intent and mission requirements.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of tunnel.
10. Submit required reports.

**REFERENCES:**

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

**SUPPORT REQUIREMENTS:**

**ORDNANCE:**

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MM56 Detonator, Non-Electric MK123 Mod 0	
M028 Demolition Kit, Bangalore Torpedo M1	
MN08 Igniter, Time Blasting Fuse with Sho	
M982 Charge, Demolition Sheet 0.161 Inch	
MM30 Charge, Flexible 20 Gram PETN MK140	
MM45 Charge, Demolition Flexible Linear S	
MM44 Charge, Demolition Flexible Linear S	
MM47 Charge, Demolition Flexible Linear S	
MM48 Charge, Demolition Flexible Linear S	
M130 Cap, Blasting Electric M6	
M039 Charge, Demolition Cratering 40-Poun	
M420 Charge, Demolition Shaped M2 Series	
M591 Dynamite, Military M1	
M131 Cap, Blasting Non-Electric M7	

**RANGE/TRAINING AREA:** Facility Code 17830 Light Demolition Range

**EQUIPMENT:** PPE

**UNITS/PERSONNEL:** Range Safety officer, Corpsman

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ENGR-DEMO-3802: Destroy building with demolitions

SUPPORTED MET(S): 2, 10

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

CONDITION: Given a tactical situation, demolition target, demolitions, task organized personnel, demolition tools, equipment, and references.

STANDARD: To ensure destruction of target per commanders' intent and mission requirements.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Coordinate with supporting unit (EOD) as required.
3. Prepare equipment as required.
4. Move to demolition site.
5. Prepare charge for demolition.
6. Set charge.
7. Established safety zone.
8. Detonate explosive.
9. Verify destruction of building.
10. Submit required reports.

REFERENCES:

1. FM 3-34.119 Improvised Explosive Device (IED) Defeat
2. FM 3-34.210 Explosive Hazard Operations
3. FM 3-34.214 Explosives and Demolitions
4. GTA 5-10-33 Demolition Card
5. MCRP 3-17A Engineer Field Data
6. MCRP 3-17B Engineer Forms and Reports
7. MCWP 3-17 Engineer Operations

SUPPORT REQUIREMENTS:

ORDNANCE:

<u>DODIC</u>	<u>Quantity</u>
M032 Charge, Demolition Block TNT 1-Pound	
M670 Fuse, Blasting Time M700	
M456 Cord, Detonating PETN Type I Class E	
M757 Charge, Assembly Demolition M183 Com	
M766 Igniter, M60 for Time Blasting Fuse	
MM56 Detonator, Non-Electric MK123 Mod 0	
M028 Demolition Kit, Bangalore Torpedo M1	
MN08 Igniter, Time Blasting Fuse with Sho	
M982 Charge, Demolition Sheet 0.161 Inch	
MM30 Charge, Flexible 20 Gram PETN MK140	
MM45 Charge, Demolition Flexible Linear S	
MM44 Charge, Demolition Flexible Linear S	
MM47 Charge, Demolition Flexible Linear S	
MM48 Charge, Demolition Flexible Linear S	
M130 Cap, Blasting Electric M6	
M039 Charge, Demolition Cratering 40-Poun	
M420 Charge, Demolition Shaped M2 Series	

M591 Dynamite, Military M1  
M131 Cap, Blasting Non-Electric M7

RANGE/TRAINING AREA: Facility Code 17830 Light Demolition Range

EQUIPMENT: PPE

UNITS/PERSONNEL: Range Safety officer, Corpsman

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ENGR-CMOB-3801: Construct field expedient obstacles

SUPPORTED MET(S): 3

EVALUATION-CODED: YES

SUSTAINMENT INTERVAL: 3 months

DESCRIPTION: The potential of expedient obstacles is almost unlimited. They place a great premium on imagination and ingenuity in the use of available materials and other resources, thus avoiding the logistic burden associated with all other types of obstacles.

CONDITION: Given a tactical situation, type of obstacle required, obstacle intent, engineer tools and equipment, Class IV, Class V, expedient obstacle material, personal protective equipment (PPE), and an area to construct the obstacle.

STANDARD: To tie into existing natural or other man made obstacles so enemy movement/maneuvers are fixed, turned, blocked or disrupted.

EVENT COMPONENTS:

1. Prepare to construct field expedient obstacle(s).
2. Construct log obstacles (if applicable).
3. Construct an abatis (if applicable).
4. Construct improvised obstacles (if applicable)
5. Improve as necessary.

REFERENCES:

1. FM 20-32 Mine/Countermining Operations
2. FM 3-06 Urban Operations
3. FM 5-100 Engineers in Combat Operations
4. FM 5-102 Countermobility
5. FM 5-170 Engineer Reconnaissance
6. FM 5-250 Explosives and Demolitions
7. FM 5-34 Engineer Field Data - Field Expedient Charges
8. FM 5-36 Route Reconnaissance and Classification
9. FM 90-1 Countermobility
10. FM 90-3 Desert Operations
11. FM 90-5 Jungle Operations
12. FM 90-7 Combined Arms Obstacle Integration
13. FMFM 13 MAGTF Engineer Operations
14. FMFM 4-4 Engineer Operations
15. MCRP 3-17A Engineer Field Data
16. MCWP 3-17 Engineer Operations
17. TM 11275-15/3D Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment (May 02)

18. UNIT SOP Unit's Standing Operating Procedures
19. Appropriate Technical Manuals

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Combat Engineer equipment, tools and kits, Earthmoving equipment

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**ENGR-SURV-3801:** Construct vehicle fighting position

**SUPPORTED MET(S):** 2, 4, 5

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Vehicles use the natural cover and concealment in hide positions to increase survivability. As time, assets, and situation permit, positions are prepared using organic excavation equipment or engineer support. Priority is given to those vehicles containing essential mission-oriented equipment or supplies. Drivers and crews should use these fighting positions for individual protection also. Employ organic earth moving assets, to include: D7G, Medium Crawler Tractor (MTC), M9 ACE, 1150E, 1155, and 644E and 624 TRAMS in order to construct positions.

**CONDITION:** Given an operations order, personnel, engineer equipment, and materials.

**STANDARD:** That meets or exceeds the mission requirement and supports the concept of operation in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Prepare equipment for operation.
3. Move to site.
4. Establish safety zone.
5. Dig emplacement as required.
6. Displace equipment as required.
7. Submit required reports.

**RELATED EVENTS:** 1371-SURV-1002

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability
7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations

11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer equipment, Combat engineer tools and kits

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNAISSANCE REPORTS

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-SURV-3802:** Construct shelter/bunkers

**SUPPORTED MET(S):** 3, 4, 9

**EVALUATION-CODED:** YES

**SUSTAINMENT INTERVAL:** 6 months

**DESCRIPTION:** Employ organic engineer tools and/or earth moving assets, to include: 420D IT Backhoe in the construction of shelters and bunker structures.

**CONDITION:** Given an operations order, personnel, and engineer equipment.

**STANDARD:** That provides combatant(s) and/or combat equipment cover from the elements, indirect/direct fire weapons, and meets or exceeds the mission requirement and support the concept of operation in accordance with the commanders' intent.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Design position required.
3. Determine material required.
4. Calculate time required for construction.
5. Prepare equipment for operation.
6. Move to site.
7. Establish safety zone.
8. Construct shelter/bunker as required.
9. Displace equipment as required.
10. Submit required reports.

**REFERENCES:**

1. FM 21-75 Combat Skills of the Soldier
2. FM 3-06 Urban Operations
3. FM 3-07 Stability Operations (2008)
4. FM 5-100 Engineers in Combat Operations
5. FM 5-102 Countermobility
6. FM 5-103 Survivability

7. FM 5-426 Carpentry
8. FMFM 13 MAGTF Engineer Operations
9. FMFRP 12-51 Engineer Operations
10. JP 3-34 Engineer Doctrine for Joint Operations
11. MCRP 3-17A Engineer Field Data
12. MCWP 3-17 Engineer Operations
13. MCWP 3-41.1 Rear Area Operations
14. MCWP 4-11 Combat Service Support

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

**EQUIPMENT:** Engineer equipment, Combat engineer tools & kits

**MATERIAL:** MAP, COMPASS, PROTRATOR, OVERLAY SHEETS, RECONNASAICE REPORTS

**MISCELLANEOUS:**

**ADMINISTRATIVE INSTRUCTIONS:** ORM

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**ENGR-RECN-3801:** Survey Site for Construction

**SUPPORTED MET(S):** 5

**EVALUATION-CODED:** NO

**SUSTAINMENT INTERVAL:** 12 months

**CONDITION:** Provided a construction mission, a map, a scientific calculator, task organized personnel, equipment, and references.

**STANDARD:** To support commanders' intent and mission requirements.

**EVENT COMPONENTS:**

1. Coordinate with supported unit.
2. Move to survey site.
3. Reconnoiter project site as required.
4. Submit required reports.

**REFERENCES:**

1. FM 5-426 Carpentry
2. FM 5-428 Concrete Masonry
3. MCRP 3-17A Engineer Field Data
4. MCWP 3-17.4 Engineer Reconnaissance
5. NAVEDTRA 10696 Engineer Aid 3
6. TM 5-581B Construction Drafting
7. TM 5-704 Construction Print Reading in the Field

**SUPPORT REQUIREMENTS:**

**RANGE/TRAINING AREA:** Facility Code 17410 Maneuver/Training Area, Light Forces

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ENGR-MANT-3801: Provide cleaning and lubrication service to (ABV)

SUPPORTED MET(S): 2

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Clean JAB and ABV in accordance with the cleaning guidelines and procedures within the TM 11374A-IN/2, Maintenance Manual, TM 10984A-OI/3 (ABV), TM 10984A-OR/1 (ABV), TM 10984A-OR/1V2 (ABV) and perform after cleaning lubrication and painting services.

CONDITION: Given a mission capable ABV, personnel, and equipment.

STANDARD: to ensure ABV is cleaned properly and no damage is incurred to any of the systems or components of the vehicle.

EVENT COMPONENTS:

1. Ensure vehicle is running when cleaning exterior of vehicle.
2. Clean exterior of vehicle with water as required.
3. Clean exterior of vehicle with steam as required.
4. Clean exterior of vehicle with air under pressure as required.
5. Ensure vehicle is running for 15 minutes after exterior of vehicle has been
6. Paint unprotected metal surfaces where necessary after cleaning.
7. Apply Coating compound, non-slip in a matching color to shaded areas as required. Apply Coating, phosphate to support as required.
8. Clean interior of the vehicle with a brush and a bucket of soapy water.
9. Rinse with clear water from bucket using sponge.
10. Open drain valves so water will drain out of hull as required.

REFERENCES:

1. TM 10984A-OI/3 Maintenance Manual (ABV)
2. TM 10984A-OR/1 Operators Manual, (ABV) Volume 1
3. TM 10984A-OR/1 V2 Operators Manual, (ABV) Volume 2

SUPPORT REQUIREMENTS:

EQUIPMENT: Wash rack with the necessary tools and equipment, PPE

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UTIL-XENG-3701: Provide Environmental Control Unit (ECU) support

SUPPORTED MET(S): 6, 8

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Establish ECU support plan.
3. Install ECU(s).

REFERENCES:

1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons (Oct 89)
4. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

EQUIPMENT: PPE, Utilities equipment

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UTIL-XENG-3702: Provide refrigeration support

SUPPORTED MET(S): 6, 8

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

CONDITION: With an operational order, required equipment and personnel

STANDARD: In accordance with the operational order.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Coordinate with supporting unit(s) (Preventive Med Techs).
3. Setup refrigeration unit(s).

REFERENCES:

1. 40 CFR 82 Chapter 40, Code of Federal Regulations, Part Number 82 (Protection of Stratospheric Ozone)
2. 42 USC 85 VI 7671 Title 42, United States Code, Chapter 85, Subchapter VI, Section 7671 (Ozone Protection)
3. MCO 5090.1 Chlorofluorocarbons (CFC's) and Halons (Oct 89)
4. TM 12359A-OD/B Principal Technical Characteristics of Expeditionary Power Systems Equipment (Aug 2008)

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17410 Maneuver/Training Area, Light Forces

UNITS/PERSONNEL: Navy Medical tech support

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UTIL-XENG-3703: Produce Potable Water

SUPPORTED MET(S): 6

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 1 month

CONDITION: With a Utilities Plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:

1. Perform Water Recon
2. Establish Water Point
3. Produce Potable Water
4. Test Water for Potability

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, PPE

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UTIL-XENG-3704: Store Potable Water

SUPPORTED MET(S): 6

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

CONDITION: With a Utilities Plan, required equipment and personnel.

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:

1. Determine Storage Requirements.
2. Establish Storage Site(s).
3. Test Water for Potability.
4. Store Water for distribution.

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, PPE

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UTIL-XENG-3705: Establish water distribution site

SUPPORTED MET(S): 6

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 6 months

CONDITION: With a Utilities Plan, required equipment and personnel

STANDARD: To ensure operational requirements are met.

EVENT COMPONENTS:

1. Determine Requirements.
2. Set up Distribution System(s).
3. Inspect System(s).
4. Test Water for Potability.
5. Distribute Potable Water.

REFERENCES:

1. FM 10-52 Water Supply in Theaters of Operation
2. FM 10-52-1 Water Supply Point Equipment and Operations
3. MCWP 4-11.6 Petroleum and Water Logistics Operations
4. TB MED 577 Occupational and Environmental Health Sanitary Control and Surveillance of Field Water Supplies
5. Appropriate Technical Manuals

SUPPORT REQUIREMENTS:

RANGE/TRAINING AREA: Facility Code 17924 Water Supply Training Area

EQUIPMENT: Utilities equipment, PPE

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FUEL-XENG-3701: Maintain Bulk Fuel Petroleum Distribution site

SUPPORTED MET(S): 7

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

DESCRIPTION: Employ bulk fuel systems, to include: SixCon Pump and tank module, Expedient Refueling System (ERS), Helicopter Expedient Refueling System (HERS), Tactical Airfield Fuel Dispensing System (TAFDS), Amphibious Assault Refueling System (AAFS), Hose Reel System (HRS) to establish a bulk petroleum site.

CONDITION: With a bulk petroleum distribution plan, bulk petroleum supply, distribution system, safety equipment, and personnel

STANDARD: To dispense fuel to using units in order to meet mission requirements.

EVENT COMPONENTS:

1. Coordinate with supported unit.
2. Determine personnel, tools, and equipment requirement(s).
3. Construct fuel storage site with required components (mission dependent).
4. Survey proposed area and prepare the site.