

**Summary Report for Individual Task
052-243-1605
Install Survey Stakes for Horizontal Projects
Status: Approved**

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

Condition: As the member of a survey team responsible for installing survey stakes, given a prism pole, survey stakes, flagging ribbon, markers, hammer, and Technical Manual (TM) 3-34.55. This task should not be trained in MOPP.

Standard: Install survey stakes for a horizontal project according to prepared plans in a manner that is most useful to construction forces.

Special Condition: This task should be trained simultaneously with Task # 052-243-1513, Perform Layout of a Construction Project.

Safety Level: Low

MOPP: Never

Task Statements

Cue: None

DANGER
None

WARNING
None

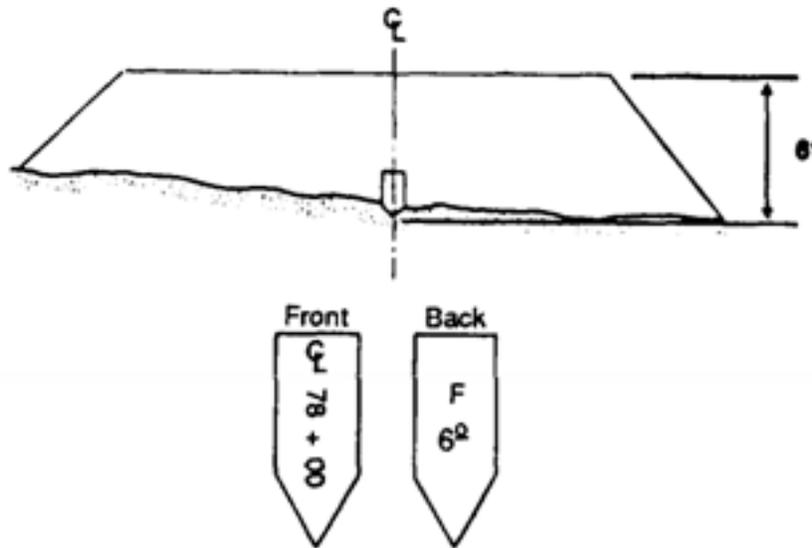
CAUTION
None

Remarks: None

Notes: Stake installation direction will come from the Instrument Operator (IO). Relay any changes in target height to the IO.

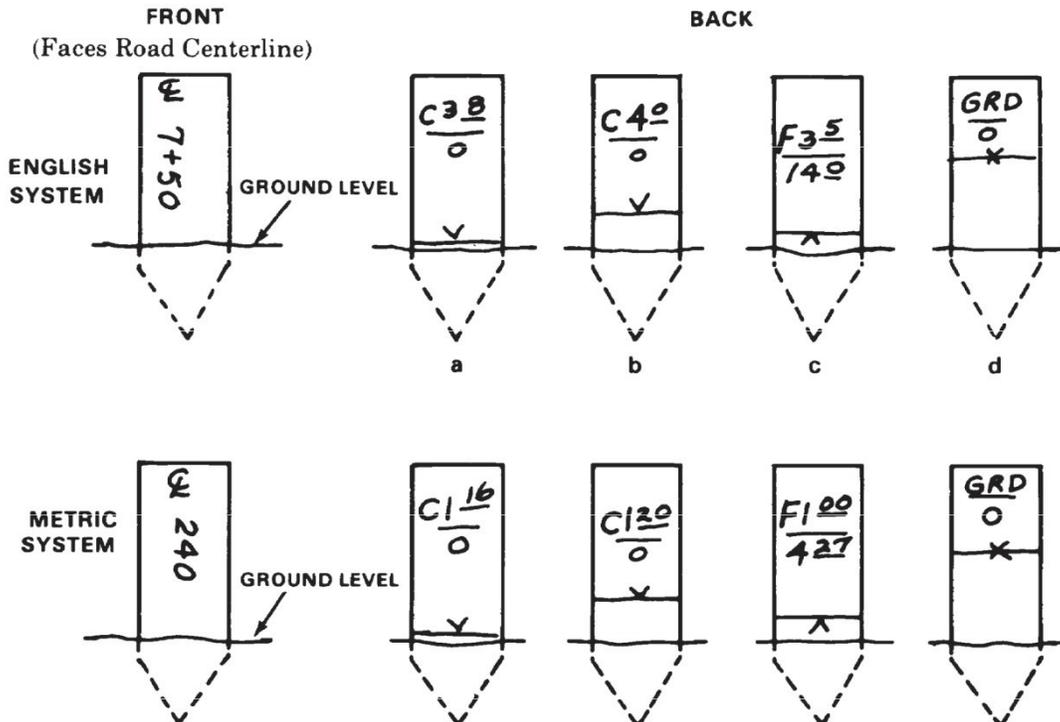
Performance Steps

1. Install Centerline stakes:



Centerline Stakes

- a. Following the direction of the IO, determine the point location with the prism pole.
- b. Emplace 1"x2"x18" centerline stakes as indicated by the stakeout data. Install stakes perpendicular to the centerline.
- c. Mark stake on front with CL (centerline) and with station data of the centerline stake.



Centerline Stake Data

d. Mark stake on back with either C (cut) or F (fill) and the amount of cut or fill needed at that particular point.

e. Flag centerline stakes with orange flagging ribbon.

2. Install Grade stakes:

Note: Grade stakes are marked similar to Centerline Stakes and are used when the conditions of the project require additional cut/fill data.

a. Following the direction of the IO, determine the point location with the prism pole.

b. Emplace 1"x2"x18" grade stakes at the locations indicated by the stakeout data.

(1) Mark each grade stake on the front with corresponding station data.

(2) Mark each grade stake on the back with either cut or fill data (as appropriate). Place grade, cut, or fill line as necessary.

Note: Cut lines should be measured up from existing ground to a point that is a half-foot interval from the proposed elevation.

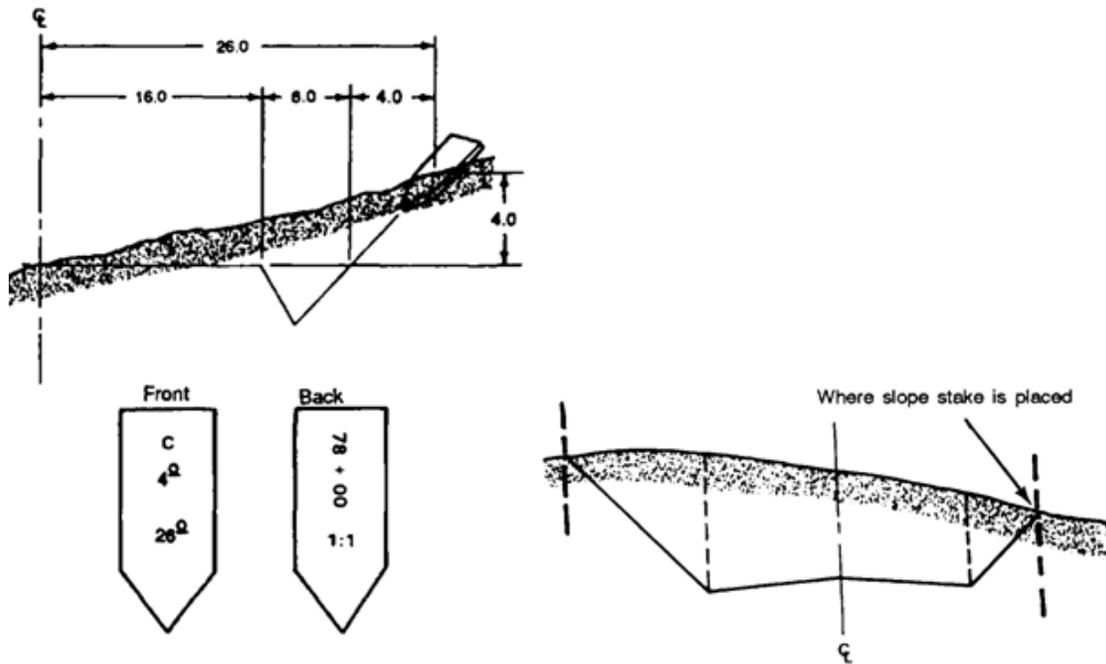
(3) Install grade stakes with the front side facing the beginning of project, perpendicular to the centerline, and within + or - 0.1 feet (46mm) horizontal distance from the point indicated by the stakeout data.

c. Flag grade stakes with orange flagging ribbon.

d. Indicate finish grade with a grade line on the stake or a blue (painted) top.

Note: Drive the stake until the top is at finish grade prior to painting.

3. Install Slope stakes:



Slope Stakes

a. Following the direction of the IO, determine the point location with the prism pole.

b. Emplace 1"x2"x18" slope stakes at the locations indicated by the stakeout data.

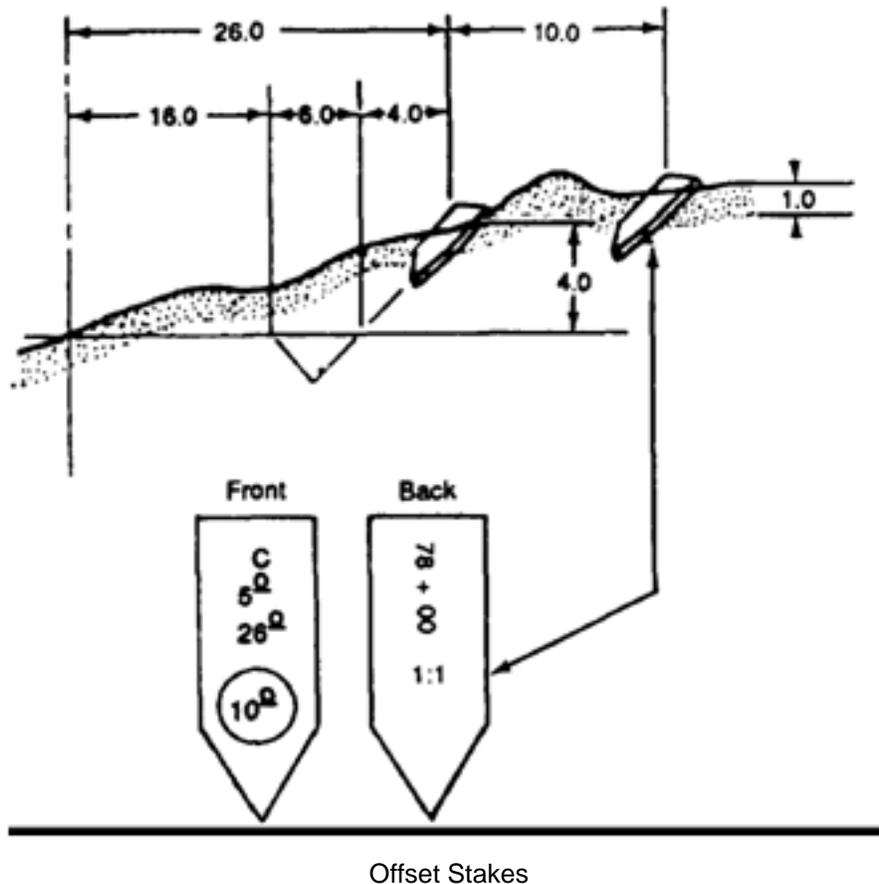
(1) Mark each slope stake on the front with cut or fill data (at the centerline) and the distance from centerline.

(2) Mark each slope stake on the back with station number and slope of the cut or fill section.

(3) Install slope stake with front facing the road centerline, at an outward 45° angle (so equipment operators can read the data from the cab of the equipment), and within + or - 0.1 feet (46mm) horizontal distance from the point indicated by the stakeout data.

c. Flag slope stakes with orange flagging ribbon.

4. Install Offset stakes:



a. Place offset stakes on a line at right angles to the centerline of the facility.

(1) Mark each offset stake on the front with the same data as the slope stake it references and the offset distance.

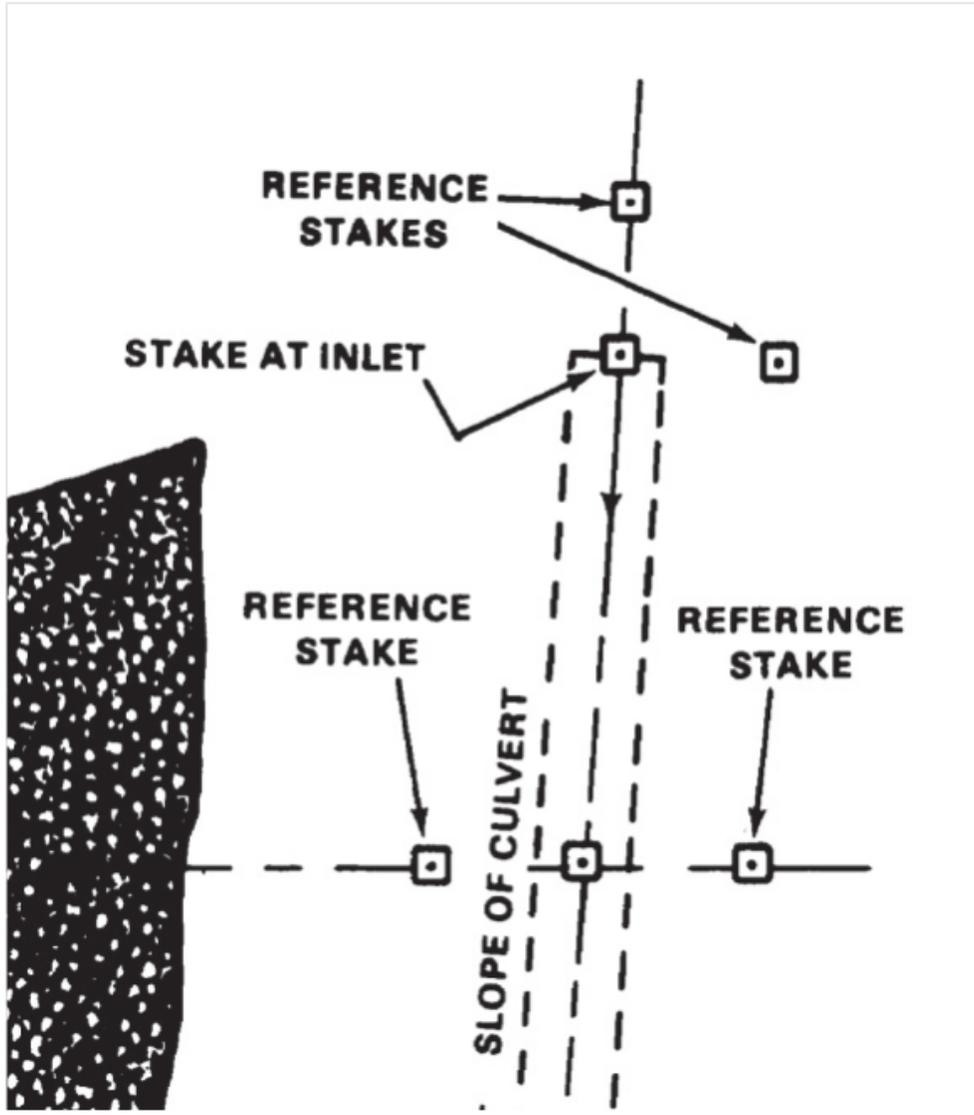
(2) Mark each offset stake on the back with the same data as the slope stake it references.

(3) Install offset stakes so as to avoid being disturbed by equipment on the project site. Place stakes in a location within 100 feet (30m) and in line with the slope and centerline stakes they reference.

b. Flag offset stakes with blue flagging ribbon.

5. Install Reference stakes:

a. Place two (minimum) reference stakes within 100 feet (30m) from the original stake so as to avoid being disturbed by earthmoving equipment during construction.



b. Place a protective lath near each reference and mark with corresponding stake data.

(Asterisks indicates a leader performance step.)

Evaluation Preparation: Setup: Provide the Soldier with the items that are listed in the condition statement. Ensure that all safety precautions are followed. Prepare the testing site and equipment in advance to ensure that the task standard can be met.

Briefing: Give the Soldier a safety briefing and read the task, condition, and standard before starting the test.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Installed Centerline Stakes.			
2. Installed Grade Stakes.			
3. Installed Slope Stakes.			
4. Installed Offset Stakes.			
5. Installed Reference Stakes.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	FM 5-430-00-1	Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design	Yes	No
	TM 3-34.55	Construction Surveying	Yes	Yes

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Prior to class, instructors are to conduct an Environmental Risk Assessment IAW FM 3-100.4. The assessment should be recorded on the Risk Management Worksheet found in Appendix F of FM 3-100.4. During the assessment, instructors should be on the lookout for environmental hazards, Environmental hazards include all activities that may pollute, create negative noise-related effect, degrade archaeological, cultural resources, negatively affect threatened or endangered species' habitats.

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful work places, procedures, and equipment.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
052-243-1604	Perform as a Rodman During Conventional Surveying Observations	052 - Engineer (Individual)	Analysis Completed
052-243-1513	Perform Layout of a Construction Project	052 - Engineer (Individual)	Approved
052-243-1606	Install Survey Stakes for Vertical Projects	052 - Engineer (Individual)	Reviewed

Supported Individual Tasks :

Task Number	Title	Proponent	Status
052-243-3300	Prepare a Preliminary Construction Site Analysis	052 - Engineer (Individual)	Analysis
052-243-1606	Install Survey Stakes for Vertical Projects	052 - Engineer (Individual)	Reviewed
052-243-3014	Inspect Survey Layouts	052 - Engineer (Individual)	Analysis
052-243-1513	Perform Layout of a Construction Project	052 - Engineer (Individual)	Approved

Supported Collective Tasks :

Task Number	Title	Proponent	Status
05-3-5220	Construct a Wood Frame Structure	05 - Engineers (Collective)	Approved
05-3-5223	Construct a Concrete Structure	05 - Engineers (Collective)	Approved
05-3-5222	Construct a Steel-Frame Pre-engineered Structure	05 - Engineers (Collective)	Approved
05-6-0715	Coordinate Construction Operations	05 - Engineers (Collective)	Approved
05-1-0719	Perform Quality Control Operations	05 - Engineers (Collective)	Approved
05-4-0712	Perform Construction Survey	05 - Engineers (Collective)	Approved