

## PLANNING PHASE COST ESTIMATE (DD 1391) – ARMOR RANGES

General: Tab A of a DD Form 1391 has been developed for this range type using the standard layout and associated ROCA. The “Fort Example” DD 1391 can be found in the Appendix of this document.

The following assumptions were used in determining quantities and cost of the range. The designer/cost engineer will have to adjust accordingly for their specific site and project.

- a. Area cost factor = 1
- b. Each building is on a 0.5m thick embankment.
- c. Line of site clearing only in downrange area; (Trees should be left where they are felled). The quantity is 75% of the footprint area.
- d. Clearing and grubbing of the entire ROCA, each target, each defilade, trenches, electrical trenching
- e. All areas that are cleared and grubbed are seeded except those covered with concrete or gravel.
- f. Demolition of miscellaneous slab foundations, utilities, poles, etc., is entered as \$11,000.
- g. 0.2m grading depth of ROCA
- h. Rolling terrain
- i. The roads have no undercutting.
- j. A 0.4m diameter culvert is installed for every 400m segment of the Service Road and Tank Trail, plus two 1.5m culverts for each Tank Trail.
- k. The soil type is assumed to be a “medium soil,” requiring no blasting.
- l. No water or sewer service is provided for the range site.
- m. Structural Design Loads
  - 1) Wind speed: 110 mph
  - 2) Seismic zone: 3
  - 3) Soil bearing pressure: 3 ksf
  - 4) Frost penetration: 1 ft