1106 CHECK LEVELS AND BENCH MARKS

Check levels must be run to verify the elevations of the bench marks shown on the plans. Check levels shall begin at the nearest original bench mark just outside the beginning station of the project. Bear in mind that all bench marks are turning points, and it is important that the level person turn through each bench as they are being checked. It is equally important that the rod person is provided with a peg book to check with the level person throughout the procedure of the work.

At the time check levels are being run, establish all necessary construction bench marks. See Exhibit 1107-2 for typical example of check levels. The bench marks, set on the location survey, establish the vertical control of the construction projects.

The plans show all location bench marks, but they are too far apart and not established at strategic places for construction work; therefore, the following are a few established practices that can be performed at the time check levels are run that will expedite the staking of a project:

1. Establish a bench mark at each end of a large structure; one bench mark at the high ground elevation and one at the low ground elevation of the structure. One bench is sufficient at a small structure.

2. Establish bench marks at frequent intervals and convenient locations for checking during cross-sectioning and setting of blue tops. As a general rule, a maximum of 500 feet (150 meters) between bench marks should be observed.

3. In rough terrain, establish bench marks at points of change from cut to fill and vice-versa or at high point of fill.

4. Establish new guard stakes at all old bench marks and all newly established bench marks. The back face of the guard stake will be marked with the abbreviation "B.M." and the B.M. number. The inside face will bear the actual elevation of the bench mark. The guard shall be driven over the bench mark at a slant with the inside face of the guard facing the iron pipe.

5. In placing new bench marks, a sound, firm ground location should be sought and a 5/8 in. X 18 in. or 24in. (1.6 cm X 0.5 m or 0.6 m) iron pin driven into the ground allowing approximately 2 inches (5 centimeters) to protrude. See Exhibit 1107-3 for marking of B.M. stakes.