

"S A M P L E"

APPENDIX [ ]

CONSTRUCTION AND GRADE STAKES RECOVERY PLAN

Everyone is concerned about the welfare of the public during dredging and construction activities, especially when performing beach renourishment projects. Pipeline crossovers, signage that warns of construction activities, barricades around the construction area, and the assignment of flag persons, are all precautionary measures that serve to protect the general public. However, after the project is completed, any beach grade stakes left in place, either by being broken off at or below grade, bulldozed over, or left in the surf, can create a long term public hazard to beach goers and swimmers.

This plan outlines the necessary steps in recovering the grade stakes installed on a typical beach renourishment project. The success of this procedure solely lies on the efforts of the Project Engineer, Fill Foreman and their respective staffs.

Preparation:

(1) Prepare an initial stake installation scheme, adequate for each pay template on the project (i.e., top of slope/edge of berm, slope stakes, 100-foot interval, etc.).

(2) Plot a plan view map of the beach. The map should include:

a. Consistent locations at which grade stakes will be set (noted by dot or similar mark).

b. Limit lines of the top of berm or dune structure as per the specifications.

c. Station and Range value for each line of stakes.

d. The place allocated on the form for date of installation and removal is to be noted.

e. Set standard for symbols used in installation and recovery processes. For example, "O" noting a stake installed; "X" noting a stake removed; "+" noting stakes reinstalled at the same location; and, a highlighted pen mark for stakes not found during initial visual search.

Note:

- ◆ The map should be at a large enough scale to allow hand written notes to be added.
- ◆ The map should be bound so that a complete record of the beach is contained within one or two binders.
- ◆ Should the initial stake installation scheme change, replot the plan map and incorporate the changes.

(3) Establish a standard length of stake for each installation point (e.g., 6 feet, 10 feet, etc.).

(4) Establish a standard color scheme for marking stakes both with paint and/or ribbon (i.e., orange paint for top of berm stakes; blue paint for slope stakes; white ribbon for top of berm stakes; orange ribbon for marking grade; yellow ribbon for marking cut; red ribbon for noting the Station and Range of stakes).

(5) Using a black permanent marker, label one or more locations on the grade stake with the Station and Range.

(6) Establish a window for filling operations outside of which no stakes will either be installed or left unrecovered (typically 500 foot in front of and behind the spreader). This allows you to maintain an accurate account of the stakes.

Installation:

(1) Take special care to install the stakes in the proper Station and Range location.

(2) Mark (with a permanent ink marker) the Station and Range position on the stake.

(3) Note the date of installation on the plan map.

(4) Note the length of stake on the map if different than the typical scheme.

- ◆ Since typically most of the stakes in front of the spreader are knocked down during normal filling operations, waxed cardboard stakes are recommended as they dissolve after time. In front of the spreader, conduit pipe should be used for critical layout only (i.e., top of berm limits/dune limits).
- ◆ The recovery plan map should be maintained by the engineering staff with cooperation from the fill crew.

Recovery:

(1) Locate (visual search), remove, and record on the plan map the stakes outside the filling operation window.

(2) If a stake is knocked down by the fill crew during filling operations, it should be recovered and stored at a predetermined area until noted on the plan map.

(3) If a stake cannot be found, conduct a search using a metal detector. Search within a 50-foot radius of the recorded location of the stake. If the stake is found, recover it and note the plan map accordingly. This search is to be conducted before the area is opened to the public.

(4) If the stake is not found after the metal detector search, note the stake as not recovered on the plan map.

Upon completion of the project, the recovery plan should accompany the job completion records.