

TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE CASPER, WYOMING SOIL CONSERVATION SERVICE

Engineering No - 5

January 19, 1965

Stockwater Dugout or Pit Surveys

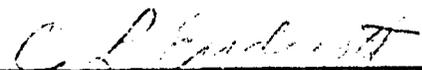
The staking of stockwater pits, in many cases, becomes a rather complicated time consuming procedure. The difficulty stems from the diagonal lines of the pit edges, and especially, when adjacent slopes change such as 3:1 and 4:1, etc.

Harold E. Birkey, Agricultural Engineer, Jackson, Wyoming, has submitted a proposal that will enable a pit to be staked from one setup of a transit. This is a rather simple procedure and we feel that it has much merit for State-wide use.

The three examples shown are of pits, sizes and dimensions commonly used on the west side of the State and are given here as examples only. Sizes common to your areas could be worked out very readily by your Area Engineer.

Procedure:

1. Set up transit near proposed pit center. Set Transit Point and Bench Mark.
2. Set reference points along pit centerline outside construction area.
3. Points 1 - 2 - 3 and 4 can be set by measuring along the diagonal line found by turning off the predetermined angle from the base line. This point also gives the bearing line of the slope stake marking the edge of cut.
4. Set the corner slope stake by extending the bearing lines marking the transit point and the bottom stakes. The slope stake distance is determined according to the cut and the end slopes. For example, where 3:1 and 3:1 slopes meet on the diagonal, each foot of cut has a diagonal horizontal distance of 4.24 ft. On a 4:1 and 3:1 diagonal each foot of cut has a diagonal horizontal distance of 5.0 ft.

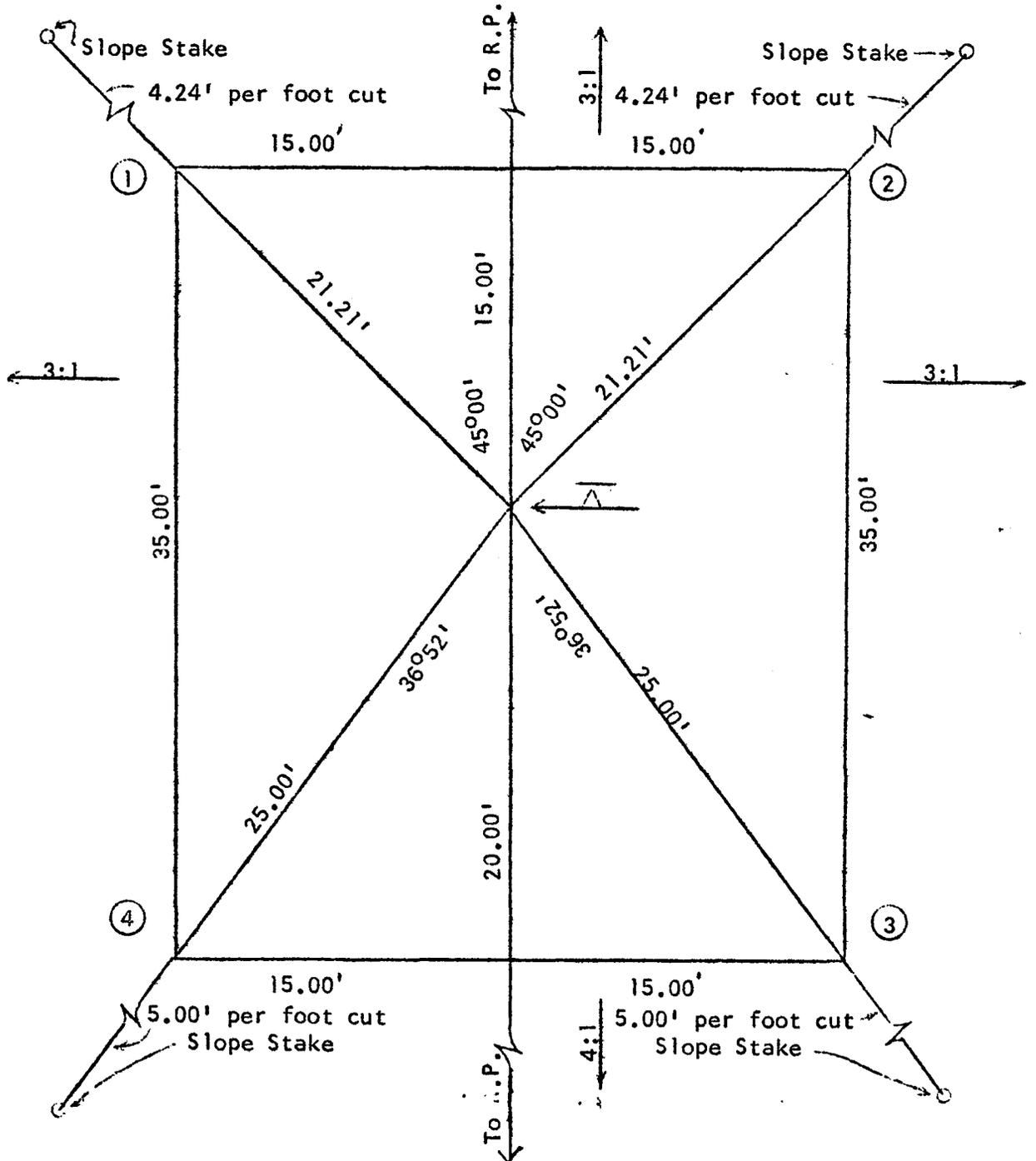

State Conservation Engineer

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STAKE OUT FOR PIT

78° x 91° @ 8° depth

29,008 C.F. @ 8° depth
 1,074 C.Y. @ 8° depth
 216,980 gal. @ 8° depth



Set Stakes 1, 2, 3 & 4 from ∇ , continue to slope stake location.

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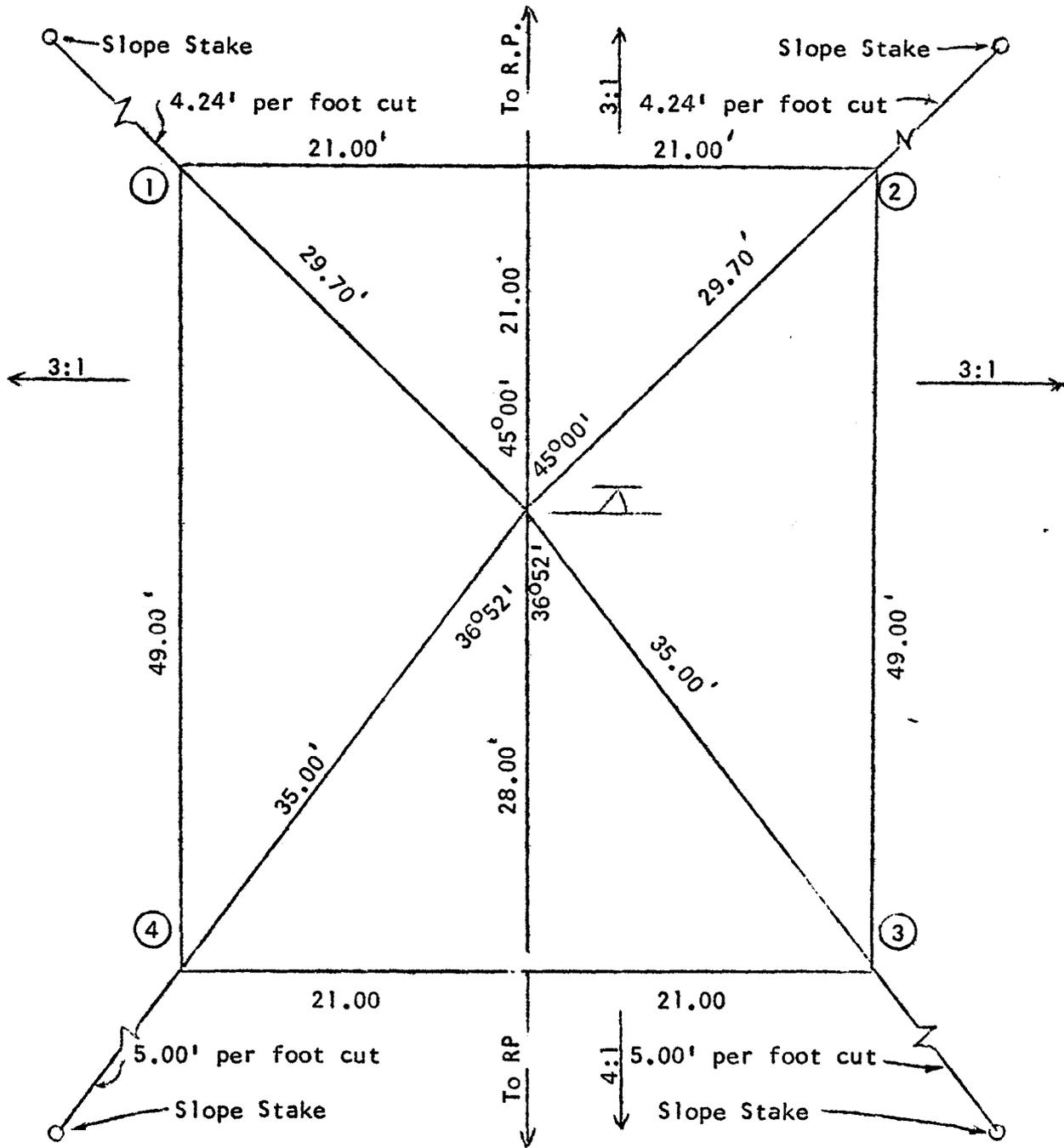
STAKE OUT FOR PIT

90° x 105° @ 8° depth

42,448 C.F. @ 8° depth

1,572 C.Y.

317,511 gal.



Set stakes 1, 2, 3 & 4 from ∇ , continue to slope stake location.

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STAKE OUT FOR PIT

66° x 77° @ 8° depth

18,256 C.F. @ 8° depth

676 C.Y. @ 8° depth

136,555 gal. @ 8° depth

