

SECTION 01300
CONSTRUCTION STAKEOUT

01300.01 GENERAL**A. Description**

This work shall consist of furnishing, placing, and maintaining construction layout stakes necessary for the proper prosecution of the work in accordance with the Contract Documents.

B. Related Work Included Elsewhere

Not applicable.

C. Quality Assurance

1. The Engineer may check any control point established by the Contractor. However, the checking or failure to check Contractor-furnished controls by the Engineer shall not relieve the Contractor from his responsibility to construct the facility in accordance with the Contract Documents.
2. The Contractor shall use competent personnel and suitable equipment for all engineering work required to complete the work in accordance with lines, grades, elevations, and dimensions indicated on the Plans.

D. Submittals

For other than Bureau of Utilities contracts, the Contractor shall furnish the Engineer with copies of all cut sheets and other control documents as may be required for control of the work.

01300.02 MATERIALS**A. Materials Furnished by the County**

1. Plans

The County will furnish the Contractor with Plans indicating property, right-of-way, and other control lines and points, and the relationship of the controls to the various components being installed or constructed. The Plans will also show the location and elevation for benchmarks, which are to be utilized in controlling the work.

2. Details Furnished

The Engineer will furnish the following prior to commencement of work by the Contractor:

- a. For utility systems, the Engineer will provide stakeout, offsets, and control points, which are shown on the Plans. The Engineer will also provide cut sheets.
- b. For roadways, and structures of 20 foot or less span, which are measured along the centerline of roadway, the Engineer will furnish staked centerline. The maximum spacing of stations (stakes, nails, crosses, etc.) will not be in excess of 100 feet and the elevations on the top of each marked point will be furnished. The Engineer will establish appropriately spaced benchmarks and the necessary references for the preservation and control of the centerline. Upon completion of the grading, the Engineer will again provide the Contractor with a staked centerline or working line, whichever is requested by the Contractor. An elevation for the top of each marked point will also be furnished by the Engineer, as well as one set of prints of the cross sections. When warranted by circumstances, an additional set of cross sections will be furnished by the Engineer. The cross sections are to be used as guides only, it being understood that dimensions or elevations scaled there from will not be sufficiently precise for use in the construction of roadways and structures of 20 foot span or less.
- c. For structures over 20 foot span which are measured along center line of roadway, the Engineer will furnish the Contractor a staked center line or working line, whichever applies, with stations not over 100 feet apart and extending at least 100 feet beyond ends of the structure. When the facility is on a curve, the Engineer will furnish a staked center line or working line, whichever applies, consisting of stations not over 50 feet apart and including the P.C., P.I., and P.T., and at least one point on the tangents beyond each end of the curve. When the facility is on a spiral, suitable points will be given. At least two benchmarks, one on each end of the facility, will be established by the Engineer.
- d. For buildings and miscellaneous structures, parks, dredging and other projects not listed above, the Engineer will establish general reference points and benchmarks, which are shown on the plans.

B. Contractor's Options

Not applicable.

C. Detailed Material Requirements

Not applicable.

01300.03 EXECUTION**A. Alignment Markers**

The Contractor shall exercise care in the preservation of stakes, general reference points, and bench marks set by the Engineer and shall reset them at his own expense when any are damaged or destroyed.

B. Detailed Stake-out

1. For utility systems, the Engineer will furnish and set stakes or other suitable markers at each station along the centerline of the pipeline and will establish such offsets as may be appropriate to control the work and provide cut sheets. The Engineer will furnish "cut sheets" for the centerline. The Contractor shall protect and preserve the markers until such time as they are no longer required.
2. For roadways and structures of 20 foot or less span, the Contractor shall furnish, set, and preserve stakes at each station along each side of the project on the right-of-way or easement line, whichever is furthest from the center line of construction. Where one lane of an ultimate dual highway is to be constructed, the stakes on the side of future improvement shall set 10 feet beyond the construction limits. On each of these stakes shall be marked its offset distance from the centerline and its top elevation or the cut or fill to the profile grade line. Additional stakes as needed for horizontal and vertical controls necessary for the correct layout of the work shall be set by the Contractor.
3. For structures over 20-foot span, the Contractor shall proceed with his layout work. However, before any actual construction work is done, the Contractor shall rerun the Engineer's lines and grades to check same and then establish all center or working line intersections with the center line or center of bearing of all piers, bents, and abutments. From these field layouts, he shall check the proposed span lengths by chaining. Such measurements shall be compensated for temperature, sag, and horizontal alignment. He shall also check the location of the structure to affirm its correct location with relation to existing structures, roads, and/or existing conditions that are to remain in their original positions. If any discrepancies are found, the Contractor shall notify the Engineer immediately in writing; otherwise, it will be assumed that all Plan dimensions, grades, and field measurements are correct. All lines established on the ground shall be preserved and/or well referenced, marked, and kept available at all times.

The Contractor shall establish the field elevations for all bridge seats and assume responsibility for finishing same to proper grade. If any steel beams or girders are incorporated in the project, it will be the Contractor's responsibility to run elevations over the tops of such beams or girders after they are in place, before any forms are attached to them, to determine the deflection of each member. This information shall then be applied to the deflection diagram to determine the corrected elevation of bottom slab forms and screed supports. After the Contractor has assembled this

information, it will be checked by the Engineer before final adjustments are made and the placing of any concrete in said forms.

4. For buildings and other miscellaneous structures, the Contractor shall provide such additional controls as necessary to construct or install the building or structure in accordance with the Contract Documents.

C. Additional Requirements

1. The Contractor shall be required to furnish to utility companies or agencies working within the limits of the project, promptly upon request, reference to control points and alignment and grade data, so that they may properly locate and coordinate their work and improvements in relation to this project.
2. The Contractor shall be required to define only right-of-way and easement lines of the project for property owners.
3. The Contractor shall be required to furnish for subgrade, subbase, and base courses string line and grade with fixed controls not to exceed 25 foot longitudinal spacing. Transverse spacing shall be set for sub-grade and the top course of any subbase or base course at 25-foot intervals.

The Contractor shall place along each form line for cement concrete pavement, line and grade with fixed controls not to exceed 25-foot intervals.

01300.04 METHOD OF MEASUREMENT

This work will not be measured but will be paid for on a lump sum basis.

01300.05 BASIS OF PAYMENT

Payment for construction stakeout will be made at the price bid, which price shall include all labor, materials, equipment, and incidentals necessary to complete the work.

END OF SECTION