

## **Z0013798 CONSTRUCTION LAYOUT (LCDOT)**

Effective: January 1, 2007

Revised: May 1, 2020

**Description:** This work shall consist of furnishing and placing construction layout stakes for the project.

- **General:** The Lake County Division of Transportation (LCDOT) or Consultant on their behalf (LCDOT) will provide adequate reference points to the centerline of survey and bench marks as shown on the plans and listed herein. Any additional points set by LCDOT will be identified in the field to the Contractor and all field notes will be kept in the office of the Engineer.

The Contractor shall provide the necessary field forces, equipment, and material required to set all the additional stakes for this project. The additional stakes shall include stakes needed to establish offset stakes, reference points, and any other horizontal or vertical controls. The additional stakes will also include any supplementary bench marks necessary to secure a correct layout of the work. Stakes for line and grade of pavement and/or curb and gutter shall be set at sufficient station intervals (not to exceed 50 feet) to assure substantial conformance to plan lines and grades. The Contractor shall not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract or to determine property lines between private properties.

The Contractor shall be responsible for having the finished work conform to the lines, grades, elevations, and dimensions as shown on the plans. Any inspection or checking of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work. The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset at his/her expense when any are damaged, lost, displaced, removed or otherwise obliterated.

### **Responsibilities of LCDOT:**

- a) LCDOT will provide adequate reference points to the centerline of all roads and streets except interchange ramps. The centerline of private entrances and short street intersection returns may not be located or referenced.

Locating and referencing the centerline of the survey will consist of establishing and providing coordinates for the alignment points of the centerline(s) e.g. PC's, PT's, and POT's necessary to provide line of sight; and/or traverse points as are necessary to establish said centerlines and provide line of sight.

- b) Bench marks will be established along the project outside of construction lines not exceeding intervals of 1000 feet horizontally and 20 feet vertically.

- c) Stakes set for a) and b) above will be identified in the field to the Contractor.
- d) LCDOT will make random checks of the Contractor's staking to determine if the work is in conformance with the plans. Where the Contractor's work will tie into work that is being or will be done by others, checks will be made to determine if the work is in conformance with the proposed overall grade and horizontal alignment.
- e) LCDOT will set stakes to assist with utility adjustments and/or for building fences along the right of way line by parties other than the Contractor.
- f) LCDOT will make all measurements and take all cross sections from which the various pay items will be measured.
- g) Where the Contractor, in setting construction stakes, discovers discrepancies, LCDOT will check to determine their nature and make whatever revisions are necessary on the plans, including the re-cross sectioning of the area involved. Any additional re-staking required by the Engineer will be the responsibility of the Contractor. Additional re-staking done by the Contractor will be paid for according to Article 109.04 of the "Standard Specifications".
- h) LCDOT will accept responsibility for the accuracy of the initial control points as provided herein.
- i) It is not the responsibility of LCDOT, except as provided herein, to check the correctness of the Contractor's stakes; any apparent errors will be called to the Contractor's attention as soon as discovered and he/she shall be required to make the necessary correction before the stakes are used for construction purposes.
- j) Where the plan quantities for excavation are to be used as the final pay quantities, LCDOT will make sufficient checks to determine if the work has been completed in conformance with the plan cross sections.

**Responsibilities of the Contractor:**

- a) The Contractor shall establish from the given survey points and bench marks all the control points necessary to construct the individual project elements. The Contractor shall provide the Engineer adequate control in close proximity to each individual element to allow adequate checking of construction operations. This includes, but is not limited to: line and grade stakes, line and grade nails in form work, and/or filed or etched marks in substantially completed construction work. The Contractor shall not use GPS to stake elevations for hard surfaces e.g., curb and gutter, sidewalk, storm structures, etc..

Prior to staking, the Contractor shall run a check of all the benchmarks and control points provided, to determine if any adjustments are necessary due to frost or isolated damage. The Contractor shall provide any adjustment information to the Engineer.

It is the Contractor's responsibility to tie in centerline control points in order to preserve them during construction operations.

**It is the contractor's responsibility to set right-of-way and easement stakes (including changes in right-of-way width and beginning/ending easement stations) prior to the Installation of Perimeter Erosion Barrier or the disturbance of any soil. These stakes shall be set at 100 foot station intervals and maintained throughout the project.**

- b) At the completion of the grading operations, the Contractor shall set stakes at 100 foot station intervals along each profile grade line. These stakes will be used for final cross sectioning by the LCDOT.
- c) The Contractor shall locate the right-of-way points for the installation of right-of-way markers. The Contractor shall set all line stakes for the construction of fences by the Contractor.
- d) The Contractor shall provide for re-establishing and monumenting all control points used to complete the work as specified including all PI's, PC's, PT's, and POT's. The type of monumentation used will be Mag nails, iron pipes, RR spikes or another type approved by the Engineer.
- e) All work shall be according to normally accepted self-checking surveying practices. Field notes shall be kept in standard survey field notebooks and electronic staking reports. Copies of the books and electronic reports shall be given to LCDOT at the completion of the project. All notes shall be neat, orderly, and in accepted form.
- f) For highway structure staking, the Contractor shall use diligent care and appropriate accuracy. Points shall be positioned to allow reuse throughout the construction process. Prior to the beginning of construction activities, all structure centerlines and pier lines are to be established by the Contractor and checked by the Engineer. The Contractor shall provide a detailed structure layout drawing showing span dimensions, staking lines, and offset distances.

**Basis of Payment:** This work will be paid for at the contract lump sum price for CONSTRUCTION LAYOUT. *The unit price shall include all equipment, materials and labor required to furnish and place the construction layout stakes.*