



Construction staking for electrical installations includes, but is not limited to, the stakeout of:

- Conduit
- Pull boxes
- Junction boxes
- Bases (various types)
- Meter pedestals
- Loop detectors
- Wiring
- Service poles
- Standards
- Signals
- Lighting

Construction details for pavement joints and grades, traffic signals, and lighting are usually found in the plan. These should be referenced as to the location of conduit runs, concrete bases, pull boxes, and junction boxes. Some plans may have detail sheets or miscellaneous quantity sheets giving station and offset or coordinates to curb and gutter radii and island and median radii. If not contained in the plan, station and offset or coordinates will have to be computed, and the locations should be verified by the engineer.

Conduit runs, bases, pull boxes, and junction boxes all have to be coordinated with the locations of curb ramps, sidewalk, signing, and pavement markings (stop blocks, etc.) for them all to function properly and not conflict. Ideally, items should be staked following installation of adjacent pavement or curb and gutter to ensure proper elevations.

Bases must not be located within curb ramps or sidewalk in islands. Loop detectors must be installed the correct distance from stop blocks and the correct distance from adjacent lanes.

Elevations for bases and pull boxes can be computed from the pavement grade detail sheets, typical section sheets, plan and profile sheets, and standard detail drawings for curb and gutter, etc. Incorrect elevations set during electrical staking can result in pull boxes set too low in island locations or signal boxes set too low or high. Units set too low result in "icing up problems" in winter. Ideally, designers should show a top of unit elevation on the plan.

The sequence of new construction operations usually is such that one operation closely follows another. As soon as the base course is completed, underground conduit can usually be installed.

Loop detectors installed in new concrete pavement usually have to be located and installed just before paving operations so as not to interfere with other construction operations. The trimming of the base for concrete paving or the fine grading of the base for asphalt paving is also occurring at this time. Finish base course elevations can be used for determining depth of underground conduit. Paving grade stakes can be used to determine conduit end locations.

New construction is often done in stages, so all of the required electrical staking will not be able to be done at one time, but also must occur in stages. It is important that the same crew and the same method of location (station and offset or coordinates) are used. A conduit run may be only partially staked for installation in one stage. The buried end has to be relocated to extend in a later stage.

Construction stakes for electrical construction must be set and maintained as necessary to achieve the required accuracy and to satisfy the contractor's method of operations.

#### 7-55.1 Suggested Procedure

The staking contractor must always consult with the electrical contractor before doing any staking or grade computations. The staking contractor must check with the engineer to ensure that alignment profiles and grades have not changed from what is shown in the approved plan.

The following table shows the steps to take when staking electrical and electrical projects:

1. Review the plan construction detail sheets

- Pavement joint detail
- Grades
- Coordinates or station and offset sheets
- Lighting sheets
- Signal sheets
- Pavement markings sheets

Review the typical section sheets, miscellaneous quantities sheets, and applicable standard detail drawings sheets.

2. Compute unit locations and elevations to be staked from the above:
  - Determine finished pavement elevation and finished island or curb and gutter location.
  - Top elevation is governed by adjacent elevation, and the standard detail drawing shows depth needed to compute unit elevation.
3. Re-establish the reference line(s) from control points, if needed.
4. Field establishment of new islands, medians sidewalk, etc. may be required to assist field verification of item staking location.
5. Locate the unit and offset distance.
6. Set stakes out with respect to reference line(s).
7. Set grade stakes according to plan or computed elevations, and mark appropriately (see [Figure 1](#)).
8. Check stakes and grade locations for match with new and existing constructed items - sidewalk, islands, etc.
9. Repeating these steps for some units may be necessary as construction progresses to subsequent stages.
10. Be sure to keep neat and accurate field notes of work being performed.
  - Refer to [CMM 7-15](#) for general field note information.

Figure 1 Labeling Electrical Installation Stakes

