State of Illinois
Department of Transportation

CONSTRUCTION INSPECTOR'S CHECKLIST FOR TRAFFIC SIGNAL INSTALLATION

While its use is not required, this checklist has been prepared to provide the field inspector a summary of easy to read step by step requirements relative to the proper construction of Traffic Signals (Section 800 of the Standard Specifications). The following questions are based on information found in Standard Specifications, Highway Standards, Construction Manual and current policy memorandums and letters.

The first item of business after establishing stationing is to layout the entire intersection. This includes all new radii, new sidewalk and any other items pertaining to new construction of an intersection or geometric modifications of an existing intersection. The traffic signal structures (Handholes, Junction Boxes, Service Installation and Type A, Type E, Type D foundations), the rough location for stop bars, cross walks and loops must then be marked. This will facilitate making adjustments of items to miss utilities and storm sewers and locating temporary traffic signals when required. If possible, perform this work far enough in advance to permit adjustments in mast arm lengths prior to submittal of shop drawings.

Have you reviewed the Contract Special Provisions, Supplemental Specifications and Plans? _____

LAYOUT

A. GENERAL

Are you checking the layout to verify that pedestrian and wheelchair traffic has the minimum required clearance? _____

B. TYPE A BASE

Are you inspecting the installation in accordance with the following guidelines?

1. Locate at plan stationing if possible. This should be at the stop bar or a few feet before the stop bar. _____

2. Locate at the offset from the face of curb as shown on the plans. _____

3. Set elevation so that base is level and 25 mm (1 inch) above the finished grade. _____

C. TYPE E FOUNDATION

Are you inspecting the installation in accordance with the following guidelines?

1. Locate according to station and distance out from centerline if possible. _____

2. Locate at the offset shown on the plans from the centerline of the base to the face of curb. _____

3. Check the overhead clearance above the base for possible power line conflicts. _____

4. Check to make sure the plan mast arm length will reach the furthest most traffic signal head location as shown on the plans. _____

5. Check to see that the mast arm is within the specified distance of the stop bar as shown on the plans. _____

6. Set the elevation of the base 38-mm ($1\ ^1/_2$ inches) above finished grade. _____

7. Check to see that the layout will provide for the required vertical clearance above the finished roadway. _____

D. TYPE D FOUNDATION

Are you inspecting the installation in accordance with the following guidelines?

1. Locate controller at the plan location. Check to see that the controller is protected from traffic as much as possible and that it is possible to get power to the location. Discuss potential problems with the District Office prior to adjusting the location. _____

2. The foundation shall be set at a minimum of 150 mm (6 inches) above the finished grade. _____

3. Cabinet door and concrete pad should be oriented so that the intersection can be viewed while working in the cabinet. _____

E. DETECTOR LOOPS

Are you inspecting the installation in accordance with the following guidelines?

1. Layout loops using plan dimensions and stationing. _____

2. Avoid large cracks and deformations in the pavement. _____

3. Bends shall be at 45 degrees to keep from breaking the wire. _____

4. Trench in pavement must be completely dry and debris-free during application of sealant. _____

5. The inductance, resistance and "Q" of all detector loops shall be measured by the contractor, using approved methods and in the presence of an IDOT inspector. _____

6. Check the loop detector saw slots for low spots in the sealant, or excessive sealant spread onto the roadway or pavement markings. _____

7. Be sure the Contractor has completed the installation of any sawed expansion joints in new PCC pavement prior to the installation of detector loops. _____

F. TEMPORARY TRAFFIC SIGNALS

1. If temporary signals are required, are you placing the poles in locations that do not interfere with the construction of the permanent signal equipment and assuring that the proper vertical clearance is maintained? _____

2. During the installation of the permanent equipment are you making sure that the visibility of the temporary signal is maintained? _____

INSPECTION

A. TRAFFIC SIGNAL AND PEDESTRIAN HEADS (Section 880 & 881 of the Standard Specifications)

1. Are the heads properly aimed? (Art. 880.03) _____

2. Are the heads tight on the structure? (shake traffic signal posts and observe mast arms) _____

3. Are the required clearances attained for the heads and brackets as shown on the plans (Art. 880.03)? _____

4. Pedestrian pushbuttons and signs shall be as shown on the plans. All locations shall be approved by the Engineer before the Contractor begins installation. _____

B. TRAFFIC SIGNAL POSTS (Section 875 of the Standard Specifications)

1. Are traffic signal posts plumb? (875.03) _____

The vertical clearance between the bottom of a bracket or post mounted signal head or pedestrian signal head and the crown of the pavement shall be between 2.5m (8 ft) and 4.5m (15 ft).

2. After tightening have the posts been secured to the base with in accordance with the plan details? _____

3. Are the anchor bolts tight? (875.03) _____

4. Is the traffic signal post grounded? (875.03) _____

5. Are the proper materials (steel vs. aluminum) being used for the post and the base? _____

6. Is the minimum required horizontal clearance from the edge of the roadway provided in accordance with the plans? _____

C. MAST ARMS (Section 877 of the Standard Specifications)

1. Are you reviewing Standards 877001, 877006 and 877011? _____

2. Are the pole risers plumb? (Art. 877.03) _____

3. Has stainless steel mesh with stainless steel bands been placed at the base around exposed anchor bolts? (834.03) _____

4. Have any scratched surfaces been touched up with approved material? (Art. 877.03) _____

5. Is the ground wire connected to the ground wire clamp on the mast arm pole? (Art. 877.03) _____

6. Is the minimum required horizontal clearance from the edge of the roadway to the mast arm support pole provided? _____

D. FOUNDATIONS (Section 878 of the Standard Specifications)

1. Are you reviewing Standard 878001? _____

2. Are you verifying that the minimum Q_u is 100 kPa (1.0 T/ft^2) as indicated on the standard? _____

3. Is the top 225 mm (9 inches) of the foundation formed? (Art. 878.03) _____

4. If the foundation is in the sidewalk, has 12 mm ($^1/_2$ inches) of preformed joint filler been placed around it? _____

5. Is there a ground rod? (878.03) _____

E. HANDHOLES (Section 814)

1. Are you reviewing Standard 814001? _____

2. Are there french drains in the base of the handholes? FA-1, FA-2, CA-1 8. _____

3. Have galvanized hooks been installed in the sidewall to hold up the wires? _____

4. Are heavy-duty handholes being installed when required by the plan details? _____

5. Are all double handholes hinged? _____

6. Are all handholes and/or castings set to finished elevations or 25 mm (1 inch) above grade if set in earth? (814.03) _____

7. Are handholes clean? _____

8. Are the handholes cleaned? (Art. 814.03(d). _____

9. Did you slope the top of the handhole cover to match the elevation of the surrounding grade? (Art. 814.03(a)) _____

F. JUNCTION BOX (Section 813 of the Standard Specification)

1. Are you reviewing Standard 813001? _____

2. Are all junction boxes set to finish elevations as shown on the plans? (813.03) _____

3. Are all junction boxes clean and unobstructed for use? _____

G. CONTROLLER (Section 857 of The Standard Specifications)

1. Is wiring neatly done? _____

2. Has duct seal been placed in the conduit? _____

3. Is there a wiring diagram in the cabinet and/or has a wiring diagram been given to proper agency? _____

4. Did you put a set of "as built" traffic signal construction plans in the cabinet? _____

5. Is a ground rod installed in accordance with the plans? _____

6. Has the base of the cabinet been sealed in accordance with the plan details? _____

7. Is the proper signal phasing being used? _____

8. Is the controller cabinet attached to the foundation accordance with the plan details? _____

9. Does the cabinet door open and close without binding? If it does not work smoothly, it usually indicates the foundation is uneven, causing the cabinet to become skewed when tightened on the anchor bolts. _____

10. Are the conduits located in the foundation so they do not conflict with the cabinet when it is placed on the anchor bolts? Duct seal material should be placed in all conduits to seal around wiring. _____

11. All field wiring shall be plainly and permanently marked as required by the contract. _____

H. CONDUIT (Section 810)

Are there bushings on the ends of steel or aluminum conduit? _____

I. GENERAL INSPECTION

1. Is there specified slack in all structures? _____

2. Have all areas disturbed by construction been graded, seeded and mulched? _____

J. ELECTRICAL SERVICE

1. Are all wire connections in the service disconnect tight? _____

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