**Twisted Pair and Loop Lead-In Installation Details**

**Alternative 1**

Drill a hole through the curb at the point which the required saw-cut depth is obtained just prior to cutting the top inside edge of the curb. Slide a section of flexible conduit at least 6" into the hole from the back side of the curb but not within 2" of the top of the hole. The conduit shall fit snug within the drilled hole. Fill the top of the hole with loop sealant to the level of the curb surface. A nonmetallic material should be used to prevent excessive loop sealant from entering the flexible conduit.

**Alternative 2**

Drill a hole 9" to 1" larger in diameter than the rigid conduit to be used through the roadway asphalt (or concrete) surface and base. At an appropriate angle to intercept the trench or pull box hole. Place a preplanned length of rigid conduit in the hole and drive the conduit into the trench or hole. Insert a molded bushing (nonmetallic) on the roadway end of the rigid conduit. The top of the rigid conduit shall be approximately 2" below the roadway surface. Fill the hole with loop sealant to the level of the roadway surface. A nonmetallic material should be used to prevent excessive loop sealant from entering the rigid conduit.

**General Notes**

1. If the loop lead-in is 75' or less from the edge of the loop detector to controller cabinet, continue the twisted pair to the cabinet. If the loop lead-in is greater than 75' continue the twisted pair to the specified pullbox, splice in shielded lead-in wire and continue to the controller cabinet.

2. The width of all saw cuts shall be sufficient to allow unforced placement of loop wires or lead-in cables into the saw cut. The depth of all saw cuts, except across expansion joints, shall be 3" standard with a maximum of 4".

3. On resurfacing or new roadway construction projects, the loop wires and lead-in cables may be installed in the asphalt structural course prior to the placement of the final asphalt wearing course. The loop wires and loop lead-in cables shall be placed in a saw cut in the structural course. The depth of the saw cuts below the top of the final surface shall comply with note 2.

4. A nonmetallic hold down material shall be used to secure loop wires and lead-ins to the bottom of saw cuts. Hold down material shall be placed at approximately 12" intervals around loops and 24" intervals on lead-ins.

5. The minimum distance between the twisted pairs of loop lead-in wire is 6' from the loop to 12' from the pavement edge or curb.

6. Splice connections in pull boxes with UL listed, watertight, insulated enclosures. Place one enclosure over the end of each conductor and place a third enclosure over the exposed end of the shielded cable.

7. As an alternate, a larger diameter enclosure that will accommodate both the splice of the conductors and the exposed end of the shielded cable may be used.

8. The maximum area of asphalt to be disturbed shall be 6' x 6'. This area shall be restored as directed by the Engineer.

**Note:** Other alternatives may be approved by the State Traffic Operations Engineer.
Loop lead-in wires should not be installed in the same pull box with signal power cable.

Loop Types are centered in a single lane except Type E which is centered on two lanes.

The length of these loops may be extended to a maximum of 60'. Each intersection should be individually designed and if the modifications noted above is required it must be noted or detailed in the plans.

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