The method of determining quantities for new regulatory or warning traffic signs is as follows.

1. Posts. Sign posts are measured by the linear ft and specified by type.

2. Signs. Sheet signs are measured by the area, in square feet, according to the sheeting type and thickness.

Figure 17-5F, Sign Post and Sheet Sign Summary (Bridge Project), illustrates the signing tables that should be placed on the Bridge Summary sheet or on the Approach Details sheet. For a project with a small number of signs, the totals may be omitted.

Sign codes, description, size, location, post length, and type are listed in the tables according to the guidelines in the *Manual on Uniform Traffic Control Devices*, the INDOT *Standard Drawings* and Section 502-1.0. The type and quantity of posts should be determined as shown on the INDOT *Standard Drawings*.

17-5.09 Reinforced Concrete Bridge Approach (RCBA) [Rev. July 2012, Apr. 2016]

17-5.09(01) Miscellaneous Requirements [Rev. July 2012, Apr. 2016]

The designer should provide complete RCBA details on the bridge plans.

1. Dimensions. The RCBA length, width, skew, thickness, and bill of materials should be determined and shown on the plans. The length and width should be also shown on the General Plan sheet. INDOT *Standard Drawings* Series E 609-RCBA contains information on the spacing of reinforcement and connection to the bridge deck. The *Standard Drawings* are intended for new construction. The RCBA width should equal the bridge clear-roadway width and RCBA extensions utilized as needed.

2. Anchoring. The RCBA should be anchored to the end of the superstructure where integral end bent construction is used. Where a bridge deck expansion joint is used at the end of the superstructure, an alternate anchoring detail should be utilized.

3. Polyethylene Fabric. Two layers of polyethylene fabric, each of minimum thickness 0.02 in., should be placed between the RCBA and the dense-graded subbase where the RCBA is anchored to the superstructure.

4. Terminal Joint. If the approach roadway is PCCP, a terminal joint as shown on INDOT *Standard Drawing*s Series E 503-BAJT should be provided at the roadway end of the RCBA. No such joint is required if the approach roadway pavement is HMA.

5. Extension for Bridge-Railing Transition. An extension should be provided under each bridge-railing transition as shown on INDOT *Standard Drawings* Series E 609-TBAE. The extension should be considered part of the RCBA, and not part of the transition.

17-5.09(02) Quantities [Rev. July 2012]

Quantities for the following pay items should be included on the Bridge Summary sheet, in the Summary of Bridge Quantities table, separate from other bridge quantities.

1. RCBA of the required thickness, including extensions for bridge railing transitions, per square yard.

2. Epoxy-coated reinforcing bars in the RCBA and extensions, per pound.

3. Dense-graded subbase placed under the RCBA and extensions, per cubic yard.

17-5.10 Riprap and Sodding Limits at Bridge Cone

Figure 17-5 I, Riprap and Sodding Limits with Barrier Transitions on Bridge, and Figure 17-5J, Riprap and Sodding Limits with Barrier Transitions on RCBA, illustrate the placement of riprap and sodding at a bridge cone to control erosion. Figure 17-5 I illustrates the placement where the barrier transitions are on the bridge and Figure 17-5J where they are on the RCBA. Riprapping the surfaces of the bridge cones and fill slopes adjacent to the RCBA is recommended for a new bridge at a stream crossing. Where mowing equipment experiences difficulty traversing riprap drainage turnouts for a grade separation structure (e.g., at an interchange), the bridge cone surfaces may be sodded instead.

For a bridge rehabilitation project, the designer should review proposed erosion control techniques (e.g., erosion control mat, riprap drainage turnout, sodded flume, curb inlet/piping) with the Bridges Division Bridge Rehabilitation Department and the district office.