Intersection Layout Sheets

Intersection layout sheets detail information about roadway geometrics and physical roadway features which cannot be adequately detailed without cluttering a plan and profile sheet. The intersection layout sheets show the necessary dimensions and locations of control points needed to construct the roadway geometrics and physical features of an intersection.

Geometric control points should be labeled with a station and offset from a control line, along with an elevation. Physical features should be dimensioned. A contractor should never have to scale or assume the location or dimension of a control point or physical feature. It is the designer's responsibility to provide the contractor with necessary information to construct the roadway geometrics and physical features.

Intersection layout sheets are normally shown on 20 scale detail sheet to provide greater detail and clarity.

Layout Sheets

Roadway geometrics and physical features may be shown and labeled on a single layout sheet; however, in complex areas it is usually best to have separate layout sheets to detail the information clearly. The following types of layout sheets should be developed to provide the contractor the appropriate information to construct an intersection.

Geometric Sheets

Geometric sheets contain information about alignments, transitional areas, and the locations of the physical features of an intersection. The following is information normally shown on a geometric sheet:

Control Points – Control points should be shown for the following:

- Alignments or baselines.
- Alignment intersecting tangent points.
- Transitional curves.
- Beginning and ending points of a taper.
- Radius points for edge returns or channelizing islands.

Curve numbers – Curves for edge returns or transitional curves, should be indentified with a particular number. The curve information is tabulated and shown within the survey sheets (G sheets). See Section 20D-2 for guidance on numbering curves.

Profile grade line – The location of the profile grade should be shown.

Station equations – A station equation is required where two or more alignments intersect or where an alignment is tied to another alignment.

Intersection angles – The intersection angle(s) between alignments should be shown. The number of intersection angles shown depends on where the alignments intersect. Refer to Table 1 to determine the number of intersection angles to be shown.

Table 1: Station equations and intersection angles

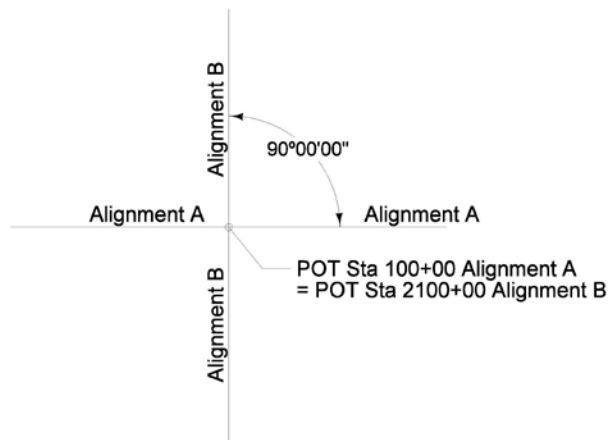| Station equation	Number of intersection angles
POT = POT	1
POT = PI	2
PI = PI	3

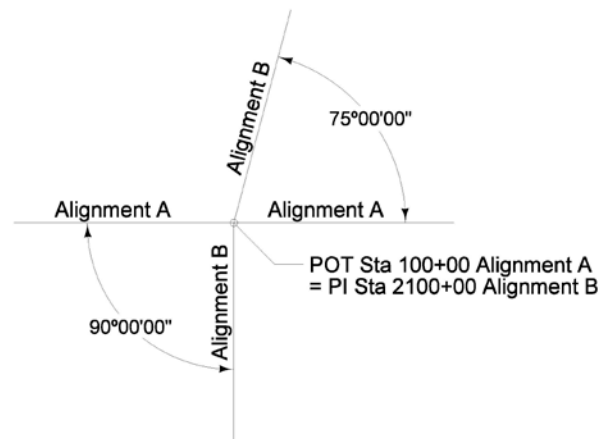

Figure 1: Equation Station for POT = POT.
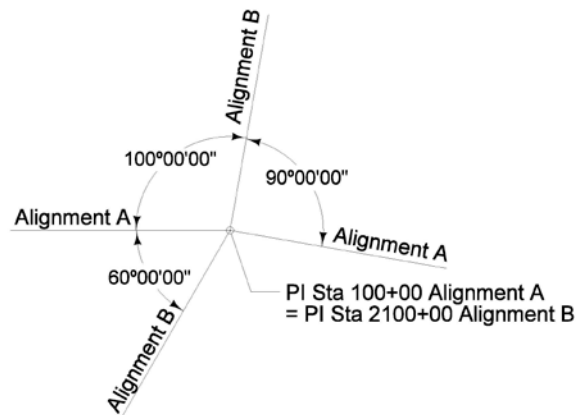

Figure 2: Equation Station for POT = PI

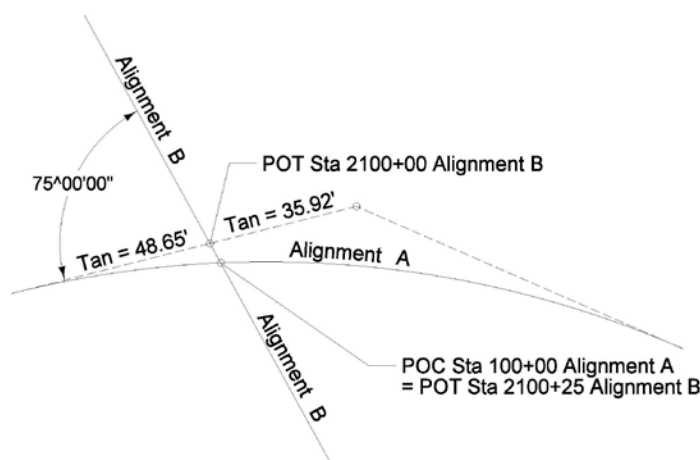
Figure 3: Equation Station for PI = PI.

Figure 4: Equation Station for POC = POT.

Roadway dimensions – The width of the roadway or auxiliary lanes.

Tapers – The taper rate and length of the taper along the alignment.

Curb transitions – Locations where the curb transitions.

Shoulders – Shoulder width and locations where the shoulder transitions from one type to another.

Channelizing islands – The width of a channelizing island.

Pedestrian and bike paths – The width of a bike path or sidewalk.

Utilities – Utilities should be shown on the intersection sheets and identified on the legend sheet.

Barriers – Locations of the barrier and locations where the barrier transitions.

Staking Sheets

Staking sheets contain information about the pavement cross slope and cross slope transitional areas. The pavement cross slope is then used to establish the elevations of the control points. Staking and geometric information is normally shown on a single sheet, but can be shown on individual sheets if the sheets get cluttered. The following is information normally shown on a staking sheet:

Control points – Station and offsets to control points.

Elevation of the control points – Elevations of the control points shown on the geometric sheet.

Control points – Additional control points not shown on the geometric sheet.

Cross slopes – Pavement cross slope. The direction of cross slope is defined with an arrow.

Roadway dimensions – Perpendicular dimension between longitudinal joint lines.

Transition areas – Transition areas between a change in the pavement cross slope. This is usually shown as a uniform transition.

Special shaping – Areas that require special shaping and which cannot be defined with cross slopes and dimensions.

Edge Profile Sheets

Edge profile sheets contain information about an edge return profile. The edge profile is established from the roadway staking details. The following is information normally shown on an edge profile sheet is:

Elevations – Elevations of the control points of an edge return.

Grades – Vertical grades between the vertical points of intersection on the edge profile.

See Section 6A-9 for guidance on developing an edge profile.

Jointing Sheets

Jointing sheets contain information about the intersection jointing details. The following is information which is normally shown on a jointing sheet:

Joints – Type of joints.

Dimensions – Perpendicular dimension between longitudinal and perpendicular joint lines.

Headers – Pavement headers.

Box out areas – Box out areas for utilities or hand pours.

Structures – Structures which affect joint locations.

See Section 7A-2 for guidance for jointing details.

Order of Layout Sheets in a Plan Set

The layout sheets for an intersection are grouped together in the following order:

1. Geometric Sheet(s).

2. Staking Sheet(s).

3. Edge Profile Sheet(s).

4. Jointing Sheet(s).

If the designer has a project with multiple intersections, the intersection layout sheets for the first intersection encountered on the project should be the first layouts sheets in the plan. The other layout sheets for the other intersection should then be added in order of when the intersection is encountered on the project.

Examples

Geometric Sheet

Staking Sheet

Edge Profile Sheet

Jointing Sheet