Cross-sections are required for any proposed thoroughfare and/or existing road improvements/widening at 50-foot maximum station intervals (25-foot intervals will be required where longitudinal street slope is 1% or less and curb/gutter is required, and for curb/gutter sections that are less than 200 feet in length), with a scale of 1” = 5’ in both vertical and horizontal dimensions. Cross-sections at this scale need to be included in all submittals for the full length of the proposed thoroughfare and/or existing road improvements/widening, with a 50’ station before and after the construction limits. These cross-sections should match the same design elements that can be found in North Carolina Department of Transportation (NCDOT) standards and Mecklenburg County Land Development Standards (MCLDS) or Charlotte Land Development Standards Manual (CLDSM), including, but not limited to:

a) Label the road name on the cross-sections.
b) Label the proposed and existing cross-slopes. Cross-slopes of the proposed widening need to be in the range of ¼ to 3/8 inch per foot (2% to 3%) for normal crown, (tangent and curves that do not require super elevation) road sections and match existing slopes when in a super elevated curve sections if possible, however there may be cases the super elevation would require some cross slope adjustment, based on A Policy on Geometric Design of Highways and Streets, AASHTO reference book.
c) Label the ditch slopes on the cross-sections with a 3:1 (max.) front slope and a 2:1 (max.) back slope.
d) Label the shoulder width and its cross-slope. Normal crown roadway sections need to have a 1 inch per foot cross-slope on the shoulder. A maximum rollover from the pavement to shoulder is 6% for super elevated sections.
e) Label the sidewalk width and its cross-slope of ¼ inch per foot directed towards the road.
f) Label the planting strip width and its cross-slope.
g) Label the 1-foot minimum bench on both sides of the sidewalk with the slope beginning after the bench. Minimum slopes are 3:1 for fill sections and 2:1 for cut sections. Note: When handrails are required, a 2-foot minimum bench needs to be provided on the backside of the sidewalk.
h) If curb and gutter is installed, paving under the gutter pan needs to be shown on the cross-sections for all applicable typical sections and roadway classifications.
i) Label all existing and proposed drainage structures/utilities as relocated, protected, replaced, or installed.
j) An additional cross-section is needed for the centerline of each cross-over pipe and need to include the appropriate stationing and elevation.
k) The existing right-of-way must be labeled as maintenance right-of-way or recorded right-of-way. In addition label new right-of-way as proposed, dedicated, or reserved, along with any necessary temporary construction easements or permanent easements for storm drainage, sidewalk, etc.
l) Provide spot elevations for the centerline and edge of pavement, both existing and proposed.
m) Label and dimension the lane widths of the existing pavement and proposed widening.
n) The overlay for the entire width of the street being widened and/or improved on all NCDOT maintained streets and where applicable on city maintained streets needs to be shown.
o) An additional cross-section is needed at each proposed and impacted driveway entrance accessing a public street.
p) Label elevation centerline of ditch bottom when using shoulder section roadways.
q) Label invert elevations of proposed storm drain pipes that show up in x-sections.