

**NCDOT Prestress Standard Repair Procedure for Non-Conformance Report (NCR)
SRP07: Missing or Broken Continuity Bars– 04/05/2022**

Structures Management Unit Review Comments

The NCDOT Structures Management Unit and Materials & Test recommends that the following standard procedure be followed for all girders:

- Single missing or broken continuity bars do not require any repairs.
- Welding of broken continuity bars is not allowed.
- Broken continuity bars may be repaired using a mechanical splice that is on the NCDOT Approved Products List: <https://apps.ncdot.gov/vendor/approvedproducts/Default.aspx> (Rebar Mechanical Butt Splices (1079-9)). The mechanical splices shall be installed according to the manufactures instructions and installed in the presence of the NCDOT Inspector on site.

Where there are missing continuity bars or the continuity bar is too short to allow a mechanical butt splice to be installed; the continuity bars will be installed by the following methods:

- Missing steel continuity bars will be replaced on a one-for-one basis.
- The location of replacement bars will be as close to the planned location as shown on the production drawings as possible without causing damage to the strand or reinforcing steel.
- Submit to the NCDOT Inspector on site a Data Sheet of all materials to be used for verification that the proposed materials are on the NCDOT Approved Products List.
- The epoxy adhesive shall be on the NCDOT Approved Products List: <https://apps.ncdot.gov/vendor/approvedproducts/Default.aspx> and shall be of the type for the intended purpose as proposed by the manufacture.
- The adhesive shall have a compressive strength equal to or greater than that of the girder as defined in the NCDOT production plans.
- Do not damage the rebar or strands.
- Drill the hole diameter to the oversized dimension suggested by the epoxy adhesive manufacture's recommendation for the original required diameter rebar size.
- The depth of the hole shall be 16" minimum. This will apply to continuity bars in either the top or bottom of a prestressed member. Slight deviation of the planned location of the continuity bars shall be allowed to minimize the chance of damaging prestressing strands or reinforcing steel.
- After drilling the hole, the holes will be blown out and cleaned using compressed air as per manufacture's recommendations.
- The replacement continuity bars shall be pre-bent to the correct dimensions according to the original NCDOT production drawings.
- Test fit the bars to be replaced into each hole after cleaning to ensure that the full depth of embedment is achieved prior to placing the bonding epoxy. If full depth cannot be obtained check the depth and diameter of the hole and make correction as necessary to ensure full depth is possible before proceeding.
- Pack the holes with the approved epoxy bonding adhesive of the proper viscosity, as recommended by the adhesive manufacture, for horizontal bar replacement.

- Rotate and push the bar into the hole until the bar is seated to full depth. Do not drive the bar into the hole using percussion tools.
- Brace/secure the replacement bars in the proper orientation until the epoxy bonding adhesive has fully cured.
- Perform repair operations in the presence of and to the satisfaction of the NCDOT on-site inspector.

There shall be an NCR written and saved in the project file for future reference. The NCR will not be required to be submitted to SMU providing that the procedures outlined above are strictly followed.

If for any reason the above requirements cannot be met an NCR submittal will be required for review.

If you have any questions or comments, please contact James L. Bolden, Jr., PE at (919)707-6408, (jlbolden@ncdot.gov) or Madonna Rorie, PE at (919)707-6508 (mrorie@ncdot.gov).

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