



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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May 12, 2005

To: L&S Group Leaders  
Area Engineers

From: C. W. Brown, PE, PLS  
State Location & Surveys Engineer

Subject: Proc 2005-2  
L&S Involvement with Construction  
Anticipated Responsibilities

In the early and mid-1990's we surveyed very well, based on our abilities, procedures, and equipment. Construction survey/stake-out procedures were typically eight-to-ten years behind us. Now, with the onset of GPS RTK, VRS networks, and GPS guided machine control, construction surveyors and contractors can build projects almost as accurately as we can survey them. The problem – NCDOT is letting projects today, anticipating using today's technology, on projects we surveyed ten years ago.

We have been involved in several projects with survey problems. All of these have been resolved. Some projects have required more time and effort than others have, but with most required minimum work on our parts. In order to anticipate and be in a better position to resolve future problems, we will be attending the Pre-Construction meetings. Our purpose and actions should be as follows:

- We need to review each project to be let, looking at time of survey, methods used, etc., to determine if the project may have potential problems. If so, we should be prepared to address these at the Pre-Construction meeting.
- We need to consider proposed construction methods, to determine if there is potential for error due to the procedures used, or due to the quality of our surveys.
- We need to become familiar with the Construction Surveyor, to help in any way allowable (and as requested through the Resident's office), to review data, correct control data, recommend methods of calibrating GPS equipment, etc., as needed in the construction of the project.
- We need to ensure that the Construction Surveyor is knowledgeable of and can correctly utilize our localized coordinate systems, and that he/she has access to all control/coordinate information available on the project.

- We need to be aware of any issues relating to erroneous underground utility locations performed by SUE firms, in order to ensure quick response in corrective actions and/or compensation of error.
- Through the Resident's office, we may need to assist in establishment of permanent photo controls for Photogrammetry, in determination of earthwork quantities.

In short, we should make ourselves available to the Resident, and through the Resident to the Construction Surveyor, to assist in those issues relating to the surveys. We are the experts in survey procedures. It should be, and is, our duty to help those who follow our survey lines and use our survey controls.

**Please note: This in no way implies that we will be doing construction stake-out.**

My suggestion is that this duty become a standard part of the TE I's responsibilities, with assistance from the TT VI as needed. However, each of you knows your staff, and can best determine the knowledge and responsibility level of those who will be involved in this extremely important activity.

My office will be receiving notices of the pre-Construction meetings. We will forward these on to the Group Leader and Area Engineer in each Division, for your information and attendance.

As always, thank you for your cooperation in this activity. I hope that we all look forward to this as another opportunity to expand our knowledge, improve our operations, and build better highways.

CWB