



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

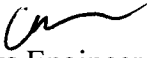
JAMES B. HUNT JR.  
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

E. NORRIS TOLSON  
SECRETARY

4/05/99

TO: L&S Group Leaders  
Private Engineering Firms w/ Limited Service Contracts to L&S  
L&S Area Engineers

FROM: Charlie Brown, PE, PLS   
State Location and Surveys Engineer

SUBJECT: Procedures for GPS Surveys involving PEF's

This memo is in response to questions asked of the Project Data Support Group concerning GPS reports by consultants. Listed below are questions that have been asked along with the responses.

**Re: GPS Vector Map**

**Q) Do you want to see all of the baselines or just the independent baselines ?**

A) The GPS Vector Map should reflect all the baselines that were utilized in the network adjustment. This should be just the independent baselines.

**Q) Do you wish to see the ppms for all closures? Even those that may not be discernable to the eye? (Meaning – do you want us to draw leader lines to closures on a very thin triangle where the lines appear to be on top of one another on the vector map?)**

A) The GPS Vector Map should show the ppms for ALL closures that are shown on the vector map.

**Q) Do you want the closure printout in the report to match the vector map exactly, no more and no less?**

A) The closure report should reflect everything that is on the vector map. If you wish to include additional loop closures that have been run while checking the data it is OK.

**Re: General Procedures for all GPS projects**  
**Please verify the following:**

**PROC 99-1**

- **The Project Analysis page in GPSRJ39.XLT must always be filled out always.**

A) The Project Report sheet should contain information relative to that project. This is especially important when control was not held or anything out of the norm happened. Just a few quick notes can really help when reviewing a project.

- **The unit of measure on all projects is Meters.**

A) This is true. All GPS jobs should be done in meters. The spreadsheet will allow for the export of English coordinates.

- **The naming convention is P1, P2, P3 etc. for all panel points and TIP#-# (i.e. R2514-1, R2514-2) for azimuth pairs.**

A) True. HPT/VPT's should be named H1, H2, H3 etc..

- **The baseline between any azimuth pair must be occupied twice on all projects.**

A) True

- **Panel points require sketches and "to reach" descriptions on all projects.**

A) GPSRJ39.XLT will not allow for the creation of data sheets for panel points due to memory conflicts. Therefore it is not necessary to create data sheets for panels unless there are special circumstances as per the Locating Engineer. It is at the discretion of the Locating Engineer whether sketches are needed for panel points on a job by job basis. "To reach" descriptions are not needed on panel points. However, they are needed on azimuth pair points.

### **Re: GPS Report**

#### **What is to be included in the GPS Report and in what order.**

A) In order to keep all of the reports consistent the format should be as follows:

- 1) Cover sheet
- 2) Reference (vicinity) map
- 3) Loop closures
- 4) "Data" sheet from GPSRJ##.XLT
- 5) "Initial Analysis" sheet from GPSRJ##.XLT
- 6) "Project Report" sheet from GPSRJ##.XLT
- 7) Coordinate List
- 8) Map Projection Transformation
- 9) Control Data Sheets
- 10) NCGS Data Sheets
- 11) GPS Vector Map

On all GPS Projects, In-house or PEF, the FGCC Standards and Specifications dated August 1, 1989 should be utilized. If there are any questions concerning any of the above answers, please contact Emory Kincaid at (919) 250-4109.

CWB:egk