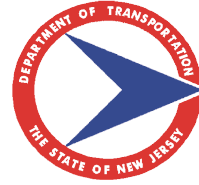


***New Jersey Department of Transportation***

1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600



***Baseline Document Change Announcement***

**Survey Manual**

**BDC06MR-03**

**January 31, 2007**

**SUBJECT: Revision to Chapters 1, 2, 3, 4 and 6 of the 2000 Survey Manual.**

Chapters 1, 2, 3, 4 and 6 of the 2000 Survey Manual have been revised to reflect the changes and advancement of GPS technologies now being used in the field of surveying. This will now further re-enforce the criteria that surveyors are expected to follow when performing GPS work for The Department. Other minor updates have also been included in this revision. In addition, three new checklists have been added to the existing Appendix C

The following revisions have been incorporated in Survey Manual as of January 31, 2007.

**CHAPTER 1 – INTRODUCTION**

**1.5.1 Public Relations, General**

FIRST BULLETED ITEM HAS BEEN CHANGED TO:

- A crew chief contacts many individuals: property owners, other surveyors, park rangers, etc. Often it is necessary to leave a telephone number and an address with these people. Crew chiefs may use, when available, business cards or office contact number to help in fostering good relationships with others. At other times, the business card can simply be a means of introduction or of creating goodwill. All employees should carry their State issued identification cards at all times.

**1.5.7.3 Railroads**

THE SECOND PARAGRAPH IS CHANGED TO:

Land which carries rails is called "operating Right-of-Way". Before entry is made on such property, a notice of entry must be sent. All personnel entering railroad property must have a valid ID indicating railroad safety training within the current year. Right of entry permit must be obtained from Railroad Company.

## CHAPTER 2 – CONTROL SURVEYS AND STATE PLANE COORDINATE SYSTEMS

### 2.4.8 Baseline Monumentation

ENTIRE NEW SECTION ADDED:

Project baselines, existing or proposed, shall be tied down with monuments on all projects where new ROW is not being acquired. A waiver from the Regional Survey office must be acquired if monuments are not installed. Monuments set by consultants will be stamped NJDOT and company name in accordance with NJAC 13:40-5.1(d) 3. Monuments shall be set on the baseline or at offsets radial or perpendicular to all horizontal changes in the baseline (PC's, PT's, PCC's, etc.). Monuments shall be set at all intersection points along normal/tangent lines and at points no greater than 1320' where the baseline is tangent or on a continuous curve of constant radius.

## CHAPTER 3 – SURVEYING MEASUREMENTS

### 3.7.6.2.1 Differential Leveling, General

ITEM 2 OF SUBSECTION B, "INSTRUMENT SETUPS", IS CHANGED TO:

2. Do not waste time by deeply imbedding tripod feet. Settlement is usually insignificant. Avoid setups on hot pavement or in spongy or muddy soil. If a setup in this area is unavoidable, be very careful around the instrument and constantly check level bubbles and backsights.

## CHAPTER 4 – GPS SURVEYS

THE ENTIRETY OF CHAPTER 4 HAS BEEN CHANGED TO REFLECT THE MOST RECENT ADVANCMENTS IN GPS TECHNOLOGY.

**Please replace all current Chapter 4 pages with new pages 4-1 to 4-29**

## CHAPTER 6 – SURVEY PROCEDURES

### 6.3.1.1 Traverse Style Base Control

ADD ITEM NUMBER 6:

6. Traverse control points must have 3 reference points (ties) for use in locating or relocating points in the field. Unstable reference points (regulatory sign posts, etc.) should not be utilized. Trees or building corners must include a height measured above ground level to the point.

### 6.3.2 Vertical Control

ITEM NUMBER 2 IS CHANGED TO:

2. **Plan benchmark locations** - Design plans should be thoroughly reviewed and a set of plans marked up with the approximate location of existing benchmarks and locations where construction control benchmarks will be required. Such planning can save considerable field time and assure that required benchmarks will be established at their optimum location on a timely basis. Construction plan sheets must contain a minimum of one benchmark.

**6.3.2.1 Benchmark Spacing**

ITEM NUMBER 4 IS CHANGED TO:

- 4. At interchanges, two benchmarks should be established for each quadrant in addition to those required for the structure(s).

**6.3.2.2 Bench Mark Location**

ADD ITEMS 5 AND 6:

- 5. Utilize baseline monuments when practical.
- 6. Benchmarks destroyed during construction activities must be replaced to ensure a minimum of one benchmark per thousand feet.

**Because of page shift due to revisions, please replace all pages in chapter 6 from 6-16 to 6-28 with the new pages 6-16 to 6-29.**

**APPENDIX C**

**Please add the following checklist pages to Appendix C:**

- Survey Report QA Check List (Survey Report Checklist.xls)
- Geodetic Survey : Quality Assurance Checklist "Sample" (QA.doc)
- Geodetic Survey : Quality Control Checklist : "Sample" (QC.doc)

**Implementation Code R (ROUTINE)**

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

**Recommended By:**

ORIGINAL SIGNED

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Lynn D. Rich  
 Director,  
 Quality Management Services

**Approved By:**

ORIGINAL SIGNED

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Richard T. Hammer  
 Assistant Commissioner,  
 Capital Program Management

LDR: MJS: RTH  
 BDC06MR-03.doc  
 Attachment(s):  
 Chapter 1, pages 1-7 and 1-11  
 Chapter 2, page 2-24  
 Chapter 3, page 3-24  
 Chapter 4, pages 1 thru 29  
 Chapter 6, pages 6-16 thru 6-29

Survey Report Checklist  
 Quality Assurance Checklist  
 Quality Control Checklist