

Section II
Documentation

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II. Documentation

A. Introduction

This section discusses the importance of accurate, complete, and uniform documentation of field collected surveys. The documentation is recorded in either hardbound field survey books or electronic data collectors. Documentation of a typical field survey consists of measurements, descriptions, and/or illustrations to record all pertinent information. This information includes raw measurement files, calculations, descriptive notes, illustrations, and comments made by the surveyor. Once the survey crew leaves the project, the documentation is the only record of the survey. Therefore, all calculations, illustrations, and notes should be checked for accuracy, legibility, and clarity.

A properly conducted field survey may be of little use without comprehensive notes. The documentation should include, at a minimum, the following information:

- Project name, section, and number
- Location and type of survey
- Date of the survey
- Atmospheric conditions
- Personnel involved and assigned activities (e.g. instrument operator, rod person, and note keeper)
- Equipment used for the survey
- Permanent, extendible, or temporary control used
- Original data values without edits or error corrections
- Any pertinent explanations of the survey or other conditions

The person recording the field notes may not be the same person using them at a later date. Consequently, someone outside the original survey crew should be able to clearly identify these project parameters.

B. Methods of Documentation

The original documentation is a combination of raw data measurements, additional feature descriptions, and hand written field notes. The field notes are made up of descriptive illustrations and/or comments to clarify the survey work performed.

Any supporting documentation may describe specific measurements, collection errors, or other matters to preserve the integrity of the survey. The notes should be referred to when editing, processing, or adjusting the raw measurement data.

1. Measurements

Measurements made by a surveying instrument are a form of documentation and may be recorded in a data collector and/or field book. The data collector is used to operate the GPS or conventional surveying instrument. The data collector may be attached directly to the

instrument, or connected with a cable. Newer surveying instruments use Bluetooth technology to transfer information. The data collector communicates with the instrument over short distances by means of short length radio waves.

The data collector records setup information, measurement data, and any descriptive information entered by the surveyor. Survey information recorded by a data collector eliminates many of the measuring and recording errors common with older, manually operated instruments.

2. Notes and Comments

Field measurements may be supplemented with descriptive notes or comments to clarify the data if necessary. These notes may be handwritten in a field book or typed in a data collector. Each note may be a few words, or a lengthy explanation to cover pertinent details of the survey.

Electronic field notes have the same credibility as handwritten notes. However, they must include the survey specific information previously mentioned. Some surveying instruments such as a digital level have a very limited capability to store notes. In these cases, other forms of documentation become necessary to supplement the measurement files.

Original notes are those recorded at the time the measurements were taken. Care must be taken during the survey to neatly and accurately record each note. Handwritten field notes should be kept in hardbound field books. Transcribing original field notes and measurements from other sources into a field book shall not be accepted. This practice causes mistakes and omissions, and renders them inadmissible as evidence. The same procedures used with hardbound field notes should be followed with electronic field notes.

Erasures are not permitted in the field books. Erasures diminish, and often destroy, the credibility of field notes. If an item has been recorded incorrectly, draw a single line through it without destroying its legibility and record the correct entry next to it. If an entire page must be omitted, draw diagonal lines across the page and write "VOID" conspicuously across the page.

Clearly indicate the decimal portion of a measured value. For a number less than one, a zero should be placed before the decimal point, (e.g. 0.15 instead of .15). Always record significant zeroes to show precision of measurement, (e.g. 6.40 instead of 6.4 if measuring to the hundredths).

Any necessary calculations should be included in the field book on the same page(s) as the measurements, illustrations, and notes. The person performing the computations shall place their initials on the same page(s). All computations shall be checked and initialed by a second person.

3. Illustrations

Illustrations are typically used in conjunction with written or electronically stored notes to supplement the survey measurements. They may be drawn to an approximate scale, or important details may be exaggerated for clarity. The main purpose is to show more clearly

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or prevent misinterpretation of information described in other sources. A very important requirement of an illustration is legibility. They should be drawn clearly and large enough to be understood by others not associated with the survey.

Illustrations of survey data may be further explained by means of a dimension scale or north arrow. These simple rules should be followed when creating illustrations:

- Make notes dark enough to be reproducible.
- Use standard abbreviations and symbols.
- Draw illustrations to an approximate scale.
- Use drafting aids such as a straight edge, compass, or engineer's scale whenever possible.
- Do not crowd the illustration so that the text is hard to distinguish or vital information is covered.

C. Importance of Documentation

As previously mentioned, the survey documentation includes the original measurement files, field notes, and illustrations. The documentation serves as an official record and can be used to duplicate a survey, if necessary. The original survey documents and project diaries occasionally serve as the primary source of information in court cases involving the Department and landowners or contractors.

Notes, comments, and illustrations serve to supplement project control, topographic, right-of-way, and construction measurements. The same documentation is often used by others to check field computations and to edit, process, and adjust raw data. Because of the importance of documentation, the note keeping duties should be assigned to a knowledgeable member of the survey crew.

D. Documentation Submittal and Archival

A copy of the field notes and illustrations should accompany electronic measurement files when submitted to the State Photogrammetry & Surveys Engineer. All survey documentation submitted to the Photogrammetry & Surveys Section (P&S) shall be saved on the appropriate computer directory or filed in the project folder. The project archives are kept for future reference.

The surveyor should also archive all survey field notes and measurement files for their reference prior to submitting survey data to P&S. Refer to Chapter 10 in the Data Collection Manual for additional information on submitting survey data.