

**MINIMUM STANDARDS OF PRACTICE
FOR PROFESSIONAL SURVEYING
IN MICHIGAN**

**ADOPTED
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**MICHIGAN SOCIETY OF
PROFESSIONAL SURVEYORS
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I. INTRODUCTION

In order to promote safeguards of property, and to promote public welfare, a manual of MINIMUM STANDARDS OF PRACTICE FOR PROFESSIONAL SURVEYING in the State of Michigan is hereby adopted.

The standards for surveying contained herein are established for all surveys in the State of Michigan, whether public or private. These minimum standards shall apply to every survey performed in this state.

It is anticipated that the following standards will assist in meeting public needs as follows:

- Newly created parcels must be properly described.
- In any boundary survey, the client be made aware of gaps, overlaps, and encroachments with adjoining properties that are known to the Professional Surveyor.
- The monumentation placed must be of approved material.
- The accuracy of the survey must be such that if a monument is destroyed, at the time of re-survey it will be replaced in its original position.

These standards intend to provide the Professional Surveyor and recipient of surveys with a realistic and prudent guide for adequate surveying performance. The Professional Surveyor will continue to exercise individual skill, discretion, and judgment in each specific task that is performed.

This document is prepared by the Michigan Society of Professional Surveyors' Manual of Practice Committee and is intended to reflect the consensus of practicing Professional Surveyors in Michigan. These standards will be reviewed and revised periodically.

II. DEFINITIONS

For the purposes of these standards, control, land, and the subdivision thereof, boundary, property, topographic, construction, easement/right-of-way and certificates of survey, are considered to be within the scope of the practice of Professional Surveying and will conform to these standards.

CERTIFIED SURVEY - Complies with Act 132, P.A. 1970, as amended.

CONSTRUCTION SURVEY - Establishes a network of horizontal and vertical control points with appropriate accuracy for the construction of public works and private development projects.

CONTROL SURVEY (GEODETIC CONTROL SURVEY) - Provides horizontal and/or vertical position data for the support or control of subordinate surveys or for mapping, including topographic and hydrographic mapping.

EASEMENT/RIGHT-OF-WAY SURVEY - Defines subordinate limits (rights) relative to property boundaries and/or rights-of-way generally associated with one or more of the following: transportation routes, power and/or communication lines, transmission lines, pipelines, drainage and water routes.

LAND, BOUNDARY OR PROPERTY SURVEY, OR RESURVEY - A series of measurements and observations to determine the length and direction of real property boundaries and to establish or re-establish the position of these boundaries.

LINEAR ERROR OF CLOSURE - The square root of the sum of the squares of the error in latitudes and the error in departures.

MAP OF SURVEY (HOWEVER TITLED) - All are considered surveys and must meet applicable standards.

MORTGAGE REPORT (HOWEVER TITLED) - Certifies to an abstract company, title company, escrow company, lending institution or other similar entity the conditions appurtenant to a tract of land. This report must be prepared by a Professional Surveyor and is not a boundary survey.

PROFESSIONAL SURVEYOR - Engages in the practice of Professional Surveying and is so qualified to practice as attested by legal licensure as a Professional Surveyor in Michigan pursuant to Article 20 of Act 299, P.A. 1980, (the Michigan Occupational Code), as amended.

RATIO OF CLOSURE - Expresses a fraction of the form "1/X" determined by the proportion:

$$\frac{1}{X} = \frac{\text{linear error of closure}}{\text{perimeter of measured traverse}}$$

TOPOGRAPHIC SURVEY - Determines the configuration (relief) of the surface of the earth (ground) and the location of natural and artificial objects thereon. This type of survey for small scale mapping projects must meet the applicable current U. S. National Map Accuracy Standards. This type of survey for large scale mapping projects must meet the applicable Engineering Map Accuracy Standards by American Society of Civil Engineers and the applicable Mapping Standards by American Society for Photogrammetry and Remote Sensing.

ALL OTHER DEFINITIONS OF SURVEYING TERMS WILL BE BASED ON GLOSSARY

OF TERMS IN **BOUNDARY CONTROL AND LEGAL PRINCIPALS** BY CURTIS M. BROWN, and **DEFINITIONS OF SURVEYING AND ASSOCIATED TERMS** BY THE AMERICAN CONGRESS ON SURVEYING AND MAPPING AND THE AMERICAN SOCIETY OF CIVIL ENGINEERS.

III. PROJECT PROCEDURES

A. Determine the scope of the project.

The client and Professional Surveyor must develop a mutual understanding of the services to be provided. The client must inform the Professional Surveyor of his needs.

B. Evidence of Land Descriptions, Records and Research.

The client must provide a land description of the property to be surveyed. If the land description alludes to unique conditions, the Professional Surveyor should consult other sources of information referred to in the land description in order to assemble suitable written evidence of the corners and lines of the property being surveyed. Sources of that information may include but are not limited to.

- Records of previous surveys; land descriptions of adjacent properties; records of adjacent highways, railroad and utilities; records of public agencies.

Abstracts, deeds, Certificates of Title, title opinions, title binders are all sources of land descriptions. Tax statements and other abbreviated documents are usually inadequate sources of a proper land description.

In the performance of a survey, if a discrepancy exists, it may be necessary for the Professional Surveyor to obtain current descriptions of other properties in the area. Professional Surveyors are expected to exercise reasonable care in doing record research, but cannot be held liable for errors or omissions caused by defects in the chain of title for the property being surveyed, or that of the adjoining. Title defects may be revealed through an examination of title by those professionals trained and experienced in this area.

C. Evaluation of Capabilities.

It is the Professional Surveyor's responsibility to determine whether he or she has the proper knowledge, experience, personnel, equipment and resources available to undertake the project.

D. Planning Project Completion.

Having appraised the project and evaluated the necessary criteria, the Professional Surveyor should plan a method of successfully completing the project.

E. Estimate Cost and Acceptance of the Services.

It is advisable to inform the client of the approximate fee and the terms of payment for the professional services in advance of doing the work. Some research is also advisable before estimating the fee.

If previously unknown factors are discovered during the course of the work that will seriously affect either the cost or the completion schedule of the project, the Professional Surveyor should inform the client or the client's agent upon such discovery.

For the mutual protection of both client and Surveyor, the Professional Surveyor may prepare and supply the client or the client's agent with a memorandum, letter, confirmation of work ordered, or contract for the professional services. The Professional Surveyor may establish with the client the extent of any known limitations to the Professional Surveyor's responsibility.

IV. TECHNICAL SPECIFICATIONS FOR SURVEYS

A. Research of Survey Records.

The objective of research is to gather written evidence pertaining to both the title location and corner monument locations. The Professional Surveyor should evaluate all pertinent information discovered in research.

B. Accuracy Standards.

The Professional Surveyor is charged with using the correct procedure to attain the horizontal and/or vertical control accuracy demanded of the project.

In the instance of surveys made to delineate, monument, define or re-define property boundaries and limits, the error of closure shall not exceed 1 unit for each 5000 units measured or stated. Linear errors of closure up to 0.15 feet shall be appropriate for parcels of less than 750 feet total perimeter.

American Land Title Association/American Congress on Surveying and Mapping (ALTA/ACSM) Land Title Surveys shall meet the current "Minimum Standard Detail

Requirements for ALTA/ACSM Land Title Surveys" jointly established and adopted by ALTA and ACSM.

Geodetic Control Surveys shall meet the latest edition of the **Standards and Specifications for Geodetic Control Networks** by the Federal Geodetic Control Committee.

C. Monumentation.

Every boundary survey performed in Michigan shall be monumented at all boundary (or accessory) corner locations. All corners shall be marked with a physical monument placed in a manner providing a degree of permanency consistent with that of the local terrain and physical features. Monuments set by a Professional Surveyor shall be made of durable material and must include an element that makes it possible to detect the monument by means of some device for finding ferrous or magnetic objects. Monumentation set by a Professional Surveyor shall bear an identification of the Professional Surveyor by his or her licensing number. The minimum requirements for monuments set shall be as set forth in Act 132, P.A. 1970, as amended; Act 74, P.A. 1970, as amended; and Act 288, P.A. 1967, as amended.

It is recommended that all monuments be prominently marked by the Professional Surveyor in such a manner as to enable the client to easily find the monument. The markings should be appropriate to the conditions and vegetation cover. It is also suggested that the Professional Surveyor advise the client on the value and importance of their boundary monuments. If a boundary corner cannot be set, an accessory corner shall be set and properly indicated on the record.

D. State Plane Coordinates.

State Plane Coordinates may be placed on maps, plats, drawings, and records of surveys whenever it is part of the scope of the services. All documents showing state plane coordinates must show datum used (NAD-83), zone, grid factor, standard deviation and control stations used and be in compliance with Act 9, P.A. 1964 as amended by Act 154, P.A. 1988.

E. Geodetic Survey Application.

Geodetic Control Surveys shall conform to the latest edition of the **Standards and Specifications for Geodetic Control Networks** by the Federal Geodetic Control Committee.

F. Global Positioning System (GPS) Survey Application.

GPS Surveys shall conform to the latest edition of the **Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques** by the Federal Geodetic Control Committee.

V. GRAPHIC REPRESENTATION OF A SURVEY

A. Certified Survey.

Surveys prepared for the purposes of describing a parcel of land in a conveyance of title shall be prepared in accordance with Act 132, P.A. 1970, as amended.

B. Land Title Surveys.

Land Title Surveys should adhere to all provisions of the current "Minimum Standard Detail Requirements for Land Title Surveys", ACSM-ALTA, or such other modified versions as may be agreed between Professional Surveyor and Client.

C. Mortgage Report (However Titled).

1. Recommendations for Mortgage Loan Inspections.

a. The mortgage loan inspection shall be signed by a Professional Surveyor.

b. All mortgage loan inspections shall contain the following information:

- 1) Title (Mortgage Loan Inspection, Mortgage Report or similar).
- 2) North arrow (when graphical report is prepared).
- 3) Building and/or other building improvements required by the client.
- 4) Date of inspection.
- 5) Visible building encroachments.
- 6) Land description of the property
- 7) Professional Surveyor's Certification.

c. Mortgage Loan Inspections may also contain other information as mutually agreed upon by the Professional Surveyor and client.

D. Topographic Maps.

1. Recommendations for Topographic Maps.

a. When the topographic map is combined with a boundary survey, the certification shall be signed by a Professional Surveyor, and adhere to all provisions governing boundary surveys.

b. All topographic maps shall contain the following information:

1) Title.

2) North arrow.

3) A numerical scale.

4) Date.

5) Contour Interval. (If contours are provided)

6) Vertical Datum used.

7) Bench Mark along with identification and corresponding elevation.
(Two minimum per sheet)

c. Topographic Maps may also contain other information as mutually agreed upon by the Professional Surveyor and client.

2. Care must be taken that the purpose and limitations of this type of map are understood by the user. It is suggested that the words "THIS IS NOT A BOUNDARY SURVEY" be prominently printed upon the map, unless a boundary survey was performed.

E. Sketch and Description.

1. Preparation of land description and sketches should not be performed for transfer of title or purposes of deed preparation without benefit of a previous or current survey.

F. Condominium Plans.

Condominium plans shall be prepared in accordance with Act 59, P.A. 1978, as amended, including administrative rules.

G. Subdivision Plans.

Subdivision plans shall be prepared in accordance with Act 288, P.A. 1967, as amended, including administrative rules.

VI. LAND DESCRIPTIONS

The composition of a description necessarily varies with the land described, circumstances encountered and the Professional Surveyor involved. No two Professional Surveyors would write the same exact description, nor do they need to.

When a new land description is to be drafted but is restricted along one or more boundary lines because undesirable wording is already of record, every attempt should be made to:

(1) clarify the existing description as much as possible, to eliminate ambiguities as to that description's intent; or (2) write the "new" portion of this description to comply as much as possible with the above mentioned guidelines. Such a new description is often called "More properly described as".

When conducting a Retracement Survey, if a discrepancy is discovered the existing land description should be examined with respect to its adjoiners and encroachments. If necessary, a "DESCRIPTION AS SURVEYED" may be prepared. When necessary, the client should be advised to seek legal help.

Following is a partial list of books that contain certain guidelines for description writing:

Boundary Control and Legal Principles current edition

Curtis M. Brown, Walter G. Robillard, & Donald A. Wilson
John Wiley and Sons Incorporated
New York City, New York

Description and Survey in Title

William C. Wattles
Title Insurance and Trust Company
Los Angeles 54, California

The Legal Elements of Boundaries and Adjacent Properties

Ray Hamilton Skelton
Bobbs-Merrill Company
Indianapolis, Indiana

Evidence and Procedure for Boundary Location current edition
Curtis M. Brown, Walter G. Robillard & Donald A. Wilson
John Wiley and Sons Incorporated
New York City, New York

Writing Legal Descriptions
Gurdon H. Wattles
Parker and Sons, Inc.

VII. INSTRUMENTS AND EQUIPMENT

The practice of Professional Surveying in Michigan is conducted in the field with properly adjusted measuring instruments appropriate to the tolerance of the work being done. The instrument should be tested and adjusted yearly on a calibrated baseline or by a qualified technician to maintain its accuracy.

For reasons of safety and efficiency, all other equipment should be regularly maintained, or replaced as necessary.

VIII. DATA PRESERVATION

Every Professional Surveyor must preserve his records, field notes, and drawings.

The Professional Surveyor should file and index all field notes, calculations, maps, drawings, photographs, and other data accumulated during the survey.

Professional Surveyors are encouraged to accumulate information on the historical development of surveys in the geographical area of their practice.

Although communications between the Professional Surveyor and client are confidential, each Professional Surveyor must be prepared to discuss the technical aspects of surveys with other Professional Surveyors with the client's consent.

IX. RETRACEMENT SURVEYS/SUBDIVISION OF SECTIONS IN THE PUBLIC LAND SURVEY SYSTEM (PLSS)

In the preparation of a survey, a Professional Surveyor may need to locate or re-establish one or

more PLSS corners. In order to do so, the Professional Surveyor must know and understand the procedures that the U. S. Deputy Surveyors used to establish those corners.

The procedures by which the surveys and subdivision of sections in the public land survey system are performed are set forth in the current **Manual of Instructions of the Survey of the Public Lands of the United States** published by the Department of the Interior Bureau of Land Management.

Supplementary discussion is available from the following texts:

Boundary Control and Legal Principals, current edition
Curtis M. Brown, Walter G. Robillard, and Donald A. Wilson
New York City, New York

The Legal Elements of Boundaries and Adjacent Properties
Ray Hamilton Skelton
Boles-Merrill Company
Indianapolis, Indiana

Evidence and Procedure for Boundary Location current edition
Curtis M. Brown, Walter G. Robillard, and Donald A. Wilson
John Wiley and Sons Inc.
New York City, New York

Restoration of Lost or Obliterated Corners and Subdivision of Sections a Guide for Surveyors 1974 Edition, Printed in 1979 by the United States Department of the Interior Bureau of Land Management U.S. Government Printing Office, Washington, D.C. 20402 (This publication is included for use and reference) Also, the 1883-1974 Edition of the Original and all Six Revisions, 1977 reprint
Carben Surveying Reprints
Sacramento, California

Manual of Standards of Practice for the Michigan Society of Professional Surveyors, 1972.
Michigan Society of Professional Surveyors,
Lansing, Michigan.

This covers the three general instructions for surveys of the P.L.S.S. (layout of township boundaries and subdivision of townships) used in Michigan for the original surveys. Also contains citations of case law on boundary surveys and disputes in Michigan which are applicable to Michigan.

A Manual of Land Surveying 1903 and 1913 Editions.

F. Hodgman
The F. Hodgman Co.
Climax, Michigan
(reprinted by the Michigan Society of Professional Surveyors. 1994)

Special Instructions to Deputy Surveyors in Michigan 1808-1854

Prof. Ralph Moore Berry (Norman C. Caldwell, P.S.)
Michigan Museum of Surveying
Lansing, Michigan

Clark on Surveying and Boundaries, current edition.

John S. Grimes
The Bobbs-Merrill Company, Inc.
Indianapolis, Indiana