

Introduction to ALTA/ACSM Land Title Surveys

presented to the

**REAL ESTATE FINANCE
ASSOCIATION**

by

Robert A Gemma, P.E., P.L.S.

MetroWest Engineering, Inc.

Scott D. Cameron, P.L.S.

R.E. Cameron & Associates, Inc.

Who we are

- Professional Engineers and Land Surveyors
- Licensed by the Commonwealth of Massachusetts
- By Division of Professional Licensure, George Weber Acting Director
- Falls under the Office of Consumer Affairs and Business Regulation, Beth Lindstrom, Director

Surveyor's Obligations and Responsibilities

Surveyors are Licensed Professionals Regulated under 250 CMR 3.00- 6.00

- ALTA (American Land Title Association) publishes standards that surveyors must satisfy in the preparation of an ALTA Survey
- ALTA Surveys conducted in Mass. must meet the requirements of both 250 CMR and the 2005 Minimum Standards for ALTA/ACSM Land Title Surveys

ACSM- American Congress on Surveying & Mapping

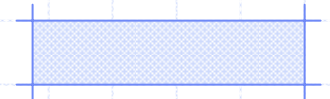
Why ALTA Surveys?

- To provide the purchaser and other professionals involved in the transaction process with an accurate “picture” of the real estate
- To provide the purchaser (our client) with reliable information for negotiating with the seller
- To provide title examiners with the information needed to assist the buyer in securing title insurance

Types of Information Provided by an ALTA Survey



- Research Information
 - Title information
 - Zoning Information



Types of Information Provided by an ALTA Survey



- **Field Survey Information**

- Measurements of site improvements
- Measurements of evidence of boundary location

Research Information

- Title Commitment
- Records from Registry of Deeds
- Records from Land Court
- Records of Street Location
 - MA Highway Department
 - County Records
 - MDC
 - City and Town Records

Research Information

- Records from Utility Companies
 - Sewer, Water, Drainage (from City/Town)
 - Electric Companies
 - Gas Companies
 - Cable TV & Internet Service Providers

Research Information

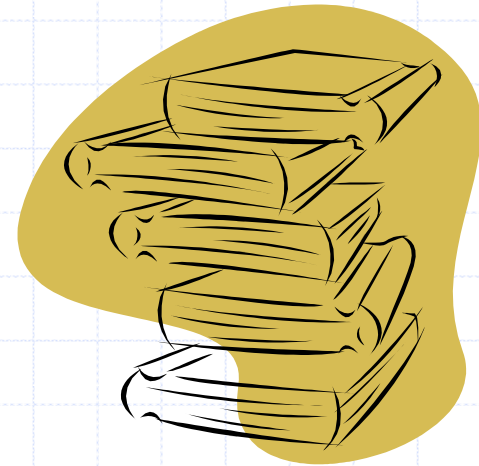
- Site Permitting and Approval Information
 - Subdivision Approval
 - Site Plan Approval
 - Special Permits
 - Building Permit
 - Wetland/Conservation Permit
 - Highway Access- Curb Cut Permits

Research Information

- Zoning & Land Use Regulations
 - Is zoning bylaw in effect at time of construction?
 - Current zoning bylaw
 - Zoning overlay districts and regulations
 - Water Resources Protection Districts
 - Wetland & Floodplain Protection Districts
 - Other town requirements
 - Board of Health
 - Flood Plain Information
 - FEMA Flood Insurance Rate Maps (FIRM)
 - Flood Hazard Studies

Research Information

- Utilities
- Floodplain
- Title Issues
- Municipal Research



Town or City Hall Research

- Town Clerk ~ Public or Private Way
- Assessors ~ Abutters
- Building Department
 - Zoning Issues
 - As-built plans of the property
- Conservation Commission
 - Orders of Conditions
 - Certificates of Compliance
- Planning and/or Zoning Board
 - Site Plan Approval
 - Subdivision or Site Plan Covenants
 - Special Permits



Title Issues

- Junior/Senior Rights
- Scrivener's Errors
- Agreement with Abutting Deeds
 - Gaps & gores in descriptions
- Grantor/Grantee indices search
 - Easements not listed on deed
 - Agreements affecting the property

Example of Easements not listed on deed



Field Information

Field Personnel are our clients' "eyes on the ground", looking for:

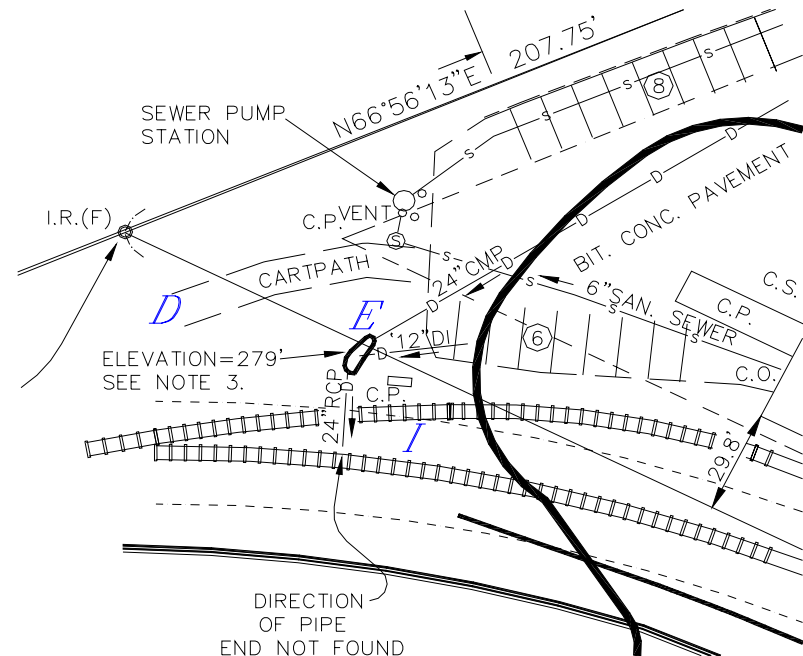
- Evidence of "Prescriptive Use" or "Adverse Possession"
- Encroachments
- Evidence of Easements
- Site Improvements
- Evidence of Boundaries
- Visible Environmental Hazards
- Site Access & Egress
- Water Bodies & Riparian Drainage Conditions
- Recent Site Alteration or Construction
- Other Features of Significance (unspecified)



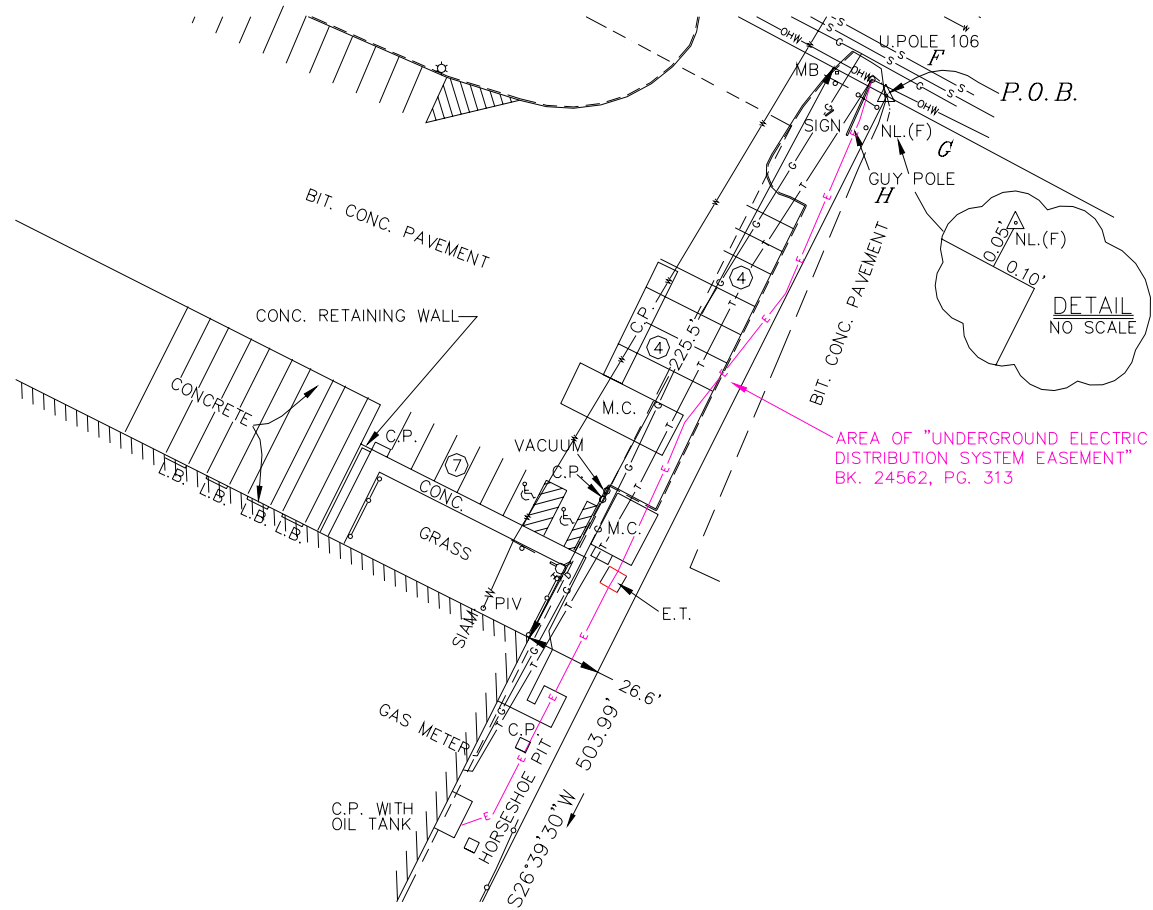
Example of Encroachments List from Sample ALTA Plan

ENCROACHMENTS:

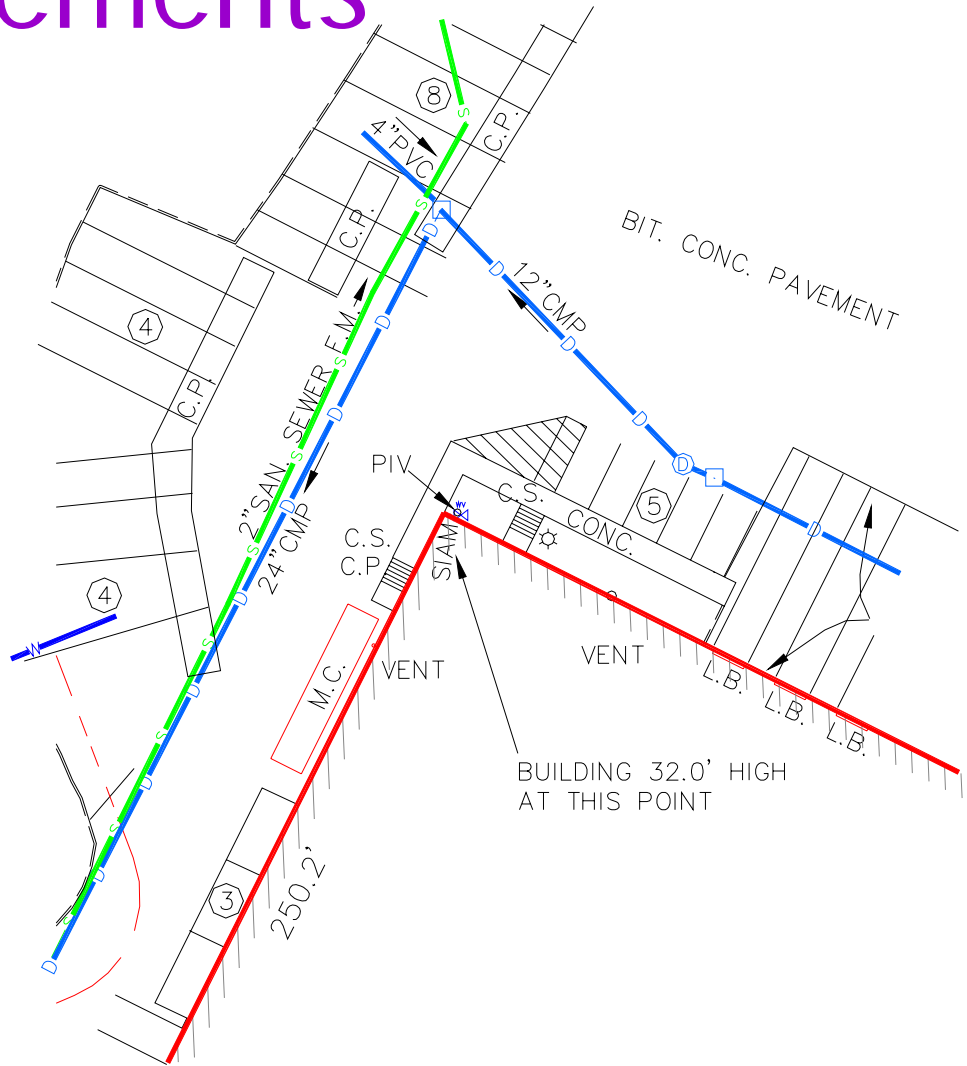
- A** OVERHEAD WIRES OVERHANG THE PREMISES BY 0.6' TO 1.0' ALONG FLANDERS ROAD.
- B** SEWER METER PIT AND APPURTENANCES ARE 20.2'± ONTO THE PREMISES.
- C** REMAINS OF WIRE FENCE ARE 0.2' TO 0.9' INTO THE PREMISES.
- D** A CART PATH CROSSES THE PROPERTY LINE.
- E** THE PROPERTY DRAINS ONTO LAND OF CUMBERLAND FARMS, INC. IN TWO PLACES.
- F** ABUTTING DRIVEWAY IS 0.6'± ON THE PREMISES.
- G** ABUTTING FENCE IS 9'± ON THE PREMISES.
- H** GUY POLES IS 18.5'± ON THE PREMISES.
- I** CONC. PAD WITH METAL CABINET IS 7.7'± ONTO LAND OF CUMBERLAND FARMS, INC.
- J** SIGN IS 6.5'± INTO FLANDERS ROAD.
- K** SIGN IS 5.8'± INTO FLANDERS ROAD.



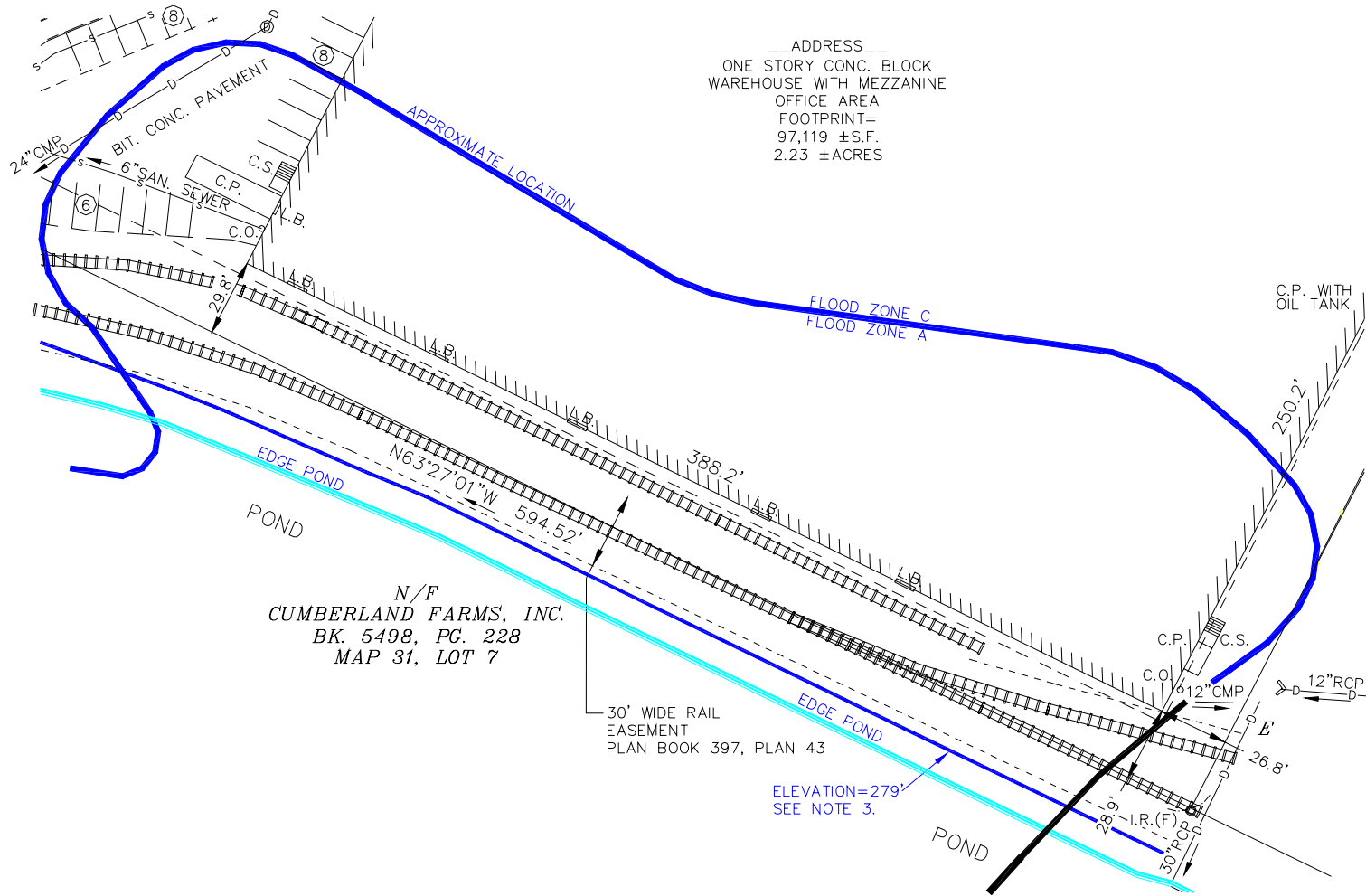
Evidence of Easements



Site Improvements



Floodplain Image



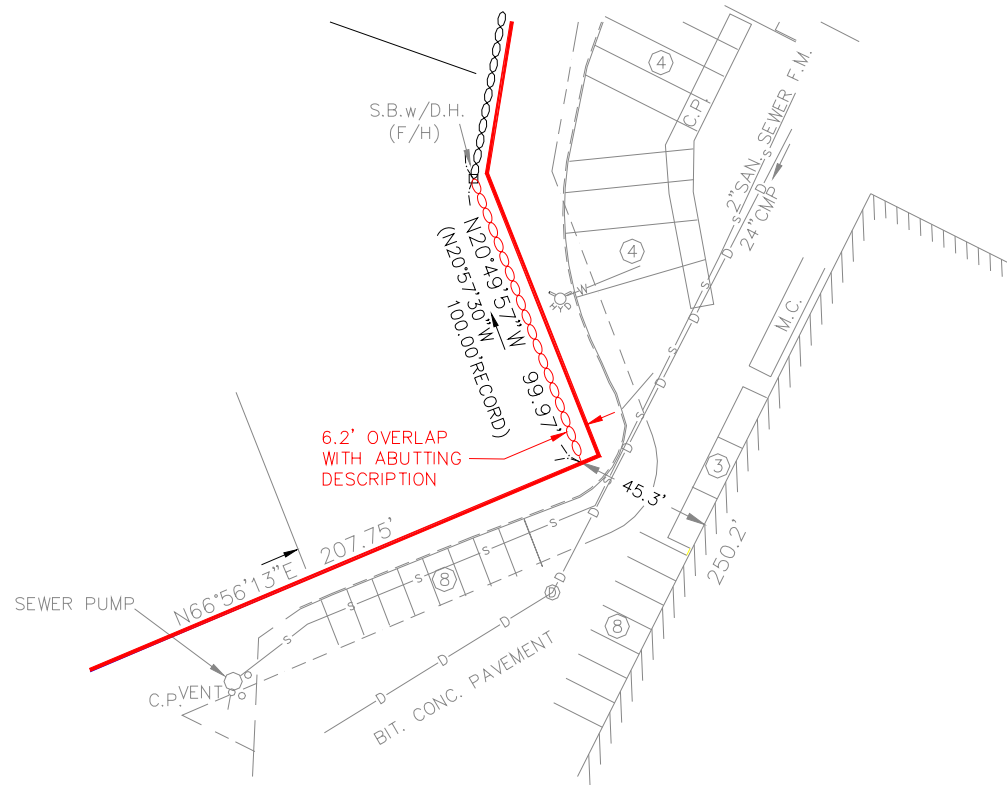
Floodplain Note from Sample Plan:

THE PROPERTY DESCRIBED ON THIS SURVEY DOES PARTIALLY LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONES "A" AND "C" OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS COMMUNITY PANEL NO.250344 0010 B, BEARING AN EFFECTIVE DATE OF MAY 15, 1980. ZONE "A" HAS NO ELEVATION ASSIGNED AND THE LOCATION SHOWN HEREON IS SCALED FROM THE F.I.R.M. CITED ABOVE.

THE ZONING FLOOD PLAIN DISTRICT HAS AN ELEVATION OF 274', AS SHOWN ON A PLAN ON FILE AT THE TOWN _____ BUILDING DEPARTMENT. THE LOWEST POINT OF THIS PROPERTY IS ABOVE THAT ELEVATION.

THE SOIL CONSERVATION SERVICE, USDA, PUBLICATION "FLOOD HAZARD ANALYSES UPPER SUDBURY RIVER MASSACHUSETTS" LISTS THE 100 YEAR FLOOD ELEVATION AS 279'. ONLY A SMALL PORTION OF THE PROPERTY IS BELOW THIS ELEVATION.

Gaps & Gores in Descriptions



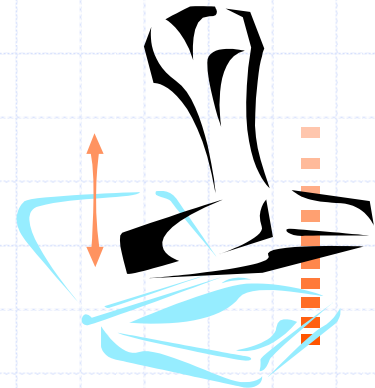
ALTA Surveys function to help secure title insurance for the mortgage loan by:

- Explaining the differences between the results of our research and Schedules A & B of the Title Commitment
- Providing a certified ALTA Survey Plan & Surveyor's Reports, in a form acceptable to lenders and insurers

In an ALTA Survey , we work with the title company and with legal counsel to:

- Explain differences found in the descriptions of the record documents as well as the differences between the field and record measurements
- Show that the location of a policy exception is no longer part of the property due to:
 - Prior conveyances
 - Removal of encroachments
 - Recent agreements
- Show encumbrances and encroachments in an easily identifiable manner

- Certification of the Survey is provided in a form that is acceptable to the lender, insurer, and surveyor, which must be negotiable.



An ALTA Survey contract should include the following:

- The list of Table A items to be included in the survey
- Call for the Title Commitment to be delivered in a timely manner prior to sending out the survey
- Allowance for one revision to the plan for third party input prior to finalizing the survey
- Agreement to allow surveyor access to property in a timely manner
- A realistic timeframe in which to complete survey

The client gets more than a required survey for title insurance. The client also gains:

- Knowledge of property conditions
- Awareness of potential survey & title issues
- Data necessary for a zoning opinion
- Notification of obvious environmental issues



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ALTA/ACSM LAND TITLE SURVEYS

**as adopted by
American Land Title Association
and
National Society of Professional
Surveyors**


**(a member organization of the American
Congress on Surveying and Mapping)**



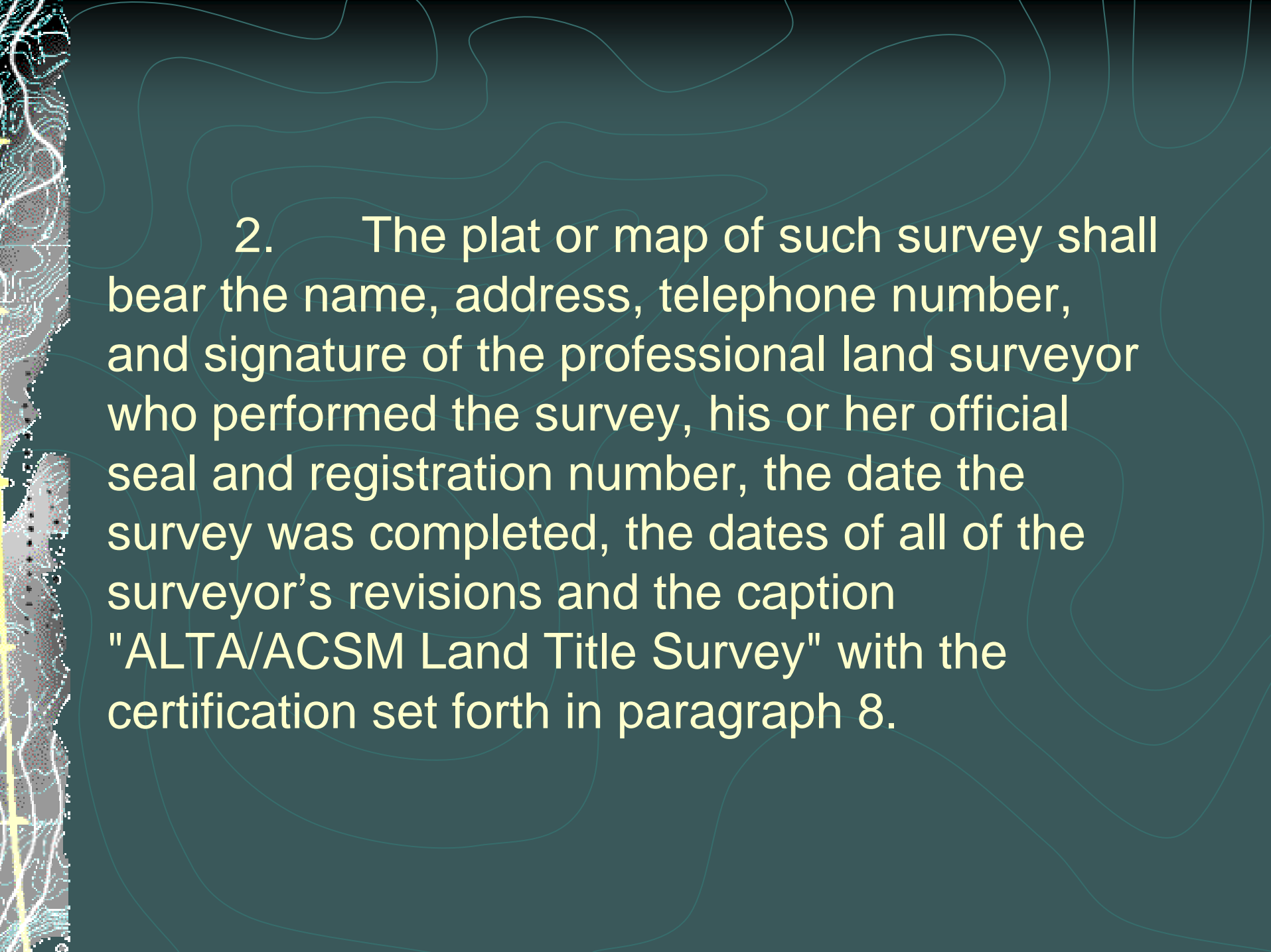
It is recognized that members of the American Land Title Association (ALTA) have specific needs, peculiar to title insurance matters, which require particular information for acceptance by title insurance companies when said companies are asked to insure title to land without exception as to the many matters which might be discoverable from survey and inspection and not be evidenced by the public records. In the general interest of the public, the surveying profession, title insurers and abstracters, ALTA and the National Society of Professional Surveyors, Inc. (NSPS) jointly promulgate and set forth such details and criteria for standards. It is recognized and understood that local and state standards or standards of care, which surveyors in those respective jurisdictions are bound by, may augment, or even require variations to the standards outlined herein. Where conflicts between the standards outlined herein and any jurisdictional statutes or regulations occur, the more restrictive requirement shall apply. It is also recognized that title insurance companies are entitled to rely on the survey furnished to them to be of an appropriate professional quality, both as to completeness and as to accuracy. It is equally recognized that for the performance of a survey, the surveyor will be provided with appropriate data which can be relied upon in the preparation of the survey.



For a survey of real property and the plat or map of the survey to be acceptable to a title insurance company for purposes of insuring title to said real property free and clear of survey matters (except those matters disclosed by the survey and indicated on the plat or map), certain specific and pertinent information shall be presented for the distinct and clear understanding between the client (insured), the title insurance company (insurer), and the surveyor (the person professionally responsible for the survey). These requirements are:




1. The client shall request the survey or arrange for the survey to be requested and shall provide a written authorization to proceed with the survey from the person responsible for paying for the survey. Unless specifically authorized in writing by the insurer, the insurer shall not be responsible for any costs associated with the preparation of the survey. The request shall specify that an "**ALTA/ACSM LAND TITLE SURVEY**" is required and shall designate which of the optional items listed in Table A are to be incorporated. The request shall set forth the record description of the property to be surveyed or, in the case of an original survey, the record description of the parent parcel that contains the property to be surveyed. Complete copies of the record description of the property (or, in the case of an original survey, the parent parcel), any record easements benefiting the property,; the record easements or servitudes and covenants burdening the property ("Record Documents"); documents of record referred to in the Record Documents; and any other documents containing desired appropriate information affecting the property being surveyed and to which the survey shall make reference shall be provided to the surveyor for notation on the plat or map of survey.

A topographic map showing contour lines and a road network, serving as a background for the text. The map is oriented vertically on the left side of the slide.

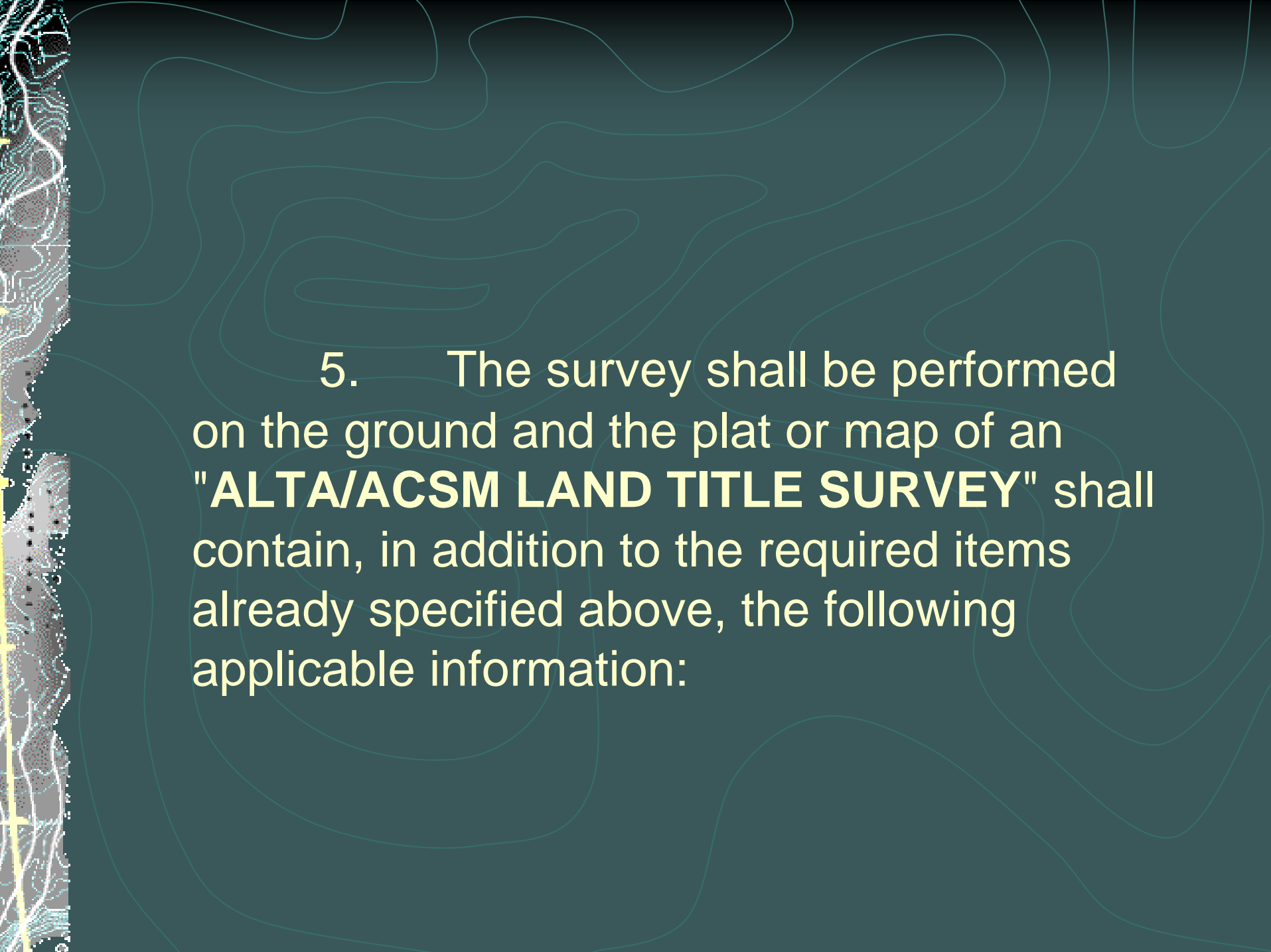
2. The plat or map of such survey shall bear the name, address, telephone number, and signature of the professional land surveyor who performed the survey, his or her official seal and registration number, the date the survey was completed, the dates of all of the surveyor's revisions and the caption "ALTA/ACSM Land Title Survey" with the certification set forth in paragraph 8.

The background of the slide is a topographic map with contour lines. The map is oriented vertically, with the top of the map at the top of the slide. The contour lines are light blue and represent elevation. The map shows a complex terrain with various peaks and valleys. The text is overlaid on the right side of the map.


3. An "**ALTA/ACSM LAND TITLE SURVEY**" shall be in accordance with the then-current "Accuracy Standards for Land Title Surveys" ("Accuracy Standards") as adopted, from time to time by the National Society of Professional Surveyors and the American Land Title Association and incorporated herein by reference.



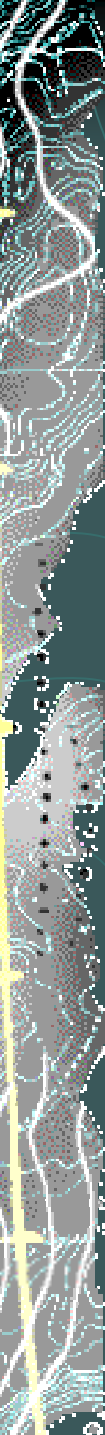
4. On the plat or map of an "**ALTA/ACSM LAND TITLE SURVEY**," the survey boundary shall be drawn to a convenient scale, with that scale clearly indicated. A graphic scale, shown in feet or meters or both, shall be included. A north arrow shall be shown and when practicable, the plat or map of survey shall be oriented so that north is at the top of the drawing. Symbols or abbreviations used shall be identified on the face of the plat or map by use of a legend or other means. If necessary for clarity, supplementary or exaggerated diagrams shall be presented accurately on the plat or map. The plat or map shall be a minimum size of 8½ by 11 inches.

The background of the slide is a topographic map with contour lines. The map is oriented vertically, with the top of the map at the top of the slide. The contour lines are light blue and represent elevation. The map shows a complex terrain with various peaks and valleys. The text is overlaid on the right side of the map.


5. The survey shall be performed on the ground and the plat or map of an **"ALTA/ACSM LAND TITLE SURVEY"** shall contain, in addition to the required items already specified above, the following applicable information:




(a) All data necessary to indicate the mathematical dimensions and relationships of the boundary represented, with angles given directly or by bearings, and with the length and radius of each curve, together with elements necessary to mathematically define each curve. The point of beginning of the surveyor's description shall be shown as well as the remote point of beginning if different. A bearing base shall refer to some well-fixed line, so that the bearings may be easily re-established. The North arrow shall be referenced to its bearing base and should that bearing base differ from record title, that difference shall be noted.

A vertical strip on the left side of the slide shows a topographic map with contour lines. A yellow line is drawn vertically across the map, representing a survey line. The line starts at a point marked with a yellow cross and ends at another point marked with a yellow cross. The map shows various contour lines and some text, including the number '115' near the top.

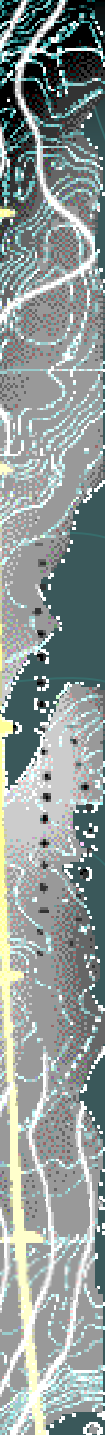
(b) When record bearings or angles or distances differ from measured bearings, angles or distances, both the record and measured bearings, angles, and distances shall be clearly indicated. If the record description fails to form a mathematically closed figure, the surveyor shall so indicate.



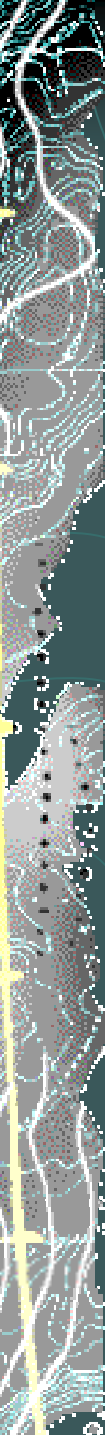
(c) Measured and record distances from corners of parcels surveyed to the nearest right-of-way lines of streets in urban or suburban areas, together with recovered lot corners and evidence of lot corners, shall be noted. For streets and highways abutting the property surveyed, the name, the width and location of pavement relative to the nearest boundary line of the surveyed tract, and the width of existing rights of way, where available from the controlling jurisdiction, shall be shown. Observable evidence of access (or lack thereof) to such abutting streets or highways shall be indicated. Observable evidence of private roads shall be so indicated. Streets abutting the premises, which have been described in Record Documents, but not physically opened, shall be shown and so noted.




(d) The identifying titles of all recorded plats, filed maps, right of way maps, or similar documents which the survey represents, wholly or in part, shall be shown with their appropriate recording data, filing dates and map numbers, and the lot, block, and section numbers or letters of the surveyed premises. For non-platted adjoining land, names, and recording data identifying adjoining owners as they appear of record shall be shown. For platted adjoining land, the recording data of the subdivision plat shall be shown. The survey shall indicate platted setback or building restriction lines which have been recorded in subdivision plats or which appear in Record Documents which have been delivered to the surveyor. Contiguity, gores, and overlaps along the exterior boundaries of the surveyed premises, where ascertainable from field evidence or Record Documents, or interior to those exterior boundaries, shall be clearly indicated or noted. Where only a part of a recorded lot or parcel is included in the survey, the balance of the lot or parcel shall be indicated.




(e) All evidence of monuments shall be shown and noted to indicate which were found and which were placed. All evidence of monuments found beyond the surveyed premises on which establishment of the corners of the surveyed premises are dependent, and their application related to the survey shall be indicated.




(f) The character of any and all evidence of possession shall be stated and the location of such evidence carefully given in relation to both the measured boundary lines and those established by the record. An absence of notation on the survey shall be presumptive of no observable evidence of possession.



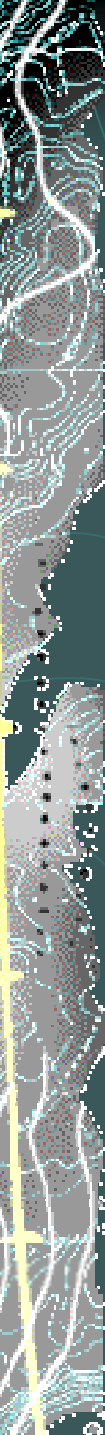
(g) The location of all buildings upon the plot or parcel shall be shown and their locations defined by measurements perpendicular to the nearest perimeter boundaries. The precision of these measurements shall be commensurate with the Relative Positional Accuracy of the survey as specified in the current Accuracy Standards for ALTA/ACSM Land Title Surveys. If there are no buildings erected on the property being surveyed, the plat or map shall bear the statement, "No buildings." Proper street numbers shall be shown where available.




(h) All easements evidenced by Record Documents which have been delivered to the surveyor shall be shown, both those burdening and those benefiting the property surveyed, indicating recording information. If such an easement cannot be located, a note to this effect shall be included. Observable evidence of easements and/or servitudes of all kinds, such as those created by roads; rights-of-way; water courses; drains; telephone, telegraph, or electric lines; water, sewer, oil or gas pipelines on or across the surveyed property and on adjoining properties if they appear to affect the surveyed property, shall be located and noted. If the surveyor has knowledge of any such easements and/or servitudes, not observable at the time the present survey is made, such lack of observable evidence shall be noted. Surface indications, if any, of underground easements and/or servitudes shall also be shown.



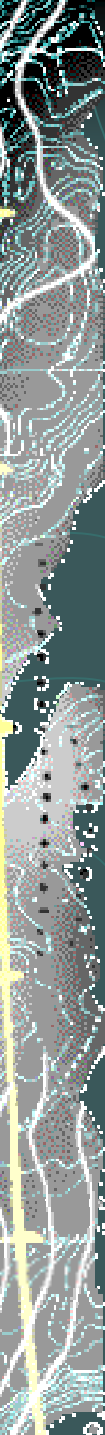
(i) The character and location of all walls, buildings, fences, and other visible improvements within five feet of each side of the boundary lines shall be noted. Without expressing a legal opinion, physical evidence of all encroaching structural appurtenances and projections, such as fire escapes, bay windows, windows and doors that open out, flue pipes, stoops, eaves, cornices, areaways, steps, trim, etc., by or on adjoining property or on abutting streets, on any easement or over setback lines shown by Record Documents shall be indicated with the extent of such encroachment or projection. If the client wishes to have additional information with regard to appurtenances such as whether or not such appurtenances are independent, division, or party walls and are plumb, the client will assume the responsibility of obtaining such permissions as are necessary for the surveyor to enter upon the properties to make such determinations.




(j) Driveways, alleys and other ways of access on or crossing the property must be shown. Where there is evidence of use by other than the occupants of the property, the surveyor must so indicate on the plat or map. Where driveways or alleys on adjoining properties encroach, in whole or in part, on the property being surveyed, the surveyor must so indicate on the plat or map with appropriate measurements.

A vertical strip on the left side of the slide shows a portion of a topographic map. It features brown contour lines representing elevation, a yellow line indicating a boundary or path, and several small yellow square markers placed at various points along the map.


(k) As accurately as the evidence permits, the location of cemeteries and burial grounds (i) disclosed in the Record Documents provided by client or (ii) observed in the process of performing the field work for the survey, shall be shown.



(I) Ponds, lakes, springs, or rivers bordering on or running through the premises being surveyed shall be shown.



6. As a minimum requirement, the surveyor shall furnish two sets of prints of the plat or map of survey to the title insurance company or the client. If the plat or map of survey consists of more than one sheet, the sheets shall be numbered, the total number of sheets indicated and match lines be shown on each sheet. The prints shall be on durable and dimensionally stable material of a quality standard acceptable to the title insurance company. The record title description of the surveyed tract, or the description provided by the client, and any new description prepared by the surveyor must appear on the face of the plat or map or otherwise accompany the survey. When, in the opinion of the surveyor, the results of the survey differ significantly from the record, or if a fundamental decision related to the boundary resolution is not clearly reflected on the plat or map, the surveyor may explain this information with notes on the face of the plat or map or in accompanying attachments. If the relative positional accuracy of the survey exceeds that allowable, the surveyor shall explain the site conditions that resulted in that outcome with a note on the face of the map or plat.



7. Water boundaries necessarily are subject to change due to erosion or accretion by tidal action or the flow of rivers and streams. A realignment of water bodies may also occur due to many reasons such as deliberate cutting and filling of bordering lands or by avulsion. Recorded surveys of natural water boundaries are not relied upon by title insurers for location of title.

When a property to be surveyed for title insurance purposes contains a natural water boundary, the surveyor shall measure the location of the boundary according to appropriate surveying methods and note on the plat or map the date of the measurement and the caveat that the boundary is subject to change due to natural causes and that it may or may not represent the actual location of the limit of title. When the surveyor is aware of changes in such boundaries, the extent of those changes shall be identified.



8. When the surveyor has met all of the minimum standard detail requirements for an ALTA/ACSM Land Title Survey, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

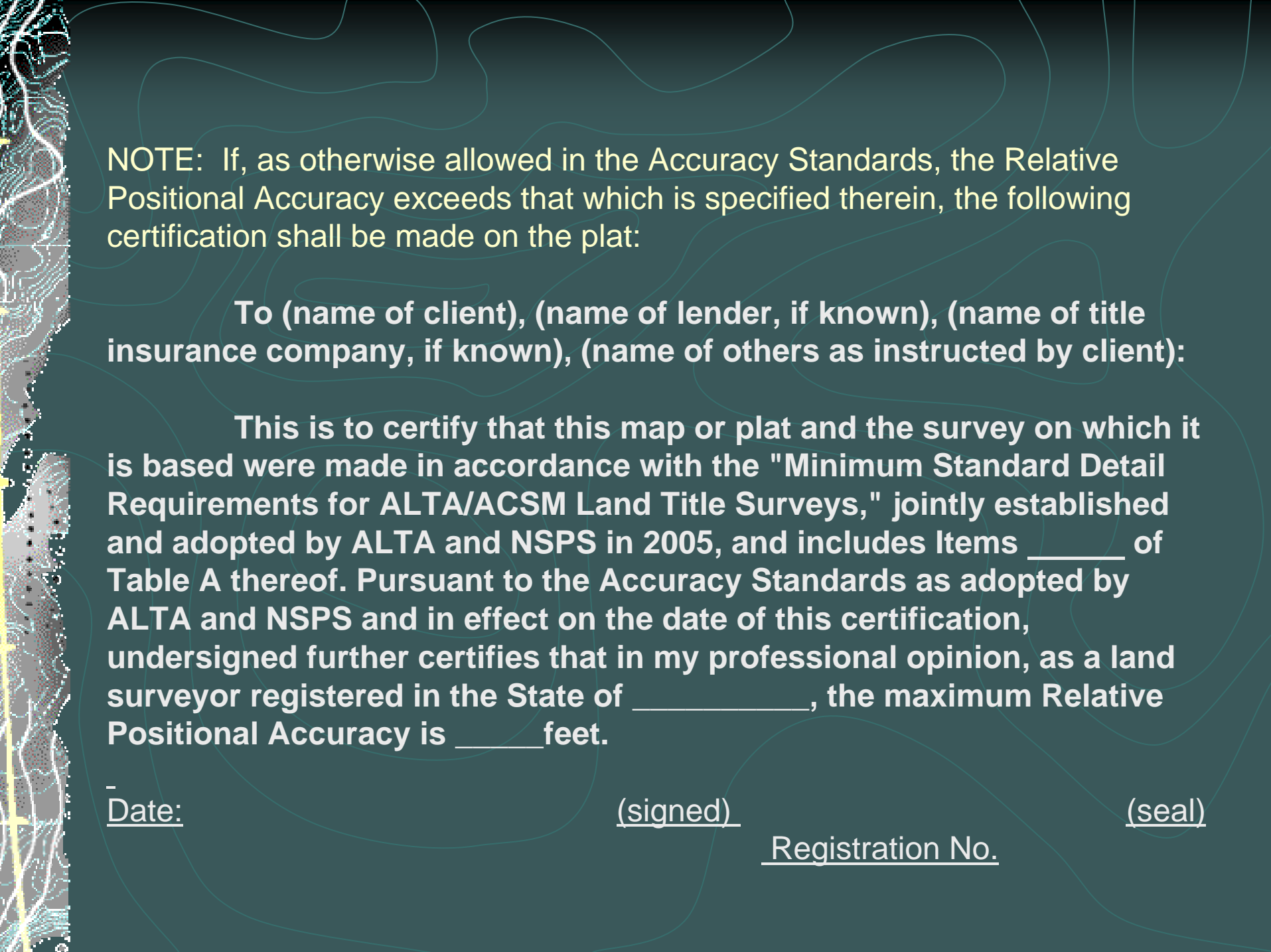
This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the Relative Positional Accuracy of this survey does not exceed that which is specified therein.

Date:

(signed)

(seal)

Registration No.



NOTE: If, as otherwise allowed in the Accuracy Standards, the Relative Positional Accuracy exceeds that which is specified therein, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

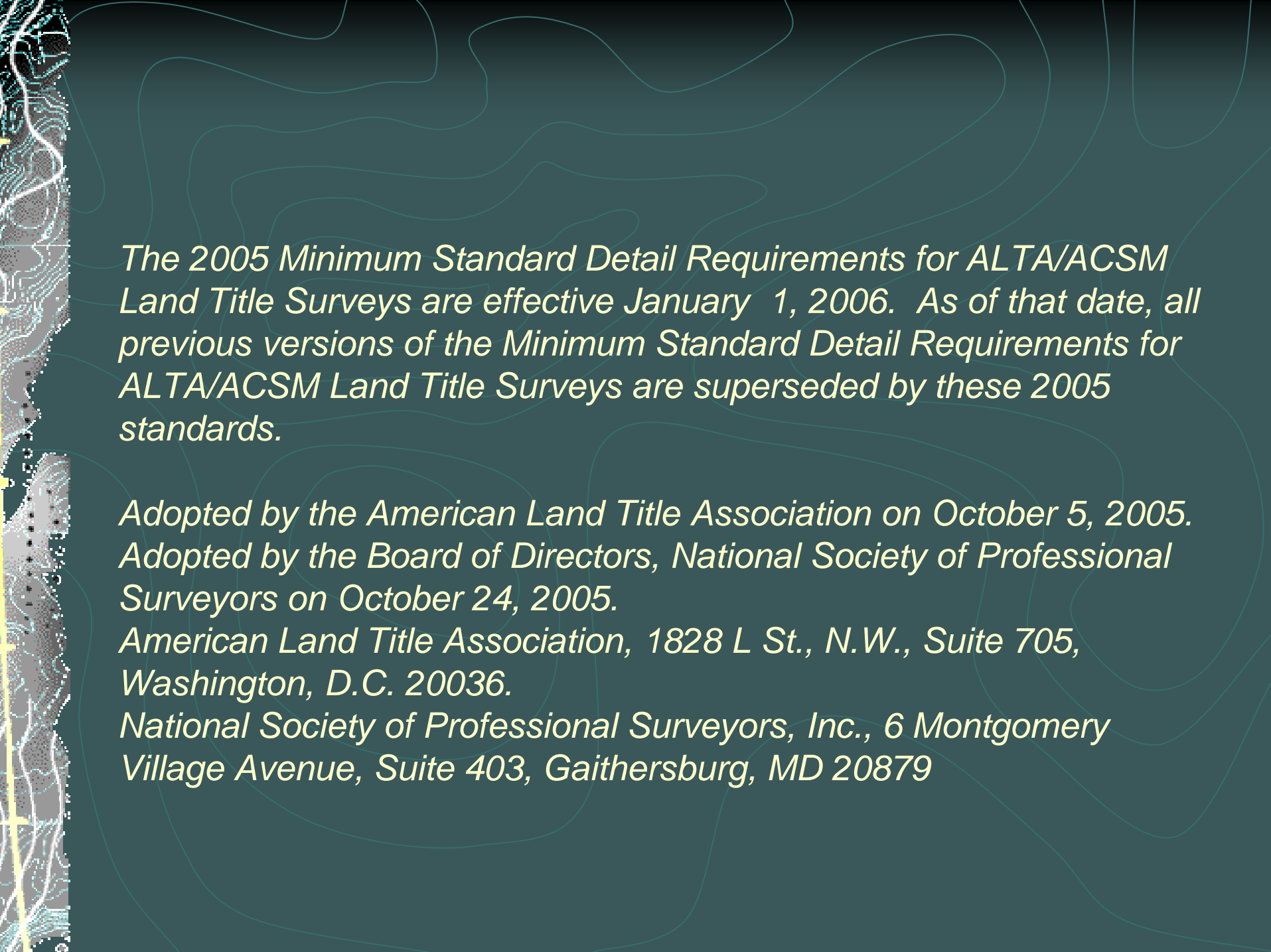
This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the maximum Relative Positional Accuracy is _____ feet.

Date:

(signed)

(seal)

Registration No.



The 2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are effective January 1, 2006. As of that date, all previous versions of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are superseded by these 2005 standards.

*Adopted by the American Land Title Association on October 5, 2005.
Adopted by the Board of Directors, National Society of Professional Surveyors on October 24, 2005.*

*American Land Title Association, 1828 L St., N.W., Suite 705,
Washington, D.C. 20036.*

*National Society of Professional Surveyors, Inc., 6 Montgomery
Village Avenue, Suite 403, Gaithersburg, MD 20879*

TABLE A

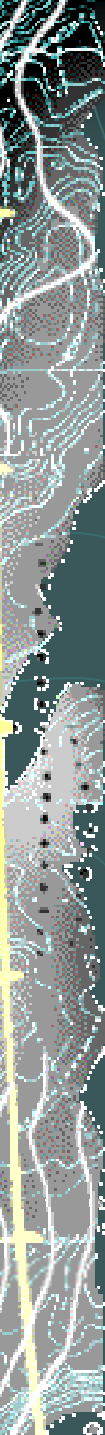
OPTIONAL SURVEY RESPONSIBILITIES AND SPECIFICATIONS

NOTE: The items of Table A must be negotiated between the surveyor and client. It may be necessary for the surveyor to qualify or expand upon the description of these items, e.g., in reference to Item 6, there may be a need for an interpretation of a restriction. The surveyor cannot make a certification on the basis of an interpretation or opinion of another party. Items 16, 17 and 18 are only for use on projects for the U.S. Department of Housing and Urban Development (HUD).



If checked, the following optional items are to be included in the ALTA/ACSM LAND TITLE SURVEY, except as otherwise negotiated:

- 1. _____ *Monuments placed (or a reference monument or witness to the corner) at all major corners of the boundary of the property, unless already marked or referenced by an existing monument or witness to the corner.*
- 2. _____ *Vicinity map showing the property surveyed in reference to nearby highway(s) or major street intersection(s).*
- 3. _____ *Flood zone designation (with proper annotation based on federal Flood Insurance Rate Maps or the state or local equivalent, by scaled map location and graphic plotting only.)*

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- A vertical strip on the left side of the slide shows a topographic map with contour lines and a yellow path. The map is partially cut off by the edge of the slide.
- 4. _____ *Gross land area (and other areas if specified by the client).*
 - 5. _____ *Contours and the datum of the elevations.*
 - 6. _____ *List setback, height, and floor space area restrictions disclosed by applicable zoning or building codes (beyond those required under paragraph 5d of these standards). If none, so state. The source of such information must be disclosed. See “Note” above.*



7. _____ (a) Exterior dimensions of all buildings at ground level

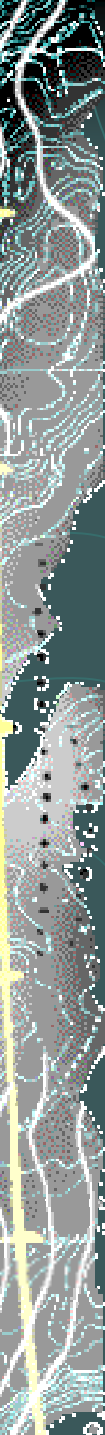
(b) Square footage of:

_____ (1) exterior footprint of all buildings at ground level

_____ (2) gross floor area of all buildings; or

_____ (3) other areas to be defined by the client

_____ (c) Measured height of all buildings above grade at a defined location. If no defined location is provided, the point of measurement shall be shown.

- 
- 8. _____ *Substantial, visible improvements (in addition to buildings) such as billboards, signs, parking structures, swimming pools, etc.*
 - 9. _____ *Parking areas and, if striped, the striping and the type (e.g. handicapped, motorcycle, regular, etc.) and number of parking spaces.*
 - 10. _____ *Indication of access to a public way on land such as curb cuts and driveways, and to and from waters adjoining the surveyed tract, such as boat slips, launches, piers and docks..*




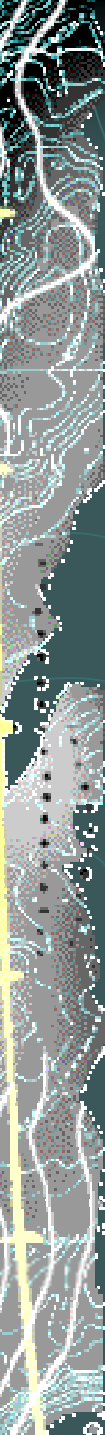
11. *Location of utilities (representative examples of which are shown below) existing on or serving the surveyed property as determined by:*

_____ (a) *Observed evidence*

_____ (b) *Observed evidence together with evidence from plans obtained from utility companies or provided by client, and markings by utility companies and other appropriate sources (with reference as to the source of information)*

- *railroad tracks and sidings;*
- *manholes, catch basins, valve vaults or other surface indications of subterranean uses;*
- *wires and cables (including their function, if readily identifiable) crossing the surveyed premises, all poles on or within ten feet of the surveyed premises, and the dimensions of all cross members or overhangs affecting the surveyed premises; and*
- *utility company installations on the surveyed premises.*

- 
- 12. _____ *Governmental Agency survey-related requirements as specified by the client.*
 - 13. _____ *Names of adjoining owners of platted lands.*
 - 14. _____ *The distance to the nearest intersecting street as designated by the client*
 - 15. _____ *Rectified orthophotography, photogrammetric mapping, laser scanning and other similar products, tools or technologies may be utilized as the basis for the location of certain features (excluding boundaries) where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary. The surveyor shall (a) discuss the ramifications of such methodologies (e.g. the potential accuracy and completeness of the data gathered thereby) with the title company, lender and client prior to the performance of the survey and, (b) place a note on the face of the survey explaining the source, date, relative accuracy and other relevant qualifications of any such data.*

- 
- 16. _____ *Observable evidence of earth moving work, building construction or building additions within recent months.*
 - 17. _____ *Any changes in street right of way lines either completed or proposed, and available from the controlling jurisdiction. Observable evidence of recent street or sidewalk construction or repairs.*
 - 18. _____ *Observable evidence of site use as a solid waste dump, sump or sanitary landfill.*

19. _____




Accuracy Standards for ALTA/ACSM Land Title Surveys

Introduction

These Accuracy Standards address Relative Positional Accuracies for measurements that control land boundaries on ALTA/ACSM Land Title Surveys.

In order to meet these standards, the surveyor must assure and certify that the Relative Positional Accuracies resulting from the measurements made on the survey do not exceed that which is allowable.

A vertical strip on the left side of the slide shows a topographic map with contour lines and a yellow survey line. The map is oriented vertically, with the yellow line running from top to bottom. The background of the slide is a dark teal color with faint, light blue contour lines.

If the size or configuration of the property to be surveyed, or the relief, vegetation or improvements on the property will result in survey measurements for which the allowable Relative Positional Accuracies will be exceeded, the surveyor must alternatively certify as to the Relative Positional Accuracy that was otherwise achieved on the survey.

A vertical strip on the left side of the slide shows a portion of a topographic map with contour lines and a yellow line indicating a path or boundary.

Definition:

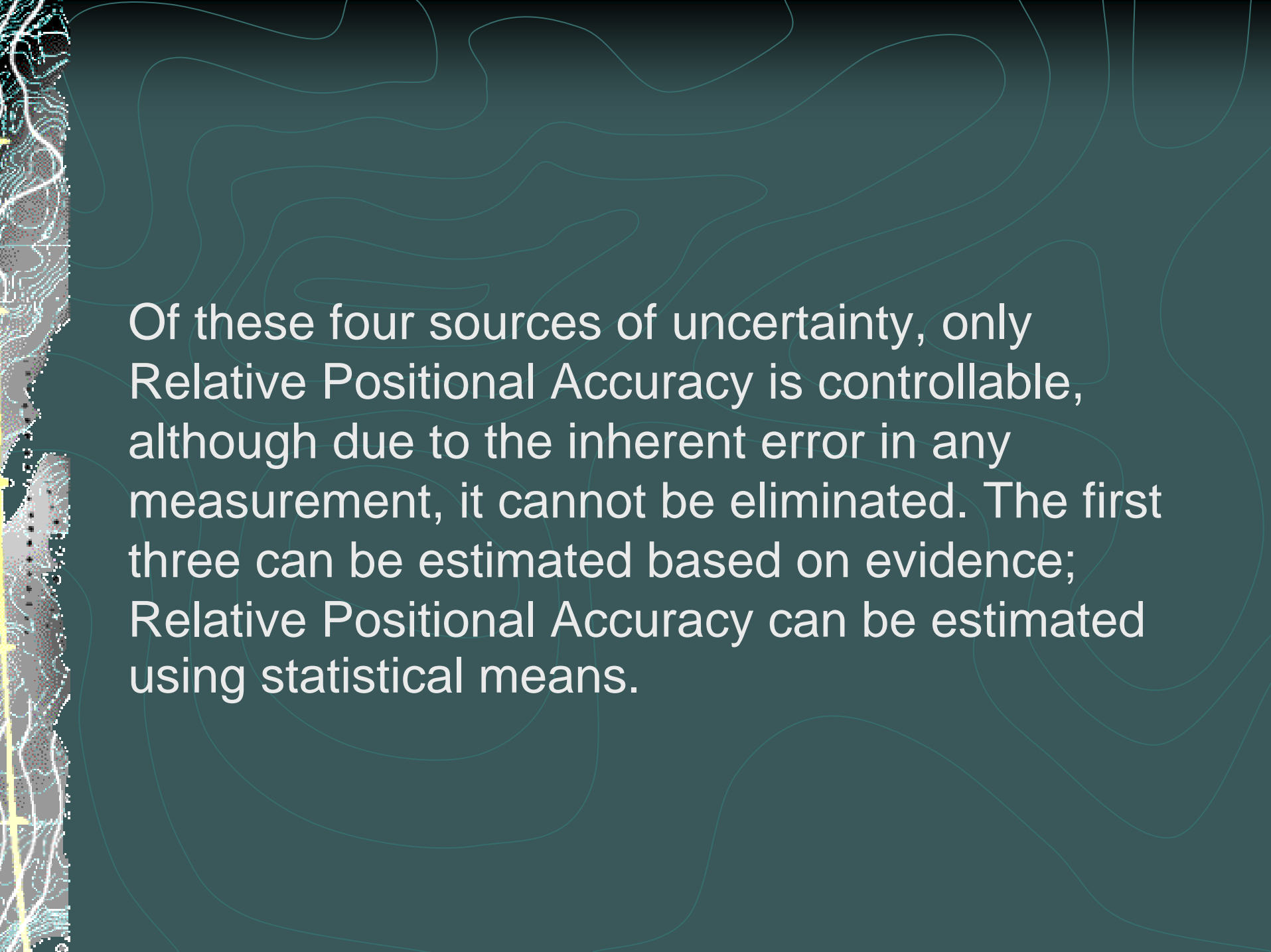
“Relative Positional Accuracy” means the value expressed in feet or meters that represents the uncertainty due to random errors in measurements in the location of any point on a survey relative to any other point on the same survey at the 95 percent confidence level.




Background

The lines and corners on any property survey have uncertainty in location which is the result of (1) availability and condition of reference monuments, (2) occupation or possession lines as they may differ from record lines, (3) clarity or ambiguity of the record descriptions or plats of the surveyed tracts and its adjoiners and (4) Relative Positional Accuracy.


The first three sources of uncertainty must be weighed as evidence in the determination of where, in the professional surveyor's opinion, the boundary lines and corners should be placed. Relative Positional Accuracy is related to how accurately the surveyor is able to monument or report those positions.



Of these four sources of uncertainty, only Relative Positional Accuracy is controllable, although due to the inherent error in any measurement, it cannot be eliminated. The first three can be estimated based on evidence; Relative Positional Accuracy can be estimated using statistical means.



The surveyor shall, to the extent necessary to achieve the standard contained herein, (1) compensate or correct for systematic errors, including those associated with instrument calibration, (2) select the appropriate equipment and methods, and use trained personnel and (3) use appropriate error propagation and other measurement design theory to select the proper instruments, field procedures, geometric layouts and computational procedures to control random errors.

A vertical strip on the left side of the slide shows a topographic map with contour lines and a yellow survey line. The map is oriented vertically, with the yellow line running from top to bottom. The background of the slide is a dark teal color with faint, light blue contour lines.

If radial survey methods, GPS or other acceptable technologies or procedures are used to locate or establish points on the survey, the surveyor shall apply appropriate procedures in order to assure that the allowable Relative Positional Accuracy of such points is not exceeded.



Computation of Relative Positional Accuracy

Relative Positional Accuracy may be tested by:

- (1) comparing the relative location of points in a survey as measured by an independent survey of higher accuracy or
- (2) the results of a minimally constrained, correctly weighted least square adjustment of the survey.

Allowable Relative Positional Accuracy for Measurements Controlling Land Boundaries on ALTA/ACSM Land Title Surveys

0.07 feet (or 20 mm) + 50 ppm



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